

2nd Proceedings
International Conference on
Sustainable Globalization
(ICSG 2019)
Kochi-India



10th-12th January, 2019

Editors

Robinet Jacob

Hedda Sander

Abey Kuruvilla



UNIVERSITY OF
WISCONSIN **PARKSIDE**

Ostfalia
University of
Applied Sciences



International Conference on Sustainable Globalization

January 10-12, 2019 Kochi, India

Editors

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School of Tourism Studies
Mahatma Gandhi University
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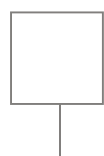
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USA

Main Contents

- Foreword
- Keynote Speech
- Committee Chairs
- Index



Foreword

After a successful Inaugural conference in January 2018 that brought in 86 submissions from 14 countries and an overwhelming vote to hold the conference again in Kerala, India, the ICSG board is delighted to welcome you to the 2nd International Conference on Sustainable Globalization. This conference is broader in scope and participation - faculty, administrators, entrepreneurs and students that are participating across various disciplines of academia and industry will attend. The discussion on sustainable globalization continues to have even greater immediacy and urgency this year.

Stakeholders from higher education, K-12, industry and Govt can work even closer together, learn from each other and collaborate to achieve common goals. We thank each of you again for believing in the idea of the conference and coming together from all over the world. And we are thrilled with the partnerships that this conference has already generated and will continue to generate.

While we worked so well as a team over a period of a year with great partners to support us, we also jointly acknowledge the individual contributions of the team members. Just like we desired last year, our team has expanded even more:

Abey Kuruvilla

General/Program Chair, Budget, Sponsorships, Speakers

Robinet Jacob

Conference/Organizing Chair, Operations, Logistics, Volunteers, Sessions

Hedda Sander

Review Chair, Editing, Research and Technical Sessions

Mriganko Ghosh

Website Creation and Development

Denny P John, Anita T. A. & Aju K Asok

Conference proceedings, program scheduling

Arun P

Technology and media

We are thrilled with this years lineup of speakers and participants and invite you to partner with us in advancing the objectives of this conference every year towards a more sustainable world.

Thank you and welcome to ICSG 2019

ICSG Executive Board

Robinet Jacob

India

Dr. Abey Kuruvilla

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Germany



Inaugural Keynote Address

International Conference on Sustainable Globalization - Connecting Academia,
Administration and Industry towards a Sustainable World

January 10-12, 2019



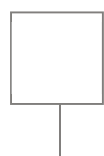
Leadership in Higher Education and its role towards Global Sustainability

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Overview of Keynote Address

I am both honored and humbled for being invited to provide a keynote address at this international conference on sustainable globalization. Especially since it is in Kerala, the State where I was born, and the home of my ancestors. Sustainability is the issue of our time, and one that I care about deeply. The theme of this conference is very timely, since at the current time narrow political expediency, and primeval religious beliefs have nations subscribing to isolationist policies. However, the undeniable fact is that we all share one global environment. Some so-called leaders even doubt the science of global warming. However, science is not a belief, science is based on theory and assessments that are evaluated and peer reviewed. If you have gone to a doctor, driven a car, or flown in a plane, you believe in the process of science, and we all share one global environment; our air, rivers, and oceans have no boundaries. We have an obligation to our children and grandchildren that we leave the world a better place.

I have been asked to dwell on the topic of leadership in higher education, and its role towards sustainable practices. This is also very timely. ABET – the accreditation board of engineering and technology, recently published an issue brief titled “Readying today’s higher ed. students to tackle the world’s grand challenges”. Its summary states that “advancing sustainable solutions to the world’s most pressing environmental challenges, will take more than technical skills. Students of higher education especially those in STEM (Science, Technology, Engineering and Mathematics) fields, need diverse and global perspectives to understand and address long-standing problems in new ways.”

I belong to a faculty group called “The Green Threads” that enhances the initiation and the spread of sustainability across the curriculum. This applies not only to engineering courses, but also to the arts, philosophy and business classes. This assures that students across all disciplines are exposed to the issues of sustainability, and are given opportunities to study, practice, research issues and exchange ideas related to sustainability. The objective is to spread the culture of creating a more sustainable world to our students. This is important, since educated citizens can lead by example, and persuade governments to take necessary actions. We wish that these citizens of our world don’t just travel to exotic places, or attend conferences and present papers, but also live according to their precepts and take actions. This is a difficult proposition, and I certainly don’t always “walk the talk”. However, my hope is derived from observing our enlightened youth; as someone observed “millennials really care”.

In this talk, I will cover the goals, objectives, and initiatives at the University of Louisville towards creating a sustainable world. The goal of the university is to become a living



learning laboratory where students can learn, experience, and validate approaches to a more sustainable world. The University of Louisville is the major urban metropolitan research university in the commonwealth of Kentucky, and is over 200 years old. Louisville is the largest city in Kentucky, and the University is inexorably tied to the city.

In 2010 I was selected to be a part of the Leadership Louisville Bingham Fellows program. The Bingham Fellows program annually brings together 35-40 experienced Louisville leaders to address one of the region's most critical issues. Our team addressed the issue of sustainability with the goal of positioning Louisville as a 'green' leader. Our team's efforts led to the Mayor creating a Sustainability Office and the development of the city's first comprehensive sustainability plan "The Sustain Louisville Plan". This is a "SMART" plan with goals that are specific, measurable, and actionable and time bound. The plan focus areas include, energy, environment, transportation, economy, community and engagement. It is updated annually, and the results of its implementation are reported on every year. My talk will include an overview of the plan's objectives.



Plenary Keynote Address

International Conference on Sustainable Globalization - Connecting Academia, Administration and Industry towards a Sustainable World

January 10-12, 2019

A New Framework for Professional Higher Education: Creating Synergie between Theory and Practice

The case of Baden-Wuerttemberg Cooperative State University

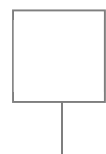


Professor Dr.-Ing. Stephan Schenkel

President DHBW Karlsruhe, Schenkel@DHBW-Karlsruhe.de

The Baden-Wuerttemberg Cooperative State University (DHBW) is the first practice integrating university in Germany. With currently around 34,000 enrolled students and more than 160,000 graduates, at its nine academies and three campuses, DHBW, in cooperation with around 9,000 selected companies and social institutions, offers 27 Bachelor degree programs with about 100 fields of study in the fields of economics, technology, social work and health. The Bachelor program is designed for three years. Also occupational two year integrating and extra-occupational Master courses belong to the offer of the DHBW. (DHBW 2018a)

The DHBW focuses on employability through enabling students to have job related experiences in half of their study time. The model foresees that half of the study is spent in theory phases at DHBW as well as half of the study time in so called “practice studies” in one of the dual partner organizations, from the public or private sector. For both learning environments there is a curriculum and practice studies are actually viewed and experienced



as studies rather than pure work experiences. The objectives and outcomes of the curriculum are focused on enhancing the student's competences for their respective practice fields.

Work placements provide an opportunity to gain an insight into the working world and establish contact with prospective employers. In many cases the topics of students' research projects or bachelor theses derive from real world problems that students have encountered in the practical study phases. The DHBW is currently working with more than 9000 dual partner organizations which are hosting the students during their practice study phases. In order to ensure the quality of the dual study even in the practical phases, companies and social institutions wishing to cooperate with the DHBW in qualifying their students have certain eligibility requirements. These include, for example, requirements with regard to the personal and factual equipment of a business or the support that they have to provide to their students (DHBW 2018b).

The Cooperation with DHBW offers partner organizations several advantages. These include the selection of students, corporate socialization of the young generation of skilled employees, active cooperation of companies and social institutions, excellent performance of cooperative students or even a short period of vocational adjustment. (DHBW 2018b)

The partner organizations by law are members of the university and constitute one of the universities status groups, equally represented like the students and the professors within the universities' governance schemes. As a member of the DHBW, the partner organizations can participate directly in the strategic development of the university through the committees (DHBW 2018b). Within the governance scheme of the DHBW there is a specific role which is dedicated to maintaining the partnerships with the dual partner organizations, which is the head of study programs. This is a professor with a specific time budget allocated entirely to the partnership building and maintenance between the university and the dual Partner organization.

The development of curricula at the DHBW for study programs is accomplished by expert groups which are equally composed by professors from the university and representatives of the dual partner organizations of the Baden-Wuerttemberg Cooperative State University. The curricula and study programs are then presented and discussed within the universities' faculty committees, which in turn are also composed equally of representatives of the world of work. Afterwards they are presented for decision within the universities central committees for final decision. The DHBW senate is holding a majority of professors while the university council is holding a majority of elected dual partner organization representatives.



At the DHBW learning outcomes, formulated as competence descriptions are always composed of action competences, personal skills and competences and social competences within the universities academic program frameworks. They are the result of discussions and real life interactions between the world of work which is contributing their experiences and expectations and the university's academic representatives. Through the change of learning environment students are also faced with different challenges they have to cope with which go far beyond the usual study experience but present an environment in which they have to cope with challenges from the world of work.

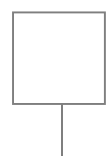
The dual model is focusing on practice integrated studies which differentiates the model from practice enriched studies of other higher education institutions. Students are at the same time employers and students, change their study environment every three month and have a clear curriculum for the theory phases of study as well as a framework curriculum for the practice phases of study which are – by law – seen as practice integrated study phases rather than work phases.

DHBW students benefit from a number of aspects: This includes small classes and thus a more personal care by the academic teaching staff. Other positive aspects are the financial independence, exchange with both academic teaching staff and industry experts as well as excellent prospects on the labor market. (DHBW 2018c)

According to the state laws for higher education of Baden-Wuerttemberg, the University Council of the DHBW is the highest decision making body. It is composed of representatives of the world of work. In addition, the faculty boards of the 4 faculties are equally composed of representatives of the world of work and of academic representatives. In the Universities Senate the Professors have the majority. Institutional strategies are crafted and decided upon in those committees.

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- The dual Partners are by law represented in the university's committees
- The dual Partners are obliged to accept a framework curriculum for the study phases in practices.
- The law states that the practice phase is not a practice training but a practice oriented study phase.



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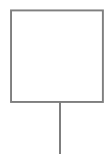
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Contents

A New Framework for Professional Higher Education: Creating Synergie between Theory and Practice - The case of Baden-Wuerttemberg Cooperative State University	
Ulf-Daniel Ehlers, Stephan Schenkel, Johannes Tratzmiller	1
Mobility Mining Techniques to Forecast Personalized Tourism Schedule	
Sajimon Abraham, Dais George.....	15
To Study the Impact of Cyber Security on Cloud Computing	
Grusha Ahluwalia, Harjagjit Singh Dhanjal.....	25
Determining Risk of Internal Software Failure in Critical Real-Time Systems	
Phillip LaBar, Susan J Lincke.....	31
Money Laundering: A Risk Analysis	
Bharath Kumar Mallapragada, Susan J Lincke	41
Artwork Born from the Borderlands	
Lisa Marie Barber.....	51
Research and Technology Transfer in the Field of "Intelligent Systems for Mobility" at Ostfalia University in Lower Saxony / Germany	
Gert Bikker	57
To Study the Impact of Sustainable Careers in A Globalized World	
Harjagjit Singh Dhanjal.....	62
Assessment of Student Learning In Competency-Based Online MBA Courses	
Michele Gee, Suresh Chalasani and Parag Dhumal	76
Is Sex Impeding Female Middle-Managers from Being Mentored?	
Meena Jose	83
Hospitality Management Education in India	
R. Kannan	93
Low Income Housing a Two-Tale Story in Harare City, Zimbabwe	
Pepukai Perpetua Maruve, Trynos Gumbo, Aurobindo Ogra.....	99
To Study the Importance of the Competency Behavioral Interview as Talent Management Strategy in the Organizations	
Simran Kaur Pawar, Harjagjit Singh Dhanjal.....	118



Challenges in Implementing Research Based Learning in Higher Education in India: Teacher's Perspective

Pallavi Sood, Rajit Verma, Prairna Gupta128

Learning 4.0: Challenges Ahead

T. V. Thulasidharan, Sajna Jaleel, Rincymol Mathew138

Sustainability at American Universities

Talbott Torhorst.....145

Numerical investigations on chill down along packed spherical bed regenerator for sustainable utilization of energy

Abhiroop V M, Vivek R, Reby Roy K. E.....149

Fertilizer application and microbial diversity of soil-Comparison of microbial health of organic farm and conventional farm

Anto Joseph, Aju K. Asok, Jisha M.S.158

The Impact of "Going Green" for Small Businesses

Enrique P Azuaje-Muller267

Urban Sustainability and Airport Development: A Case Study of the Ekurhuleni Aerotropolis

Ethel Baloyi, Trynos Gumbo, Aurobindo Ogra172

Treatment of wastewater contaminated with organic dyes from textile and mining industries

Bischof, R., Rosa, A.L., Carissimi, E., Li, G., Skalbeck, J., Sander, H.191

Impact of Festival Celebrations on Sustainable Development of Coimbatore City

Kayalvizhi T., Nimi Markose, Bindu. V.T.202

Sustainable Food Packaging Trends 2018

Talbott Torhorst, Na Chai, Derek Rawls, Jeremy Wade, Abey Kuruvilla, Michael T. Manion216

Maintaining Kerala's Tourism Destinations with Minimal Disaster Risk: A Geographical Approach (Working Paper)

Denny P. John, Mahadevan P., Robinet Jacob.....223

Developing Barrier Free Destinations – a case study of Thrissur, Kerala

Mahadevan P., Robinet Jacob, Anita T. A.240

Perception of Tourists towards Eco-Hotels and Its Relation to Promotion of Sustainable Tourism in Kerala State

T.P. Mathew, R. Kannan251

Sustainable Marketing Practices for Successful Tourism in World Heritage Sites	
P. Nishanthi, V. Ramachandran	263
Tourism-led Local Economic Development: Challenges and Opportunities of Flea Market Arts and Crafts Traders in Johannesburg	
Aurobindo Ogra, Trynos Gumbo	271
Digital Marketing and New Product Development of Tourism	
R. Panneerselvam, A. Apsara	282
A Study on the Services of Hotel Industry and Sustainable Tourism in Madurai	
C.M. Prakash	291
A study on the Conceptualization and Applicability of Human Rights in Tourism sector	
Preji M. P.	302
Future of E-Tourism	
P. Premkanna	320
Sustainable Tourism in Cochin-A Study on Visitors Perception and Experience	
Priyanka Babu, Bindu V. T.	327
Exploring Data Analytics for Promoting Thiruvananthapuram as a Wellness Tourism Destination	
Sankar S., R. Kannan	346
Tourism and Economic Empowerment - An Empirical Study on Indigenous Tribes	
A. Saravanan, J. Jayamani	353
Case Study of Technology Integration towards Blended Learning in a Non-Traditional High School in Illinois, United States	
Michael Swanson, Sebastian Kapala	367
Sustainable Retrofitting of Urban Transitions through Socio-Technical Regimes: An Assessment of Moradabad City	
Krati Agarwal, Mohit Kumar Agarwal and Aurobindo Ogra	376
Sustainable Globalization and Climate Change - A Review of the Impact on Sustainable Tourism in Developing Countries	
Sanoop Kumar P. V. Suresh P. D.	389
Concerns for Environment in Sri Guru Granth Sahib Ji	
Jagjit Singh	413

Comprehending Racial and Ethnic Inequities as Factors Which Impact Generational Wealth and Social Capital in Wisconsin	
Belinda Jo Sain Cronin.....	419
The Rockers of Post-Modern Period: Tracing the Subcultural Features of Contemporary Café Racers	
Aiwa Romy, Toney K. Thomas, Paolo Mura	427
Creating Virtuous Cycles in Sustainable Tourism System	
Jonathon Day	428
Tourism and the “Dry Law” in Kerala - Exploring the nexus between tourism and alcohol	
Toney K. Thomas, Paolo Mura, Aiwa Romy	429
Conservation Volunteer Travel - A Phenomenological Exploration	
Arun Das O. P., Sibi P. S.	430
Role of Consumers in Environmental Sustainability in context of sustainable development goals	
Sindhu P Nair	431
Individual social responsibility among business graduates - An empirical enquiry	
Saji George, Harish B	432
Case Study: Approach to a Green Brand Strategy	
Mriganka Ghosh.....	433
Disaster management as logistics and as discourse	
Roby Rajan	433
Water resource management, preserving heritage and ancient wisdom	
Madhav Deo Saraswat, Vishesh Sahai	433
Can Wind and Solar Satisfy the Energy Needs of the Future Global Society?	
John D Skalbeck	435
Promoting STEM Education in a rural setting - Experiences and challenges from schools across Kerala	
P. Asokakumar, Rajalekshmi K.....	436
Use of the Roman script (with diacritics) in teaching Indian languages	
Dileep Karanth	436
Bucking the Trend- International Enrollment at UW Parkside- New Models	
Abey Kuruvilla, Tammy McGuckin, Troy M	437



A New Framework for Professional Higher Education: Creating Synergie between Theory and Practice the case of Baden-Wuerttemberg Cooperative State University

Ulf-Daniel Ehlers, Stephan Schenkel, Johannes Tratzmiller

Abstract

The Baden-Wuerttemberg Cooperative State University (DHBW) is the first practice integrating university in Germany. With currently around 34,000 enrolled students and more than 160,000 graduates, at its nine academies and three campuses, DHBW, in cooperation with around 9,000 selected companies and social institutions, offers 27 Bachelor degree programs with about 100 fields of study in the fields of economics, technology, social work and health. The Bachelor program is designed for three years. Also occupational two year integrating and extra-occupational Master courses belong to the offer of the DHBW.

Keywords: Professional Higher Education, Baden-Wuerttemberg Cooperative State University, vocational training

1. Introduction

Dual study programmes come from the Central European tradition of practiceoriented vocational training, transferring this principle of workplace-based learning to university studies. Although such a model is gaining popularity in other countries, only few countries have systemic structures in place for dual study programmes or have extensive experiences with institutional or programme frameworks for dual studies. The terminology for dual studies varies accros the different coummunities and national and local contexts (Hutcheson 1999). Sometimes called cooperative higher eductaion, sometimes called dual studies, in Europe the term “professional higher eductiaon” (in short PHE) to describe the generic concept of bringing the world of work and higher eductaion closer together is more and more common (Ehlers et al. 2014a, Ehlers et al. 2014b, Furlon 2005).

The reasons for the attractiveness of the model is that employability is rising and thus the value of such higher eductaion programs, both for individual graduates as well as for labour market organisations is high (Berlin Communique 2003). In addition, since more and more organisations and countries make experiences with this model, a rising integration of dual study programs, also in traditional higher education institutions can be noted. For the field of PhD studies, more and more, the concept of a professional doctorate is in discussion – where the doctoral candidate is working in a practice context while carrying out research

relevant to practice. In the second chapter we describe the model of the Baden-Wuerttemberg Cooperative State University.

More and more, the demand for sharing experiences of the professional higher education model in its various forms and shapes is rising, also and specifically across borders. Together with the European Association of Institutions in Higher Education (EURASHE) we have put together a consortium of 11 dedicated European actors in the field of PHE in Europe, with the intention of strengthening the sector, so as to improve its role as a specific player in interlinking education, labour market, research and innovation. The so called HAPHE consortium (Harmonizing Approaches for Professional Higher Education in Europe) has been working from 2012 to 2015 on bringing together a group of field experts, who, through a wide consultation with stakeholders from education, business and society, are focusing on Harmonising Approaches to Professional Higher Education in Europe (predominantly at European Qualification Framework (EQF) level 6 and above). The outcome is a solid and thoroughly validated framework for professional higher education, consisting of few dimensions and criteria to describe how programs and higher education institutions can raise their integration with the world of work. We describe the framework in chapter 3.

Chapter 2 gives an overview of how the DHBW works. In chapter 3 a European framework for professional higher education is described, and in addition a maturity matrix which is based on the framework. The matrix can be used by organizations for self-assessment and analysis of their current status with regards to their degree of maturity in terms of their organizational development towards a PHE institution. In chapter 4 we describe an approach for internationalization of the PHE model with partners from two African countries.

2. Good Practice: Baden-Wuerttemberg Cooperative State University

The Baden-Wuerttemberg Cooperative State University (DHBW) is the first practice integrating university in Germany. With currently around 34,000 enrolled students and more than 160,000 graduates, at its nine academies and three campuses, DHBW, in cooperation with around 9,000 selected companies and social institutions, offers 27 Bachelor degree programs with about 100 fields of study in the fields of economics, technology, social work and health. The Bachelor program is designed for three years. Also occupational two year integrating and extra-occupational Master courses belong to the offer of the DHBW. (DHBW 2018a)

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3. Towards a framework for professional higher education

In the recent period, higher education systems have witnessed blurring the borders among formerly set types of HEIs (Hachmeister 2013). Despite the diversity of approaches at every level of higher education, the issue of quality remains central if all the different types of higher education are to remain different but equal to the various stakeholders. The following definition and special key-characteristics should serve as guidelines to a better understanding of professional higher education as a sector of higher education, respecting its mission and integration within higher education systems, and promoting its development and evaluation irrespective of the institutional background and provisions.

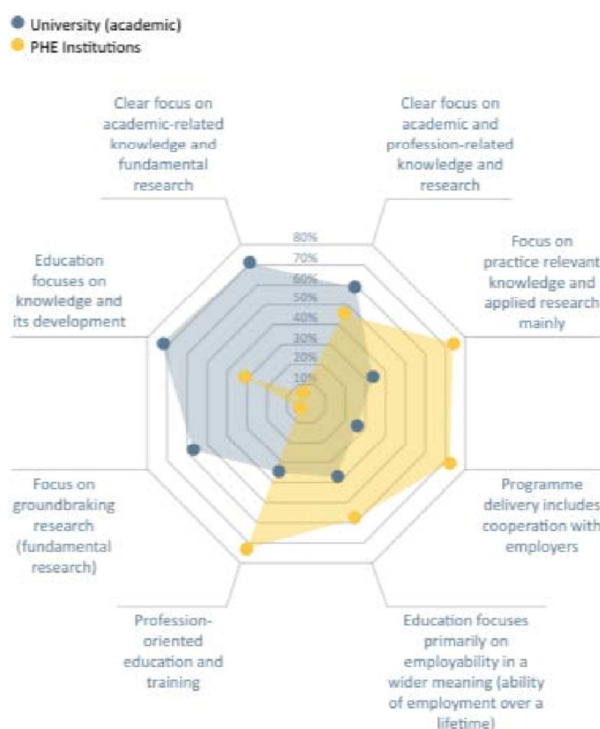


Fig. 1: Perception of stakeholders on different forms of higher education (Eurashe 2014)

The dimensions, characteristics and criteria have been developed through various stakeholder consultations across Europe. Figure 1 show the difference in perception of the different higher education stakeholders on academic and professional higher education. As definition of Dual Studies and Professional Higher Education (PHE) the HAPHE Framework suggests the following aspects: Dual studies are a form of Professional Higher Education that offer a particularly intense integration with the world of work in all its aspects, including teaching, learning, research and governance and at all levels of the overarching Qualifications Framework of the European Higher Education Area. (adapted from the HAPHE PHE Framework 2014, see also Eatkins 2000) Its function is:

- to diversify learning opportunities,
- enhance the employability of graduates,
- offer qualifications and
- stimulate innovation,
- for the benefit of learners and society. (see also cantor 1995)

The world of work includes all enterprises, civil society organizations, and the public sector (Bartkus 2007). The intensity of integration with the world of work is manifested by a strong focus on the application of learning achievements. This approach involves combining phases of work and study, a concern for employability, cooperation with employers, the use of practice-relevant knowledge and use-inspired research.

The framework supplements the definition by clarifying how the professional nature of Higher education expresses itself through various characteristics of Higher Education. The characteristics do not attempt to describe a professional Higher Education Institution, but rather are applicable to units of education, most typically courses or programmes within Higher education. The framework is made up of three variables:

- **Characteristic:** this is simply the name of the indicator
- **Description:** this merely describes what is meant by the indicator
- **Core Criterion:** This sets out the minimum requirement the educational experience must adhere to, so as to be considered professional higher education.

Table 1: Framework for professional higher education (Eurashe 2014)

Characteristic	Description	Core Criterion
Policy and Strategy How is PHE embedded and represented in the overall policies and strategic framework of higher education institutions?		
Policy and Strategy Integration	Integration work into policies and strategic of the world of framework	Institutional policies and strategies are defined in collaboration with the world of work.
Objectives and Outcomes	Main objectives in relation to the outcome of PHE	PHE specifically focuses on enhancing job related skills and competencies with a view to raising the employability of students. The emphasis is on learning outcomes and use inspired research.
Regional Integration	Engagement with its regions and contribution to their development	PHE is strongly embedded in regional partnerships with the world of work.
Characteristics	Description	Core Criteria
Teaching and Learning How is teaching and learning influenced through the specific characteristics of PHE?		
Methods of Curriculum Development	The process of design and development of: <ul style="list-style-type: none"> - learning outcomes - curricula - methods of learning and assessment 	Curricula are developed by academia in collaboration with stakeholders, in particular from the world of work, taking into account the future needs of the practice and context of employment.

Learning Outcomes	What a learner is expected to know, understand and be able to do as the result of a process of learning	<p>The learning outcomes reflect essential knowledge, skills and attitudes related to the specific professional requirements, but should not be limited to this.</p> <p>In addition, students acquire professional and life skills which enable them to act successfully, in an innovative and self-organised way in a changing work environment.</p> <p>The involvement of students in research, development and innovation activities leads them to better professional practice.</p>
Content for Teaching and Learning	<p>The content comprises: - syllabus and other materials - practice examples</p> <p>- working methods</p>	<p>The learning content is productively integrating theory and practice as the basis for complex problemsolving in real work situations.</p> <p>The content is informed by the latest research, trends and references from both the world of work and academia.</p>
Learning Methodology	<p>The learning methodology comprises:</p> <ul style="list-style-type: none"> - the learning design - the assessments needed to achieve the learning outcomes 	<p>The active, learning collaborative methodology and self-comprises organised learning methods and of while focusing on experience based learning methods including but not limited to simulation based(SBL), scenario based learning (SceBL), problem learning based learning (PBL), or any other authentic learning situations.</p>
		Both formative and summative assessments should reflect the nature and methodology of the specific PHE learning environment.
Learning Environment	The surroundings and conditions in which learning takes place	The learning environment includes experience within Institutions as well as outside, in the world of work. Significant practice phases and/or job experiences serve to reflect theory in a practical context.
Programme Team	All persons involved in the design, delivery and assessment including visiting of lecturers, learning, professionals and support staff	At the programme level, the team shows a combination of academic background and relevant experience from the world of work.
Characteristics	Description	Core Criteria
Research, Development level?	Research and Innovation	<p>(RDI)</p> <p>How are RDI integrated as part of a sustainable PHE, recognising that they might differ from level to</p>
RDI Agenda	The scope of the RDI activity	The RDI agenda is informed by the world of work in order to meet the needs of society and of the world of work.

RDI Process	The way RDI meets the needs of society and the world of work	<p>Researchers seek and provide input from and to the world of work and value stakeholders' requests and contributions.</p> <p>The RDI process respects the nature of the inputs and can include various types of research activities and scholarship.</p>
RDI Outputs and Outcomes	The expected result of RDI	RDI outcomes aim to be relevant to the world of work, and society. In addition to traditional outputs, such as licenses, patents and publications, RDI outcomes are solutionoriented with tangible benefits for the world of work and society.

From the basic framework we have developed a new implementation concept in form of a maturity matrix. The following matrix is presented as a “maturity model”. It shows that dual studies can be introduced in a variety of ways with different depth of integration for each dimension.

Table 2: Implementation matrix for dual study programs

	EARLY STAGES AWARENESS	DEVELOPING COMMITMENT	ESTABLISHED	EMBEDDED ADVANCED
Policy and Strategy (Governance)				
Integration of Governance into world of work	There is only little representation of world of work stakeholders in governance of academic institution	Integration of representatives to consult and inform the decision making process.	Some participation of world of work representatives into the governance structure	World of work stakeholders are fully and equally integrated as stakeholders into the academic governance and decision making through solid regulations

	EARLY STAGES AWARENESS	DEVELOPING COMMITMENT	ESTABLISHED	EMBEDDED ADVANCED
Level at which this is executed	Some sporadic consultations	Integration of world of work through Advisory boards	Integration of world of work through advisory bodies and integration into curriculum and program development	Institutional and legal integration of world of work into the academic governance
Teaching & Learning				
Methods of curriculum development	Curriculum development takes place from academic perspective	Curriculum has been developed through taking into account results of surveys, reports and observations but lack 'interactivity' with external stakeholders	Curriculum has been developed through taking into account results of surveys, reports and observations, and consultation with practice stakeholders has been carried out.	Curriculum development takes place in full collaboration under equal participation between academia and practice representatives
The Learning Outcomes	Learning outcomes are assessed and described from an academic perspective	Some learning outcomes are relating to the needs of the world of work	Learning outcomes have been defined taking into account results of surveys, reports and consultation with the world of work	Learning outcomes are developed and described taking fully into account the needs of the world of work, integrating it with academic perspectives through collaboration and mutual exchange.
The Learning methodology used for learning and study	The learning design is not covering the integration of the two study locations theory and practice	The world of work is represented in the learning design through simulations.	The world of work is strictly represented in the learning design through the creation of authentic learning environments, e.g. through simulation-based learning, case studies, scenario based learning	Learning design is fully relating both learning environments, theory and practice study location are integrated through learning methodology. (e.g. reflection of theory in practice exercises)
The learning environment	Learning takes place in academic environments only, no workplace learning	Learning take place in academic contexts and includes some practical experiences through internships	Extended practice phases are integrated into the academic learning context	Full integration through alternating academic and practice study phases
Academic and teaching staff	There is no integration of staff from the world of work into the faculty	Some parts of the faculty have experiences from the world of work.	All staff have significant experiences from the world of work	There is a full integration of staff and experts from world of work into teaching and learning. Academic full time faculty has significant experience from world of work. External partner organizations make a significant contribution to the

				teaching and learning through providing their experts for teaching.
Research				
The research agenda building	No integration of partners from the world of work into research agenda building	Agenda is built taking into account results of studies, observations and reports from world of work	Agenda is built in full cooperation with world of work.	Full integration of world of work through into the research design and agenda development through equal representation of stakeholders from academia and world of work.
Involvement of stakeholders in research process	External stakeholders are engaged appropriately but not used to their full potential.	Research tasks and information and outcome are shared with external stakeholder.	Research staff seek input and value stakeholder's requests and contributions. Research staff and external stakeholders work as a team to respond to market's needs.	A dynamic relationship is seamlessly choreographed to fully impact on
(optional further dimension) Research as Foundation for Academic Programme	Research is no prerequisite for teaching programs	Some research is integrated into teaching and learning design	Research is a significant basis for the teaching and learning design	Full integration of research as basis for academic program development and teaching and learning design
Quality				
Internal Quality Assurance	Integration of practice aspects of the learning and teaching into internal quality assurance	Integration of academic studies practice and practice studies into the internal quality assurance.	Integration of theory study phases and extended practice phases into internal quality assurance	Full integration of internal quality assurance into the practice phases, their curriculum and outcomes of the academic programs, as well as full integration of practice partners.
External Quality Assurance	Integration of practice aspects of the learning and teaching into external quality assurance	Integration of academic studies practice and practice studies into the external quality assurance.	Integration of theory study phases and extended practice phases into external quality assurance	Full integration of external quality assurance into the practice phases, their curriculum and outcomes of the academic programs, as well as full integration of practice partners.

4. Internationalization of professional higher education – the case of the LATFURE Project

Professional higher education is in demand on a global scale. The DHBW is involved in several actions and programs in which the universities' model is internationalized and exported to other regions. One of such projects is a cooperation between EU and Africa, funded by the European Commission. In this programme, called LATFURE, projects with two African countries have been piloted: Mozambique and South Africa.

Participation in higher education has rapidly expanded in both Mozambique and South Africa, putting pressure on public finances. This has led to socio-political challenges, exemplified recently in South Africa by the so-called "Fees Must Fall" student riots. The challenge now is how best to finance higher education in an effective, efficient and equitable manner. By connecting education and industry, students will have the possibility to work and study concurrently, allowing them to (partially) fund their education. The introduction of dual studies would thus provide a sustainable form of university funding in an era of declining state budgets, whilst tackling inequalities in terms of access (Wessels 2018).

Moreover, higher education programmes need to be better aligned to the requirements of the labour market. In Mozambique, for instance, 59.1% of surveyed employers claim not to be regularly involved in activities of curriculum design and education reform. Likewise, in South Africa there is an often repeated refrain by employers that the products of the education and training system are not ready for the workplace.

As already indicated above, in Europe, dual studies have emerged as a successful response to these demands by combining academic learning at Higher education institutions with professional/ practical learning that takes place in a working environment (Gemeinsame Wissenschaftskonferenz 2013). It provides a model that strengthens the practical orientation of higher education, boosts cooperation between Higher education institutions and their wider environment, produces human capital and skills for the economy and society, fosters research cooperation, enhances the knowledge triangle and generates third-party funds for HEIs. The project "Learning and Teaching Tools Fuelling University Relations with the Economy in Mozambique and South Africa" (LATFURE) intends to stimulate the development of professional higher education structures in the two African countries by setting up dual study programs in targeted discipline areas. It is important to note that the choice of industries for the dual study programs has been determined by a thorough analysis of both countries' policies, development strategies and an extensive consultation process with partner governments, Higher education institutions and other stakeholders. Two sectors have been derived.

Firstly, extractive industries are a priority for both countries, where minerals, oil and gas are vital to economic growth and key to jobs and development; e.g. in South Africa, more than half a million people are directly employed in mining. Yet the sector underperforms against potential. Moreover, falling commodity prices put pressure on the sector to improve productivity and innovation. There is thus an imperative to ensure the sector's sustainability and responsible development, and to re-invest in skills development.

Secondly, high-level services, especially tourism, present significant opportunities for both countries' economic development in the future; e.g. in Mozambique, travel and tourism is forecast to provide a 7% total contribution to GDP in 2025 and account for 5.9% of all jobs.

Moreover, we anticipate that dual studies will not be confined to these disciplines. Rather, the programs intend to start a "snowball" effect, acting as learning models for structural change; i.e. the adoption of dual studies as an integral part of the higher education system. It is also important that the programs operate at the university level, as employers demand higher-level skills and competences; e.g. the tourism sector demands international marketing, financial management, quality assurance, entrepreneurship, communications and strategy. Likewise, to sustainably and responsibly reap the benefits of natural resources, expertise in new methods of mining and exploration, policy, health and safety, sustainability, and the impact on communities is needed.

Moreover, addressing the countries' major structural 'bottle necks' is indispensable for sustainable economic growth. There are thus a number of crosscutting themes; e.g. infrastructure, energy, human resources, migration, digitalisation, the ocean economy, vulnerability and risk management, and an adequate finance system for local businesses. Any intervention must be aligned with regional, national and local development strategies. Indeed, both countries highlight the continuing need for the development of human capital as well as increased coordination between educational and economic institutions and the state to promote jobs, inclusive growth and competitiveness.

The South African policy landscape is more developed than in Mozambique, offering concrete examples, towards which the LaTFURE project can contribute, such as: Workplace-based Learning Policy; National Development Plan; National Skills Accord; Youth Employment Accord; Operation Phakisa; New Growth Path; Industrial Policy Action Plan; Strategic Integrated Projects; National Skills Development Strategy III; and White Paper for Post-School Education and Training.

Mozambique provides less explicitly articulated policies and initiatives. Broadly, the Government's Poverty Reduction Strategy for 2011–2014 prioritizes strengthening human resources and capacity to respond to the needs of economic transition. This is in line with PARPA II and MDG-contract, required for the stabilization of Mozambique and the retention and utilization of its most capable citizens.

LaTFURE defines the legislative and policy framework at the system level, as well as develop strategic, governance and operational policies, structures and mechanisms at the institutional level in order to produce working prototypes of dual study programs that can then be implemented across the system. Additionally, the promotion of their significance and a capacity building program can improve human resources and build a critical mass to embed the concept and its realization across Southern Africa more broadly, contributing to the region's stabilization.

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Mobility Mining Techniques to Forecast Personalized Tourism Schedule

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Abstract

Mobility and Movement are key processes in our present world. Understanding of mobility patterns is essential to substantiate decision making in public and private sectors, in application domains such as fleet management, transportation modeling, urban planning, tourism, wildlife ecology, spatial epidemiology, location-based services, flight safety, and marine safety. It is needed, for instance, for the prediction and monitoring of individual and group behaviors in response to and mitigation of security threats over short and long time scales. Similarity of moving objects trajectories with constrained motion patterns is emerging as a new exciting paradigm and is important for law enforcement applications such as analysis of criminal tracking, road traffic security and traffic scheduling which all have direct implications in Tourist related activities. Spatio-Temporal data analysis plays an important role in many applications including those relevant to transportation infrastructure, border and inland security. In order to analyze the taste and behavior of moving tourists, a measure for determining the similarity of trajectories with respect to space and time has to be defined. Based on the similarity pattern obtained the system can make an automatic personalized movement schedule once the duration of visit is known. Traffic management can greatly benefit from the analysis of movement data, for example through better movement simulation (leading to better road network designs) but also by incorporating advanced detection sensors in vehicles. As a final example, mobility patterns of endangered species are prerequisites to devising protective measures in nature conservation and successfully managing interactions between tourism and conservation.

Keywords: Mobility Mining, Spatio-temporal Similarity, Road Traffic Analysis, Sequence Alignment, Moving object Database, Trajectory Similarity

Main Conference Topic: IT Challenges and Solutions

Introduction

The advancement of mobile communications and ubiquitous computing pervade our society, and wireless networks sense the movement of people and vehicles, generating large volumes of mobility data. Miniaturization, wearability, pervasiveness of mobile devices are producing traces of our mobile activity, with increasing positioning accuracy and semantic richness: location data from mobile phones, Geographic Positioning System (GPS) etc. Research on moving-object data analysis has been recently fostered by the widespread diffusion of new techniques and systems for monitoring, collecting and storing location aware data, generated by a wealth of technological infrastructure, such as GPS positioning [9] and

mobile phone networks. These have made available massive repositories of spatio-temporal data recording human mobile activities, that call for suitable analytical methods, capable of enabling the development of innovative, location-aware applications. This is a scenario of great opportunities and risks: on one side, mining this data can produce useful knowledge, supporting sustainable mobility and intelligent transportation systems; on the other side, individual privacy is at risk, as the mobility data may reveal, if disclosed, sensitive personal information. The GeoPKDD (Geographic Privacy-aware Knowledge Discovery and Delivery), a project funded by European Commission under the Future and emerging technologies (FET) program of the 6th Framework(FP6), has been to discover useful knowledge about human movement behavior from mobility data, while preserving the privacy of the people under observation. The various process in this project is shown in Fig 1.

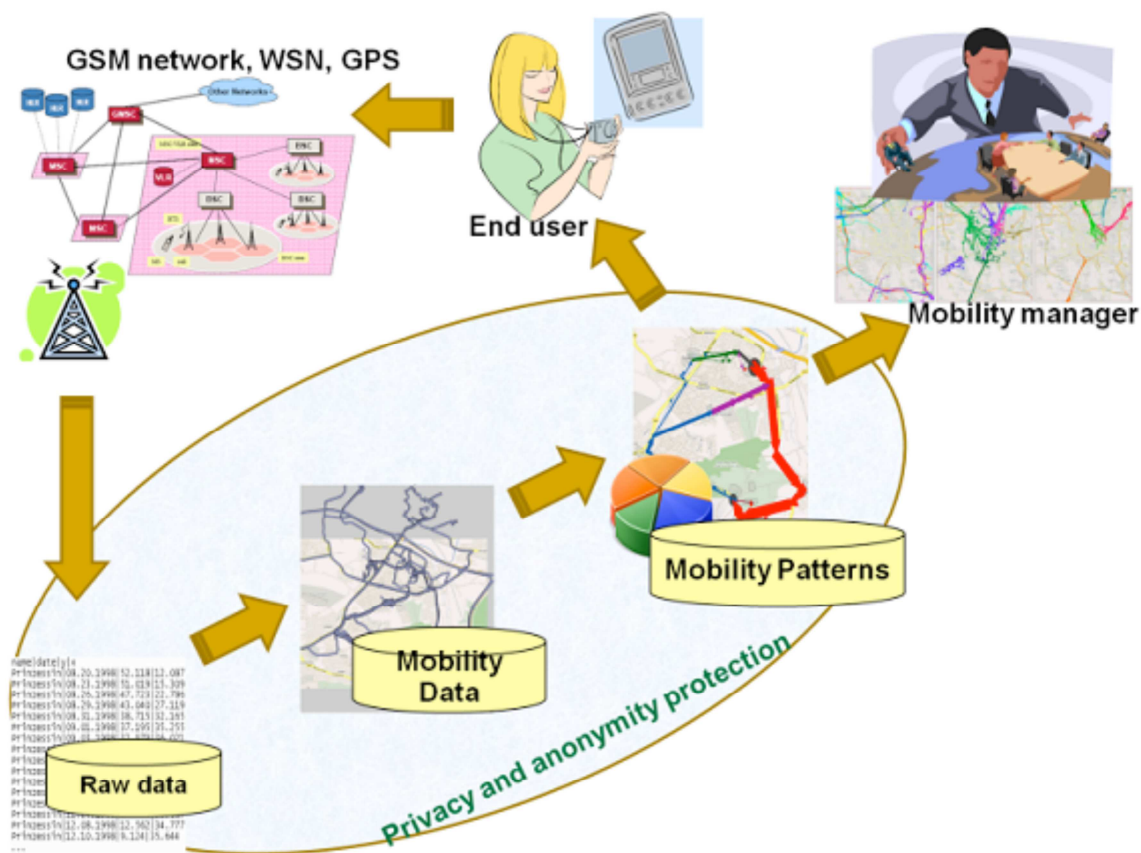


Fig 1 Process Involved in Mobility Mining (Ref GeoPKDD Project)

The GeoPKDD aims at improving decision-making in many mobility-related tasks, especially in tourist Information System in mining tourist mobility in the following ways.

- Monitoring and planning traffic and public transportation systems
- Localizing new facilities and public services
- Forecasting/simulating traffic-related phenomena
- Geo-marketing and location-based advertising

- Innovative info-mobility services
- Detecting deviations in collective movement behavior.

Modern monitoring systems such as GPS positioning and mobile phone networks have made available massive repositories of spatio-temporal data recording human mobile activities, call for suitable analytical methods, capable of enabling the development of innovative, location-aware applications. Moving objects, carrying location-aware devices, produce trajectory data in the form of (Oid, t, x, y) tuples, that contain object identifier and time-space information.

Objectives

The major objectives of this research paper is in

1. Extracting trajectory data form Moving Object Databases
2. Defining Spatio-Temporal Similarity measure of Trajectories.
3. Extracting knowledge from the Trajectory Similarity.
4. Illustration using a publically available Tourist tracking data.

Mobility Data Management

A trajectory, the basic form of mobility data, is a sequence of time-stamped locations, sampled from the itinerary of a moving object. A database management system and a data warehouse have been designed around this specific form of movement data. The design of the trajectory database has been influenced by the research on Moving Object Databases (MOD), which extends the traditional database technology for modeling, indexing and querying trajectory data. In MODs, the spatial and temporal dimensions are first-class citizens and both past and current (as well as anticipated future) positions of moving objects are of interest [1, 2, 3]. Trajectory reconstruction transforms sequences of raw sample points into meaningful trajectories in accordance with different filters: temporal gaps, spatial gaps, maximum speed, tolerance distance, among others

The different types of queries on trajectory data are

- **Spatial (range or nearest-neighbour) search** : Find all trajectories that were inside area A at time instant t (or time interval I) or Find the trajectory that was closest to point B at time instant t (or time interval I).
- **Topological / directional search**: Find all trajectories that entered (crossed, left, bypassed, etc.) or were located west (south, etc.) of an area or Find all trajectories that crossed (met, etc.) or were located left of (right of, in front of, etc.) a given trajectory T
- **Most-similar-trajectories**: Find the k most similar trajectories to a given trajectory T.

Mobility Mining

While the Trajectory Database analytical tools concentrate on presence of moving objects, mobility mining is aimed at analyzing movement. A method for mobility data mining tackles two different tasks: first, to define the format of spatiotemporal patterns and models to be

extracted from trajectory data, and second, to design and implement efficient algorithms for extracting such patterns and models. The different mining tasks developed within GeoPKDD [4] focusing on *trajectory similarity and patterns*, *trajectory clustering*, and *trajectory classification*.

Trajectory Similarity and Pattern Mining

Trajectory pattern is a novel notion of spatio-temporal pattern, which formalizes the idea of aggregated movement behaviors. A trajectory pattern, as defined in [5], represents a set of individual trajectories that share the property of visiting the same sequence of places with similar travel times. Therefore, two notions are central: (i) the regions of interest in the given space, and (ii) the typical travel time of moving objects from region to region. In this approach a trajectory pattern is a sequence of spatial regions that, on the basis of the source trajectory data, emerge as frequently visited in the order specified by the sequence; in addition, the transition between two consecutive regions in such a sequence is annotated with a typical travel time that, again, emerges from the input trajectories.

For example a pattern may be interpreted as a typical behavior of tourists that rapidly reach a major attraction from the railway station and spend there about two hours before getting to the adjacent museum. It should be observed that a trajectory pattern does not specify any particular route among two consecutive regions, while a typical travel time is specified, which approximates the (similar) travel time of each individual trajectory represented by the pattern.

Trajectory Clustering

Clustering is one of the general approaches to explore and analyze large amounts of data, since it allows the analyst to consider groups of objects rather than individual objects, which are too many. Clustering associates objects in groups (clusters) such that the objects in each group share some properties that do not hold (or hold much less) for the other objects. Spatial clustering builds clusters from objects being spatially close and/or having similar spatial properties (shapes, spatial relationships among components, etc.). Clustering of trajectories implies considering space, time and movement characteristics within a similarity notion: simple distance-based clustering methods are not effective in separating trajectory clusters that exhibit a non convex (non globular) shape, as it often occurs in practice

Trajectory Classification and Location Prediction

Predictive models for trajectory data include a classification method for inferring the category of a trajectory, (e.g., the transportation means associated to a trajectory: private car, public transportation, pedestrian, etc.), and a predictor of the next location of a moving object given its past trajectory. There is strong current interest in next location prediction, in that it enables several intelligent location-based services. In the literature, this task is achieved by applying various learning methods to the history of each moving object for the purpose of creating an individual location predictor.

Trajectory Anonymity

In the context of personal mobility data, privacy is a big concern: location data allow inferences which may help an attacker to discover private information, such as individual habits and preferences. Hiding explicit identifiers and replacing them with pseudonyms is insufficient to guarantee anonymity, since location represents a property that may allow re-identification: for instance, characteristic locations such as home and work place can be easily uncovered with the use of visual analytics methods, given detailed personal trajectories. Therefore, in all cases when privacy concerns are relevant, the trajectory data cannot be disclosed without appropriate safeguards. Anonymization techniques are data transformations that aim at a double goal: decrease the probability of re-identification below an acceptable threshold, while at the same time maintaining the analytical utility of the data.

Visual Analytics

The aim of this system is to help the analyst to navigate through mobility data and patterns and to visually drive the analytical process [6]. The key features include: the visualization of Trajectory patterns to support the navigation of the extracted patterns in the spatial and temporal dimensions; the progressive refinement of Trajectory clusters, through user-driven exploration and evaluation of the discovered Trajectory clusters [7] and the visual exploration of various measures provided by the Trajectory Warehouse [8].

Methodology

Here we concentrate our research on spatio-temporal similarity to mine tourist mobility data which comes under the area trajectory similarity and pattern mining.

Trajectory Similarity in Spatial Networks

Let T be a trajectory in a spatial network, represented as

$$T = ((b_1, t_1), (b_2, t_2), (b_3, t_3), \dots, (b_n, t_n))$$

where n is the trajectory description length, b_i denotes a location in binary string [12] and t_i is the time instance (expressed in time units, eg. seconds) that the moving object reached node b_i , and $t_1 < t_i < t_m$, for each $1 < i < m$.

It is assumed that moving from a node to another comes at a non-zero cost, since at least a small amount of time will be required for the transition.

We identify the following similarity types [10], [11] related to road network environment.

(i) Finding Objects moving through certain Points of Interest: This will be useful in finding out the movements of objects through known locations of interest, which may be terrorist locations, points of emergency or list of strategically important locations: Here we consider only spatial similarity measure.

(ii) Finding Objects moving through Certain Times of Interest: Useful for objects moving through known times of interest, which may be emergency time, explosion happened time or festival season time etc. Here we consider the temporal similarity measure only.

(iii) Finding Objects moving through certain Points of Interest and Time of Interest. Here we consider both spatial and temporal features together coming as spatio-temporal distance measure.

A detailed discussion of these methods and evaluation can be found in [11] and modified algorithms in [10]. These methods and algorithms are the base line content of the section 3.2 where similarity of web user session trajectories and proposed clustering algorithms is being discussed.

Spatial Similarity Matrix based on POI

We introduce the similarity measures between two moving object trajectories in a constrained network incorporating concepts discussed in [10]. Here the spatial similarity is measured based on three concepts as explained in fig 2.

- a) Common locations visited by two trajectories
- b) Structural similarity of locations in the trajectories
- c) Sequence Similarity of trajectories
- d) Temporal refinement of trajectories

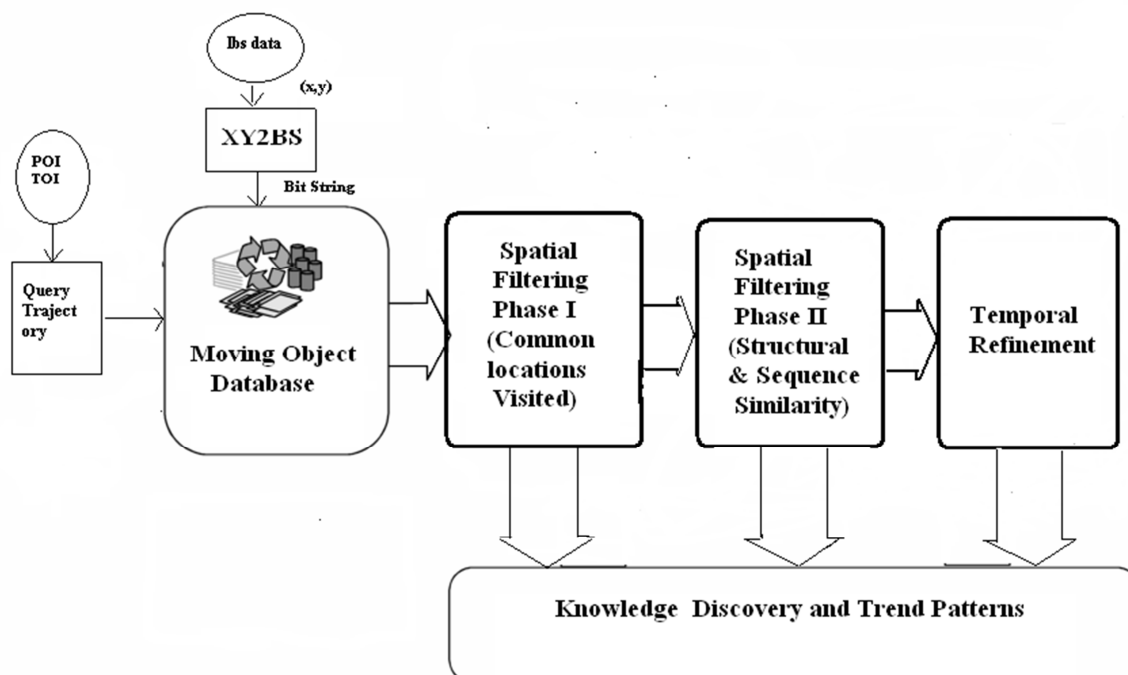


Fig 2. Similarity based Knowledge recovery Process

a) Common URL's visited by two trajectories

Let T_i and T_j be two trajectories. We introduce a Spatial Similarity measure $Sim_c(T_i, T_j)$ which attempt to incorporates number of common locations in trajectories. This similarity matrix measures the number of common locations passed through during the two trajectories relative to the total number of locations in both trajectories.

b) Structural Similarity

Here structural similarity we mean how geographically the points are closed to each other. In order to measure Structural similarity we consider each of the four strings, separately and for each bit string, weightage will be assigned from left to right in the order 1,2,3 etc. Then we compare each corresponding bit of the two token strings bit by bit from the beginning until the first pair of bits is different. The similarity between two token strings is defined as the sum of the weight of those matching tokens divided by the sum of the total weights.

c) Sequence Similarity of web sessions

The above spatial similarity measures consider the number common locations visited by two trajectories and their geographical neighborhood as a measure of structural similarity. The spatial similarity is checking only the percentage of common locations visited by each input trajectory with the query trajectory made by points of interest. As we consider important individual locations in Point of interest, the sequence in which these locations visited by an input trajectory is also to be considered in finding the actual similarity. For example in the field of security informatics if POI contains strategic locations and then the sequence of locations a moving car crosses will also have to be considered in finding how a user movement trajectory matches with the query trajectory created with the given set of POI. Here we consider the original trajectory data as a set of sequences, and apply sequence alignment method to measure similarity between trajectories.

d) Temporal Refinement

The similarity measure defined in the previous section takes into consideration only the spatial concept, which consists of structural similarity and sequence similarity. In real applications, the time information associated with each trajectory is also very important. So to measure the similarity we have to consider the concept of space and time together. Here we are considering the temporal distance by taking the difference in web page request time as shown in Fig 3.

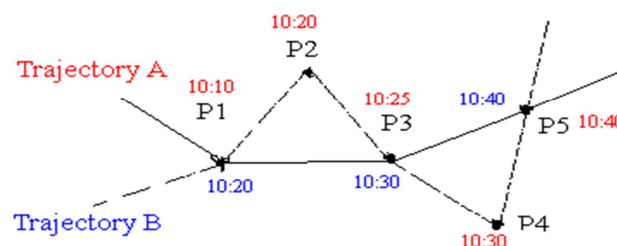


Fig 3: Temporal Distance of Two Trajectories

Temporal distance between Trajectory A (T_A) and Trajectory B (T_B) will be

$\text{dist}_T(T_A, T_B) = \text{Differences in time at common}$

URL's visited P1, P3, P5

$= 10+5+0 = 15$

Experimental Evaluation and Results

We have taken a real-world data of tourist movement for experimentation purposes, namely a fleet of tourist cabs that make trajectory data set. The data set consists of 576 trajectories of 150 cabs moving places around Athens metropolitan area in Greece for 30 distinct days. The structure of each record is as follows:

{obj-id, traj-id, date(dd/mm/yyyy), time(hh:mm:ss), lat, lon, x, y}, where (lat, lon) is in WGS84 reference system and (x, y) is in GGRS87 reference system.

All experiments have been conducted on a Intel Core 2 Duo machine running Windows XP, with 2 GB of RAM, and a 320 GB SATA2-16 MB hard disk using the visual Programming Language Visual

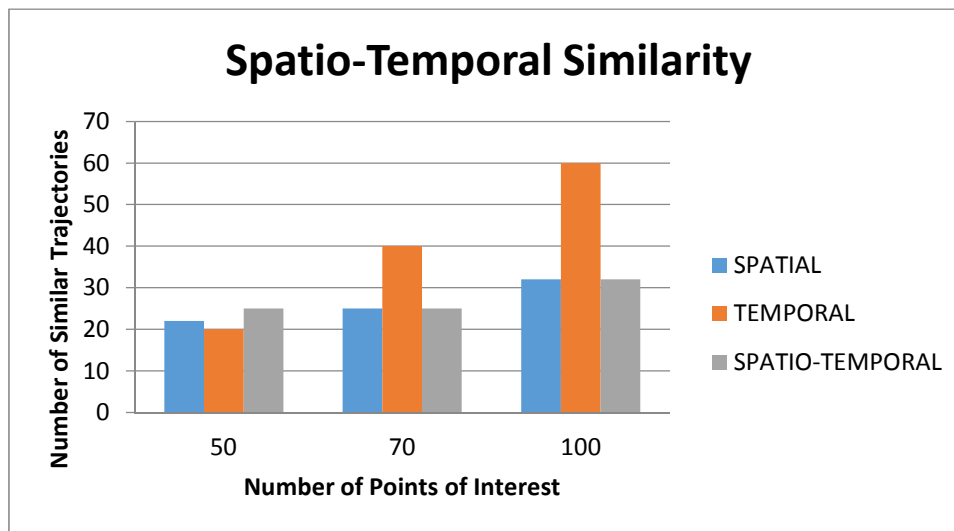


Fig 4. Comparison of Spatial, Temporal and Spatio-Temporal Similarity Search

Basic. Each of the three methods generate knowledge based on the methods proposed which can be used for mining tourist's movement profiles. The results of experiments confirm that (Fig 4) the spatio-temporal similarity search is more consistent than other two types of similarity search.

Conclusion

The similarity problem in trajectory database for moving objects on road networks has many applications in Transportation Network like tourist security, identification of traffic congestion and re-routing etc. In this paper we have proposed a method to measure the spatio-temporal similarity of moving object trajectories highlighting applications in mining tourist mobility data.

As a continuation we are planning to use the spatio-temporal similarity measures in the extraction of semantic location and activity knowledge from GPS traces, possibly augmented with other information such as web-sites visited by tourists and tourist behavior patterns.

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To Study the Impact of Cyber Security on Cloud Computing

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Abstract

Cloud Computing has become à la mode not only for multi-national corporations but also for the small and medium-sized organizations across the globe for numerous reasons ranging from flexible cost, scalability and increased mobility to improve collaboration amongst the teams which are extremely beneficial for any company or organization. Apart from that, the user is freed from the hassles of software maintenance and upgrade. But on the flip side, cloud computing has numerous threats attached to it as well. For instance, the risk of an information breach increases when the information is transmitted through a number of public frameworks which are not under the control of the client and are outside of the organizations network. Also, almost all the cloud computing services are offered by third-party vendors, which eventually increases the complicity of securing the data. This is where the SLAs play a big role in safeguarding these businesses. In this paper, we will identify and distinguish various security issues attached to cloud computing and identify potential solutions for the same.

Keywords: Cloud computing, Cyber Security, SLA's, Risk

Main Conference Topic: Computer Science, Security and Information Technology

Introduction

There is a common notion amongst individuals across the globe that Cloud Computing is nothing more than internet given at a different point of time., but it is to be noted that when the internet becomes large enough that a diagram can no longer differentiate itself between individual physical system, the internet becomes cloud itself. Speaking of which, cloud computing is a contemplation based on the belief of physical resources and presenting them as virtual resources. It is basically a new model for provisioning of IT resources, staging applications and most importantly for giving independent users access to the shared services. Cloud comes in different models and the applications that run on the cloud may or may not be provided by the cloud service provider.

For an individual to discuss the different types of security threats that are associated with the cloud computing concept, one must understand the various models and most importantly the thesaurus of cloud computing. More often than not, people frequently define cloud computing under either the deployment models that are based on the management location of that cloud infrastructure or the service models that consists of differentiated infrastructure services that a come together to form a complete information technology architecture.

Cloud computing has several sui generis properties that make it one of a kind. Lamentably, many of those unique properties create security an issue for an individual and/or an organization's data. Many of the tools and techniques that are taught by professionals in security trainings pertaining to data protection are complicated by the fact that the systems are shared with random strangers and most of the times their operations and management are outsourced as well. Cloud computing service providers have sound awareness of these concerns and are developing technologies to reduce the risk to the users from such threats as well. But a question that arises is that, are these steps adequate to tackle them, if not, then which additional steps must be taken into consideration to ensure that such concerns are well addressed and tackled efficiently and effectively. The primary desideratum of the research paper is to study and evaluate the impact of the cyber threats in cloud computing.

Given the situation, the researchers have identified three major objectives for this research to be presented. In the beginning, they will be covering the top security threats that are faced by any company or an organization across the globe. After which, the researchers will further evaluate the security of various NIST cloud models and finally they have noted that there are not many research papers that are available, which give an estimate or an idea of the approximate financial damage that a company or an organization would incur in case there is a heinous cloud computing data breach. This research paper would address the issue.

Research Objective 1: To study the top cloud security concerns or threats for a company or an organization:

Hackers not only in the United States but throughout the sphere are finding new ways to make sure that they break the cyber defense in the quickest and best possible way. From the cyber-attacks on Equifax, a credit reporting agency in the year 2017 to a ransomware attack on the cloud database of FedEx, have questioned the overall security of the cloud computing technology and needs to be addressed with outmost precision. This would give a clear picture as to the different types of threats that a company or an organization could face at any point of time.

Research Objective 2: To evaluate the security of the various NIST cloud models:

The government of the United States of America is a major consumer of the computer services that are offered by the cloud computing networks across the earth. The United States Institute of Standards and Technology is the one that separates the cloud computing into the various service and the development models. The most vulnerable to a cyber security attack is the Public and the Private deployment models that are used mostly by the masses, whose safety evaluation would be done by the researchers ahead.

Research Objective 3: To measure the dollar value of a loss incurred to a company or an organization in a cloud data breach:

At the end, apart from the data loss, it is the dollar value that measures the gravity of the cloud computing and defines the vulnerability of the system as well. Hence, the

researchers would endeavor to make sure that an approximate dollar value of the cyber-attack on the cloud computing system at a company or an organization can be given.

Related work

The NIST model of cloud computing originally did not had a requirement of using cloud in order to pool the resources, and it also did not require cloud support for multi-tenancy in the earlier definitions of what cloud computing was. As per the latest definition of NIST, cloud computing networks are required to virtualize and support multi-tenancy as well. Since cloud computing is moving toward a set of modular based on Service Oriented Architecture. The NIST model of cloud computing has Deployment models which include Community, Hybrid, Private and the Public models apart from having various Service models which include Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS), and finally, the NIST cloud computing model has various resource pooling Service attributes in its Service Oriented Architecture.

The open cloud association called the Jericho Forum has its main focus to protect the cloud networks. It has an interesting model which is called as the “Cloud Cube Model” whose basic functionality revolves around the selection of the various cloud formations for having collaborations which are secure in nature. The dimensions around which the whole model revolves is the physical location of the data which looks at the boundaries, internal or external an organization might be having, the Ownership which measures the degree of vendor application, ease of data transfer etc., Security boundary which is a measure of whether the operations are being made inside or outside the security parameters of the firewall, and finally, there is Sourcing which sees whether service is being provided by the customer or the service providers

It is to be noted that cloud computing is a stateless system, just like the internet in general. And, in order to make sure that the communication survives on a distributed system, it has to be unidirectional in nature. Although, it may be seeming that we are carrying a two-way conversation exclusively between the client and the provider, but there is an architectural disconnect between the two. Because of the lack of state, the message is able to travel over different routes and for the data to arrive out in sequence, and many of the other characteristics allow the communications to be sent even when the medium is faulty in nature. Therefore, in order to achieve comprehensibility in the transaction messages, middlemen are required to be added into the system. This factor in particular can take a dramatic toll on the system as a whole.

If a single area of concern was to be picked regarding cloud computing systems worldwide, then that area would be undoubtedly being privacy and security. Because, when the data travels over and rets over in a system which is no longer under the control of the individual, there is an increase in the risk due to the interception and malfeasance of others. The only option that an individual has after that is to count on the service provider on the face of the government sanctions.

Findings

We must all realize that the internet was designed to be primarily resilient and not to be secure. Any application which is disturbed in nature has a greater attack surface as compared to the applications that are closely held on a Local Area Network. Hence, cloud computing has all the vulnerabilities associated to the internet applications and most importantly additional vulnerabilities arise from the pooled, and out sourced resources. In order to concisely analyze the security of the cloud computing, particular models of cloud computing need to be defined which are defined earlier in the research paper. One key difference that lies between the NIST and the CSA mode is that the CSA considers the multi tenancy to be an essential element in cloud computing which in turn adds a number of security concerns to the cloud computing which are to be addressed. Because in multi-tenancy, different customers are isolated, their data s segmented and their service is accounted and in order to make sure that this service is being provided, the provider is required to give not only different security levels, but it also requires it to give different pricing models as well. Multi tenancy expresses itself in different ways and imposes a huge amount of concerns in different places

The most important aspect analyzing the architecture of CSA was found to be that, each different type of cloud service delivery model creates a security boundary at which the responsibility of the cloud service provider ends and that of the customer begins. Any security mechanism must be built into the system if it is below the security boundary. And, as we move up the ladder, it becomes very important to make sure the type and level of security is part of the customers Service Level Agreement. For example, in case of the SaaS model, generally the vendor provides the security as a part of the Service Level Agreements. Whereas, in case of the PaaS model, the customer would be responsible for the security of the application at the top of the stack. And, the model that has the least level of security is the IaaS model where in the service provider is not responsible for anything

The cloud service model that a customer uses determines the proposed posting of the security features in the system. In order to determine the security systems that must be needed to be applied, the customer should perform security mapping of particular applications that it is deploying. All of these mechanisms must be supported by the controls that would be provided by the service provide, the organization and the third-party service provider as well. A Security control model in general includes the security that a customer might usually use to secure its application. But if the customer is looking to pin point the missing that would be required for the deployment, it would have to find numerous ways in order to replace the cloud computing model. And as a customer deploys accountability for security, the customer would have to remain accountable for the level of security that it requires

The most important problem with the data that an individual store in the cloud is that the data can be located anywhere in the system of the cloud service provider, who might be located in another city, state or a province and in most of the cases, the service provider is located in another country. Because of the above stated fact, a customer has to frequently

rely on the firewall to secure its network's system security parameter for which it does not have any physical system that serves that purpose. Hence, to protect the data, the customer would have to find a way in order to isolate data from the direct client access. One of the approaches that can be considered by the customer is that it can isolate the storage in its cloud by creating layered access to the data.

Some of the service providers negotiate as a part of the Service Level Agreements to store some of the data and process the location as a part of a predetermined contract. As, it is a known fact that data stored in the form of multiple tenants and each of the tenants have their own unique methodology to segregate and store one customer's data to another, and it is important for a customer to know the way its data is being handled by the service provider. Most of the service providers provide data in an encrypted form. Though without any doubt, encryption is important for the storage of the data, on the flip side, it has its own set of problems along with it. Because if there is any fault in the encrypted data, then in most of the cases, the data is not recoverable. The customer should have a clear idea as to what type of encryption is being used by the cloud provider and also the system should be checked by security experts.

Logging is the recording of the events into a repository and audit is the ability to monitor the events and understand its performance. Both of the concepts are important as they help not only in the evaluation of the performance, but it also helps in investigating security and illegality when suspected. Cloud service providers across the globe have their own proprietary log formats that they need to be aware of. Apart from that all the monitoring and analysis tools that a customer is using must be compatible with the logs of the service providers. As the cloud services are both multitenant and multisite operational, the logging activity for different data is not only co-located but also it is moving across the landscape of a variety of hosts and sites. Hence, a customer cannot expect that the investigation would be provided with important information at the time of its discovery if they are not a part of the service level agreement. Even if it is, it may not be able to guarantee the availability of the information when the right time comes.

Recommendations

- To mitigate cloud security threats which can cause huge losses to the organizations it is necessary for the organizations to enable and use new software-defined networking (SDN) approaches that will be able to enforce security for virtual machines and applications from the first connection point of the network and encrypt the data. It is also essential for the organizations, to define and develop fine-grained policy controls in the organizations which can allow various departments of the organization to tailor security requirements to the department, network, application, container or the Virtual machines and applications in the organization.
- The organizations should also develop defense in depth approaches which will be able to safeguard the organization from these cloud security threats and maintain the confidentiality of the organizational data. There should be a set of proper intrusion detection and prevention components within the network which will enable security of

data and necessary information from being misused or leaked , Advanced and efficient virtual firewallz should be implemented instead of first generation firewalls which will enhance the level of security at all levels and departments of the organization, also there should be Intrusion prevention systems (IPS) installed at all levels of the organization and functional departments to protect networks from internal and external threats from hackers and other competitors.

- The most vulnerable to a cyber-security attack is the Public and the Private deployment models that are used mostly by the masses, whose safety and security is of utmost importance to the organizations to safeguard their confidential information and data, these models can be secured by the new emerging technologies which are creating a boost in the organizations i.e. the Virtual security appliances for enhancing the security at various levels, Software in the Guest applications, Virtualization –Assist API's , enabling network based solutions by the approach of integrating appliances and unified computing platforms , leveraging the use of Chipset-integrated technology. These security measures can help avoid such cyber-security threats and enable organizations to safe guard and protect their crucial data and information.

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Determining Risk of Internal Software Failure in Critical Real-Time Systems

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Abstract

A class of software that has severe requirements for functionality and reliability includes critical real-time software systems. Examples would include; airline boarding systems, power grid control systems and automobile safety systems. Our goal, through literature review content analysis, is to determine if software failure risk aspects can be quantified in critical real-time systems. We research how likely a failure is to occur, and what level of risk is experienced when a failure does occur. The outcome of our research is to propose multiple metrics that can be assigned to risk of software failure in critical real-time systems. 1) We propose an index for how likely a software failure is to occur in a critical real-time system: R_f = Risk Failure Index. 2) We propose an index to rate the impact of such a failure: R_i = Risk Impact Index. We include factors and weights thereof for each index. Having a unified risk metric for software failure in critical real-time systems will allow industries to better allocate investment and provide insurance securities a factor they can use for premium pricing models.

Keywords: Real-time software, risk analysis, criticality

Main Conference Topic: Computer Science, Security and Information Technology

Introduction

Every day critical real-time systems play a larger role in our lives. This class of software has severe requirements for functionality and reliability. An example of these systems can be seen in cars we drive. Today vehicles have over 100 million lines of source code and soon to exceed 300 million [1]. This code controls vehicle systems like Anti-locking breaks, airbags and Advance Driver Assistance features. These systems became more complex with increased interdependence and circular dependency on subsystems [2].

Issues with software can result from hardware failures, external disasters, user error, unauthorized tampering/misuse or other external influences. While these are valid concerns, our research focuses on how likely software is to fail as a result of coding errors or design flaws.

Occurrences of failures in critical real-time software systems have been frequently reported in recent history. Allen et al. [3] researched a frequency disruption that caused a

power outage in excess of 30 minutes during Super Bowl XLVII (2013). The cause was real-time monitoring protecting devices functioned improperly [3]. A second report by Brian Fortenbery et al. added that even though the protection hardware functioned properly it was inadvertently triggered by an anomaly in the system [4]. Lei Chan documented research considering that power grids and communication networks are now interconnected. That research points out that root cause of disruptions (like the large scale blackout of the Eastern US in 2003) are not isolated to just an aging power grid. Rather, that equipment that monitors the power grid is itself powered by the power grid. As such, a failure in one will cause a failure in the other [2]. A third example is seen in airline departure control systems. In September 2017, The New York Times reported “Airports Worldwide are Hit by Delays After Software Outage” [5]. That is not an isolated occurrence. A quick internet search finds multiple similar occurrences. While much research has been done to improve airport efficiencies using advanced software algorithms, little research has been conducted on the risk of departure control systems failure.

A literature review shows that there are many papers on how to increase software quality. However, our focus is on quantitatively measuring and assessing software risk. We use our literature review as a meta-study to build a set of metrics for risk, in particular related to reliability.

When considering the risk of a failure occurring, this paper focuses on several factors such quality and number of external dependencies. To address risk after a failure we consider aspects such as safety, monetary loss, length of disruption and number of affected by the disruption. While other methods exist to measure risk, such as OCTAVE and FMEA, our method narrows the focus to achieve better outcomes. Existing, methods focus on holistic but semi-quantitative risk, while we propose using more narrowly focused quantitative risk measurements. We enable users to determine the likelihood of risk with a focus on unexpected software failure, excluding risk factors like user error, misuse, hacking, warfare or hardware failures. By knowing software risk levels, developers can improve processes to improve new product development and lower reliability risk of existing products.

We research how likely a failure is to occur and what level of risk is experienced when a failure does occur. The outcome of this research is to propose multiple metrics that can be assigned to risk of software failure in critical real-time systems. 1) We propose an index for how likely a software failure is to occur in a critical real-time system: R_f = Risk Failure Index. 2) We propose an index to rate the impact of such a failure: R_i = Risk Impact Index.

- R_f = Risk Failure Index: A compiled metric that indicates likelihood of system failure.
- R_i = Risk Impact Index: A compiled metric that indicates level of impact after a failure occurs.

Methods

We considered two approaches while conducting our research to develop these two metrics. The first approach is a literature review content analysis. In this method, we look at existing research on contributing factors that impact risk of failure.

The second approach would be to look at systems that have not encountered failures. Then we would analyze the development, design and standards used when developing these products. While the second approach may be more methodical and possibly lead to better outcomes, it is not within scope of this research.

Section 3 of this research analyzes existing research to attempt to determine best practices and industry processes that impact quality. We use that data as a basis to developing our failure risk metric. We can assume that high quality software will result in less risk of failure. However, since systems are more connected, we also factor in research on increased risk associated with increased number of dependences. Section 4 lists out the impact factors and shows the risk impact metric.

Failure Risk Factors

This section evaluates the literature to determine risk factors that raise the likelihood of software failures. We might argue that there is no such thing as a “Software Industry,” since software is developed across all industries and sectors.

Process-Oriented Factors. First we consider process-oriented factors. Svensson et al. found that there is no unified methodology implemented for software development [6]. They stated that even though standards exist, companies do not always follow them. In the 11 companies interviewed, none of them followed common standards, but instead employed ad hoc methodologies. They support the view that quality varies with the implementation of the software development methodology.

If we look at any given critical real-time system and ask the question, “What is the risk this system will fail due to a software (glitch, anomaly, bug) error?” How do we determine that answer? If we connect quality with risk, we can then use quality as part of the risk metric. Svensson et al. show that the Software Development Life Cycle (SDLC) combined with the Quality Requirement (QR) metric directly impacts the quality of software produced. Taking that one step further, Omar Sabri et al argues that the level of Knowledge Management (KM) with-in the SDLC will impact the quality output [7].

From the above, we can obtain our first three quality impact factors: Use of a SDLC (over ad hoc), integrating QR and KM techniques during development.

Sara Casare et al. concludes that software engineering processes, tailored on demand to project needs, will yield a host of positive benefits leading to better quality [8]. Similar research by Akbar et al. found that quality is the most important outcome of software development and that it can be improved by using a model that allows for the introduction of new actives during the SDLC [9]. While both of these research papers propose their own respective model, Casare et al.’s Meduse [8] and Akbar et al.’s AR [9] both make the same argument that flexibility during the SDLC will impact quality output. This gives us a fourth factor of quality, Flexibility of process.

Coding Factors. In addition to process-oriented factors, coding factors also impact quality outcomes. One area to consider is error handling. If employing a “Fail Fast” methodology as recommended by Shore et al. [10], a program return results, but R. Wirfs-

Brock [11] suggests this fail to address cases that may otherwise be recoverable. It is logical that a high quality product will result from well-designed error handling procedures that allow for possible recovery.

How well code is tested and what tests are preformed also impact quality. Catal and Mishra1 [2] show that prioritization in testing by setting preference to cases that are expected to outperform others in detecting software faults could yield to better quality. A Arcuri et al. [13] argue that Random Testing (the practice of generating as many test cases as possible, to uncover as many faults or errors) can be more effective in finding bugs due to its ability to scale. They point out that it is difficult to compare two or more testing strategies. As such, we consider the presence of testing as an impact factor to quality, as opposed to any specific method of testing.

Complexity is another code quality impact factor. One of the possible factors in measuring complexity is code size, assuming larger code (higher line counts) result in more complex code. In the past, the number of source lines of code have been used to determine complexity. Models like COCOMO used line count as a complexity measure. In an article by Hastings and Sajeew they note more recent studies show function point count to be a more accurate measure [14]. They propose an additional improvement that incorporates both functionality and problem complexity they call Vector Prediction Model (VPM) to obtain complexity. Analysis of a system using the VPM model to determine complexity can be a factor of quality. Systems deemed more complex are likely to have a higher risk of failure.

Another code factor is code standardization. There are many different coding standards used across various industries. With no ranking to compare these standards, research shows the use of a coding standard has been found to increase quality. Karout and Awasthi [15] studied how using Six Sigma DMAIC process can improve software quality. Another study by Jayaraman [16] et al stresses measuring the metric of customer defects. The take away is, while studies may disagree on what should be measured, tracking and measuring code errors can lead to improved software quality.

External Factors. The third area we consider is external factors that impact quality. Critical real-time systems do not operate in a black box. That is to say they rely on inputs from other systems [17]. Making this more complex is the fact that dependencies are no longer only linear (A depends on B), but are becoming circular (A depends on B, B depends on C and C depends on A) [18]. Beyond this 'dependency risk', we look at how data moves around.

Just about all data moves over some type of network. While networks rely on physical devices as the backbone, they are control by software for data routing. Network outages ties directly to system use. If a system is reliant on a network and the network fails, system use drops to zero. Therefore, we can gain the understanding that critical real-time systems have some level of risk if they rely on network use. However, the level of that risk is difficult to quantify. Networks tend to be reliable when they operate with known protocols. In our metric, we can look at the number of computational network transactions. A system with a higher average number of network transactions (more reliant on the network) compared to a system

with lower average network transactions (less reliant on the network) can be considered to have a higher network risk factor.

System use is another external factor to consider. Most systems fall into one of two use categories, non-variable use or use on demand. Non-variable systems would be items like sensors. For instance a density sensor. The sensor translates data from an input mechanism and outputs the results. This system will not experience use risk, as use is constant, either 0 or 100%. A system that outputs data upon request is susceptible to use risk. If use is at 0, the system is doing nothing and has low risk to fail. However if the system is experiencing high levels of usage, it has a higher risk to fail.

A final external factor we consider is age. Jayaraman [16] et al. note that the age of a system is tied to experiencing errors. Newer systems tend to experience more errors. For their case study, they specifically showed that a system's prime age is 7 months: systems 7 months or older tend to experience less errors. We can extrapolate from this that systems that are new, or experience high levels of revisions, will exhibit more errors and thus have a higher age risk factor.

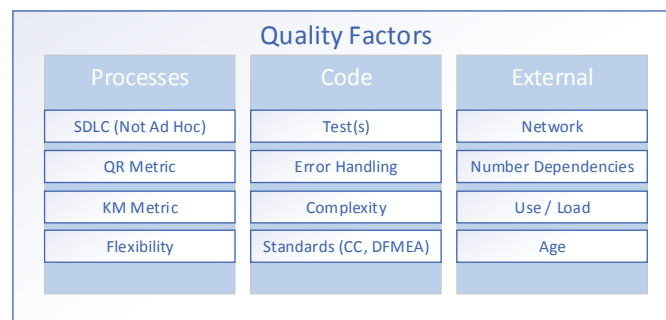


Figure 1. High-level quality factors overview

Failure Risk Metric

In section 3.1, in order to determine if software failure risk aspects can be quantified in critical real-time systems, we performed a literature review content analysis. We are now ready to develop a metric to represent risk that can be used by industry to steer investment and help insurance securities gage risk.

R_f = Risk Failure Index: A compiled metric that indicates likelihood of system failure.

We looked at three categories of software risk: Process, Code and External. Within each of these we researched factors that impact quality. Using those factors we were able to develop a Risk Failure Index.

$$R_f = (W1(S) + W2(QR) + W3(KM) + W4(F) + W5(T) + W6(E) + W7(C) + W8(M) + W9(N) + W10(D) + W11(U) + W12(A)) / \text{maximum risk} \quad (1)$$

Next, we assign weights to factors. We placed each factor into one of three categories; high level process, sub process or neither. Factors considered a high level process were assigned a weight value of 5. Factors that represent a single processes or sub process were

assigned a weight of 1. Factors that did not fit into either category were assigned a weight of 3. The total score is then divided by a maximum risk value of 380 to yield an index in the range of 0.00 to 1.00, for the R_f Index.

Table 1. Calculation of Failure Risk Factor

ID	Factor	Score: range between 0 or 10			Weight
		Low	Med	High	
S	SLDC process implemented	0	5	10	5
QR	Quality Requirement Metric	0	5	10	1
KM	Knowledge Management Systems	0	5	10	1
F	Flexibility in Requirement Changes	0	5	10	3
T	Testing	0	5	10	5
E	Error Handling – Recoverability	Recoverable = 0	5	10	5
C	Complexity	Low = 0	5	10	3
M	Standards / Code Metrics	0	5	10	3
N	Network Dependency Level	Low = 0	5	10	3
D	Dependencies	Low = 0	5	10	3
U	Use	Low = 0	5	10	3
A	Age	>7mo = 0	4 - 7mo	< 4mo	3
Lower Score = Less Risk					

Impact Risk Factors

The next part of this paper considers what impacts can occur when a critical real-time system fails. To do that we need to determine the risk factors for when a failure occurs. Some of our literature review, Sauv'e et al. [19] shows the use of both a "likelihood to occur percentage" with "level of impact". Our focus is only on the "level of impact" portion that can be used to compare critical real-time systems impact if they were to fail.

The factors we consider are as follows:

- Lost Sales Revenue
- Customer Dissatisfaction
- Reputation Damage
- Cost of life or injury (per person)
- Liability due to breach of contract
- Liability due to breach of regulation
- Lawsuit
- Property Damage

These were selected by comparing and contrasting several risk assessment tools including OCTAVE (focus on assets), FMEA (Failure Modes Effects Analysis) and RAIN project research by Obrien et al. [20], which examines the impact of critical infrastructure failure on society, security issues and the economy. Additionally, those semi-quantitative methods focus on holistic risk, while we propose using more narrowly focused quantitative risk measurements.

Analysis of a critical real-time systems impact risk factors would require domain knowledge of the system, company/industry and customer base. For instance, considering two scenarios, 1) failure of an airline dispatch control system, and 2) failure of an electrical power grid. In each of these cases specific domain knowledge would be required to

accurately determine the impact factor values. For an airline, loss of revenue may be quantifiable using an industry or proprietary algorithm. However, for the power company, loss of revenue may be negligible as customers have no buying power.

Cost of life factor can be obtained from different sources. The EPA [21] uses \$9.4m (adjusted for inflation) as a mortality risk value. The EPA's method ignores individual statistics such as age, income or other population statistics. Other methods exist that take individual factors into consideration.

Customer dissatisfaction can be calculated as customer loss of time. That is to say if a critical real-time system cost a customer "time". The value of that time can be normalized to a monetary value using U.S. Gross National Income per capita \$60.2k [22], which equates to \$28.94 per hour.

The remaining impact factors will need to be determined on an individual basis per system.

Impact Risk Metric

We attempt to qualify impact risk by developing the R_i metric. When evaluating index factors, pre failure, we use worst case monetized values are assigned. When evaluating post failure actual loss amounts are used if available. This will make the output of R_i a dollar amount. Higher R_i would indicate a larger impact risk. Some cases allow for unlimited economic loss. In this scenario R_i would get set to "unlimited" and thus represent the highest level of impact risk.

$$R_i = \text{LSR} + \text{CD} + \text{RD} + \text{COL} + \text{BOC} + \text{BOR} + \text{L} + \text{D} \quad (2)$$

Case Studies

One case study we looked at was the Super Bowl XLVII (2013) by Allen et al. [3]. The study looks to understand frequency disruptions on the power grid during the Super Bowl. A glitch in the system caused a 34 minute delay in the game. While it may be viewed as "only a game", the stadium has 73,00 seats and the lighting is a critical real-system to allow patrons to safely move throughout the stadium.

When applying our metrics to this incident we can gain some insight. For applying the R_i metric we are limited in that the only reported cause was "a glitch" in power grid control system controller. Without inside knowledge of the system, process used, and code techniques it would be difficult to determine R_i . However, calculating a R_i estimation is possible.

While not having insight to the full business process of a Super Bowl game, we can draw some values. We can assume Lost Sale Revenue was \$0, since the incident occurred during the game. Customer Dissatisfaction can be calculated by "time cost" of 34 minutes to equal \$16.40 per attendee. Multiplying that by 73,000 attendees equals \$1.19 million in dissatisfaction. We could include all viewers (TV) to obtain a much larger number but attendees have little recourse in how to spend their time while TV viewers could spend their time doing other tasks. Reputation Damage is more of a venue statistic. We found no

evidence that the superdome lost bookings due to the incident, so we set that value to \$0. Considering cost of life or injury (other than the operations manager pride), there was no evidence of loss, so we set that to \$0. The remaining 4 items are also undetermined, or undisclosed. Leaving us with only the \$1.19 million as an R_i for a power outage that caused absolute minimum damage.

A second case study we consider is the pre-production release of a Recloser control (product name: F7) produced by EATON. The product is a protection control used on the U.S. power grid that monitors conditions and responds by either allowing electrical flow (open state) or blocking the flow (closed state). These operations protect equipment from undesirable conditions such as, lightning strikes, faults, auto collisions and fires. These conditions can damage costly equipment like transformers, regulators and switches. In this case study we calculate R_f to determine likelihood of the product failing due to an unexpected software error. The overall score for R_f of the product is 0.36 or 36%. With an overall R_f range from 0.00 to 1.00 this device falls on the bottom half of the risk scale for unexpected software failures.

As the data shows we can see the main source of risk is due to age, even though that factor is not weighted the heaviest. Because this is a new product, Age received the maximum value of 30, making up 22% of overall R_f . To address this risk EATON will invest in real world customer trials. These are pre-ga (general availability) installations on a low number of sites. Pending successful trials EATON will move to GA with a lower R_f for this product.

Table 2. R_f Score of the EATON F7 Recloser control.

ID	Score	Weight	Value
S	0	5	0
QR	10	1	10
KM	10	1	10
F	5	3	15
T	5	5	25
E	5	5	25
C	2	3	6
M	5	3	15
N	0	3	0
D	0	3	0
U	0	3	0
A	10	3	30
TOTAL			136/380

Conclusion

Previous risk methods have focused on semi-quantitative risk analysis. By quantifying risk, it is possible to discern a more realistic risk that companies face when implementing software. It is often very clear what the benefits are of releasing software early, (e.g., new sales). It must also be possible to discern the risky cost of unreliable software.

Our goal was to quantify the risk of failure in critical real-time systems. By using a literature review meta-analysis process, we determine a set of factors that impact quality and thus impact risk of failure. We then assigned weights, as not all factors equally impact quality.

We evaluated the metric based on two case studies, based on information provided in the news. Based on further research, including real-world work, we can better refine our Indexes by adding additional factors for risk and impact and adjusting weights of those factors.

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Money Laundering: A Risk Analysis

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Abstract

Money laundering is a crime in which the criminal conceals the origin of illegally obtained money, by making such proceeds appear to have derived from a legitimate source. Money laundering enables crime to be legitimized to about \$1.4-3.5 trillion or 2 - 5% of global GDP annually worldwide. Money laundering is a global problem that poses serious risks to the financial sector and governments of every economy. This paper considers its effects on government and business, by performing a risk analysis. We investigate scenarios, as well as the financial impact of money laundering. We then consider the controls that can be implemented in Information Technology to help prevent, detect and correct this criminal activity.

Keywords: Risk analysis, anti-money laundering, drug trafficking, artificial intelligence.

Main Conference Topic: Computer Science, Security and Information Technology

Introduction

Business is concerned with making money, but there is a danger of making money with criminal enterprises. Money laundering is a crime in which the criminal conceals the origin of illegally obtained money, by making such proceeds appear to have derived from a legitimate source. Methods of laundering money includes shell companies, investing funds from criminal activities in legitimate businesses, overseas banks etc. However, legitimate institutions are at risk simply by cooperating with criminals. This paper considers the potential costs of doing business with criminal enterprises, detailing risks and controls involved to business. We also consider the effect on the nation of allowing money laundering.

We observed that current literature on risk involved with money laundering fraud does not involve any qualitative or quantitative risk assessment, which is the focus of our paper. Radulescu [1] described the legal and economic aspects of money laundering fraud, explaining how to combat money laundering globally: Group formations of Commission on Crime Prevention and Criminal Justice (CCPCJ) and Financial Action Task Force on money laundering (FATF) help combat the issue. Radulescu stated that specific regulations at the national level should be integrated with an international cooperation process and advanced technology should be ethically applied to combat the issue. Shu [2] stated that the attitudes of employees within an organization play a key role in combating money laundering fraud. Shu mainly focused on the roles and responsibilities of employees in "Anti-money

laundering” programs, including compliance. Denys, Olga and Richard [3] proposed an anti-money laundering model, where a combination of digital forensics, database tools and database analysis methodologies were used including IT tools: MySQL Server and SAP crystal dashboard designer. Su-Nan and Jian-Gang [4] have proposed a money laundering risk evaluation method based on decision trees. Authors have randomly selected 28 bank customers and 4 attributes related to money laundering risk from the data warehouse. Their paper included used data mining technology for customer money laundering risk judgment. Aidaralieva [5] investigated the relationship between money laundering and extremism. She concluded that those who launder money and those who distribute extremist materials have different economic and political goals. Nhien [6] addresses the application of data mining in detecting money laundering. Multiple data mining techniques such as clustering, neural network, genetics algorithm and heuristic were applied to provide a solution for detecting suspicious transactions. Xuan [7] researched constraints in anti-money laundering business processes in China. Their focus included constraints like the immature SARs (Suspicious Activity Report) extracting system and AML (anti-money laundering) internal control mechanism, and the changing AML administrative rules and regulations, the problematic AML motivation, skill incapability, and low training efficiency. Viritha [8] researched anti-money laundering practices in banks and customer’s awareness in India through a customer questionnaire. Their focus was the need for public awareness campaigns on the importance of anti -money laundering system by the Reserve Bank of India.

We have found that most of the literature in regards to the money laundering fraud was specific to detection techniques, data mining techniques and decision tree risk assessment. Since there was no specific model of risk assessment, our study helps to provide an analysis of costs of money laundering fraud, risks of money laundering fraud, controls to mitigate the fraud and an overall qualitative and quantitative risk assessment of money laundering fraud. The next section includes a qualitative risk analysis.

Qualitative risk analysis

In this section, we discuss risk scenarios, based on history, which best describe the extent of money laundering in terms of costs and crime. Three scenarios in regards to money laundering are discussed below based on drug trafficking, bank fraud and investment laundering in the United States. These scenarios demonstrate example values for actual money laundering crime, the penalties and fees, and the procedure used to commit the crime.

Hong Kong Shanghai Banking Corporation case: HSBC Holdings agreed to pay an amount of \$1.92 billion in the form of fines to U.S. authorities for allowing itself to be used to launder drug money from Mexico and other illegal banking transactions. The Sinaloa cartel and Colombia’s Norte del Valle cartel of Mexico totaled \$881 million in laundered money through HSBC. The bank also agreed to pay an extra amount of \$665 million in the form of civil penalties to regulators including to the Federal Reserve and the Treasury Department [9].

Money Laundering via Drug Trafficking: In San Diego, the court prosecuted eight defendants because of their participation in conspiracies to distribute multiple controlled

substances throughout the United States and to launder millions of dollars in cash proceeds from those drug sales. An affidavit lists over twenty fraudulent accounts at Bank of America and Wells Fargo Bank opened using falsified Mexican identification documents. A massive amount of \$10 million were charged by the court due to their charges of laundering. The total amount laundered by the criminals were \$5 Million through drug sale proceeds. [10]

As much as \$100 billion a year in drug trafficking cash moves through the U.S. financial system, according to the Financial Crimes Enforcement Network (FinCEN)[11] The globalization of trade, finance, and communications has made it easier to transport illicit drugs and launder the proceeds. The US department of Treasury estimated that drug trafficking generated about \$64 billion annually from U.S. sales. Trade in illicit drugs is estimated to be worth \$400 billion a year, and accounts for 8% of all international trade, according to the United Nations. An amount of \$63 million was to be set aside by the US government to combat narcotics-related money laundering [12]

Investments' laundering case: Christopher A. Maguire, a businessman from Tampa laundered \$4.9 million from the money received as investments from 150 investors where the investors' funds were used by Maguire on personal expenditures and as payments to his promoters. The court ordered him to pay \$5.5 million as a result of his money laundering proceeds [13].

The above money laundering scenarios demonstrate techniques of money laundering, including using the investors' money as a personal one, diverting it into various activities, placing the laundered money from drug proceeds in the legal financial system by bank deposits, constructing buildings and investing in the casinos. A bank or financial organization with a weak internal control system and lacking an effective anti-money laundering strategy is an example potential collaborator for money laundering. Also, we can see that the penalized amount was twice the actual amount laundered in most the cases. In the next section, a quantitative risk analysis is done.

Business Level: Quantitative Risk Analysis

The goal of our quantitative risk analysis is to determine the monetary extent of money laundering's effect related to financial impact and likelihood. Then a control list for risk mitigation strategies and techniques is noted and classified accordingly.

Risk is calculated as $ALE = SLE * ARO$, where the single loss expectancy (SLE) is the financial impact of a single instance of the risk occurring, the annual rate of occurrence (ARO) is the likelihood or probability of the risk occurring, and the ALE is the resulting annual loss expectancy used in quantitative risk analysis.

Table 1 shows threats to the world and the United States government of money laundering, as well as the portion of drug traffic allocated to it.

Table 1: Annual Money Laundering (ML): Totals versus Drug Trafficking

Annual Money Laundering	Money Laundering Totals	Totals Due to Drug Trafficking
Worldwide money laundering	\$3.5 Trillion	\$400 Billion
U.S. money laundering	\$300 Billion	\$100 Billion
Money spent by U.S. govt. to combat ML through drug trafficking		\$63 Million

Source: (National Money Laundering Risk Assessment 2015 [24]) (Institute for Policy Studies: “Drug Trafficking & Money Laundering” [11])

There is a strong relationship between money laundering and drug trafficking. In order to divert the amount drawn from the sale proceeds of drugs and avoid their properties seized by the government, the criminals transform the monetary proceeds from their drug activities into revenue by using the legal sources. Table 1 portrays the extent of money laundering happening via drug sale proceeds in the USA and worldwide.

Since banks need to be concerned with their inadvertent cooperation in money laundering, it is useful to look at how criminals pass money into banks. Money laundering criminals often use wire transfers, since the transfer of money happens quickly way and money is difficult to return. If the purpose of payment transfer is inconsistent with the customer account activity and wire details, the person sending many wire transfers within a less time to the same beneficiary could be few of the signs of money laundering via wire transfers.

Table 2: Wire Transfer and Money Laundering in the USA

Total no. of transfers/day	% of laundered money
700,000	0.5
Total amount involved in wire transfers/day	Total amount laundered
\$2 Trillion	\$300 Million

(Source: American Bankers Association Task Force Recommendations, 1989)

Money laundering has personal impact on life as well that should be considered from a Single Loss Expectancy perspective. Persons performing money laundering and cooperating with such criminals can land in jail and result in large fines. Table 3 shows incarceration rates and times.

Table 3: Money laundering investigations and related data in the USA

	Investigations	Prosecution Recommendations	Incarceration Rate	Avg. months served
FY 2016	1201	1010	82.20	62
FY 2015	1436	1301	84.10 %	65

Source: (IRS Criminal Investigation Management Information System [25])

Table 4 describes the penalty amount and prison durations for the criminals charged with prosecution in the USA.

Table 4. Penalty Data Analysis in the USA

	Amount	Penalty In Amount	Prison Duration
Money Laundering Prosecution	Any Amount Laundered	\$500,000 or double the amount of money laundered, whichever is greater	Twenty years; 35 years or more for repetitive prisoners.

Source: (Criminal Defence Lawyer Blog: "Money Laundering" [26])

Risk analysis needs to determine likelihood as well. One in 4 banks have experienced enforcement actions by U.S. regulators due to anti-money laundering compliance issues [15]. It is estimated that banks worldwide spend around \$8 billion on AML compliance annually. They have also spent \$321 billion in fines since 2008 for regulatory problems, which includes money laundering, but also terrorist financing and market manipulation.

To conclude, we have shown that if an organization is caught laundering money or participating in ML in the U.S., there is near-certain jail time and fees often double that of the amount actually caught. Also, banks are highly likely to be visited by law enforcement sometime regarding potential ML. The following section discusses the risks and challenges of money laundering at the national level.

National Level: Risks and Challenges of Money Laundering

Many nations have problems with money laundering. Table 5 shows the estimated amount of money laundered in various economies per annum.

Table 5. USA vs Worldwide economies

Countries	Amount Laundered
USA	\$300 Billion
CHINA	\$120 Billion
AUSTRALIA	\$200 Billion
PAKISTAN	\$10 Billion

Source: (New York Post, US Department of Treasury, Parliament of Australia blog, Newsweek magazine)

At a national level, a few of the major risks that emerge due to money laundering is a rise in crime and corruption, a negative effect on the legitimacy of the financial sector, a weakening of the soundness of a country's financial sector, a negative effect on the currencies and interest rates, economic distortion and reputational problems, tax evasion, and a compromised economy in whole [16].

Some of the challenges in preventing money laundering include a failure to understand the evolving technology (e.g., the persons monitoring the tools to detect the fraudulent transactions lack knowledge and experience in regards to the particular technology), failure to hire skilled resources with in depth knowledge of anti-money laundering strategy. Banks and financial organizations may also be unable to manage the quick growing customers due to diligence requirements and cross border anti-money laundering compliance requirements, and limited availability of money laundering data.

Suspicious Activity Reports or SARs continue to play a critical role in U.S. anti-money laundering efforts. The U.S. has a very high number of SARs, both in absolute and in relative terms. In 2014, Financial Crimes Enforcement Network (FinCEN) received 1.7 million such reports.

Controls

Establishing an effective anti-money laundering strategy and placing highly trained staff in place could help prevent money laundering in organizations. We have already discussed the relationship between drugs and wire transfers as sources of money laundering. While it is really difficult to identify the laundered transactions, some signs indicate suspicious transactions that need further investigation such as [17]:

- the client is reluctant to provide information or required documents;
- unusual heavy transactions with no apparent business relationship between the parties to the transfer;
- loan transactions between entities that do not match normal commercial arrangements;

- the client is willing to pay cash where e-transactions are common.

In the age of emerging technology, Information Technology control is becoming an effective means for AML. Authors in [18] proposed an anti-money laundering strategy where a combination of digital forensics and database analytics are used to detect fraudulent transactions. Methods like retrieving relevant information from large financial databases using store procedures, considering these database logs as evidence, and analysing them using digital forensic approaches and Business Intelligence tools are considered to be part of the AML strategy. Other methods include identifying the data sources for supporting the thresholds set by the Know Your Customer policies in the organization. For example, if an indicator 'greater than or equal to a specific amount of money' is defined, transactions may be considered suspicious when they match these criteria within a given period of time. Then, creating a de-normalized table to store relevant transactions, where they could be analysed using SQL procedures to support the investigation and report them accordingly.

A combination of data mining and natural computing techniques can be used as a control to detect money laundering transactions [19]. Here, transaction analysis and investigation are the two approaches used by the authors where transaction datasets of each investment funds are separately analysed putting a data mining algorithm in place as customer behaviours differ in nature from one fund to another one due to the fund's features and then investigated using multi techniques such as knowledge base, clustering, neural network, genetics algorithm, and heuristic [19].

Banks traditionally used sample-based transaction methods, but big data analytics is now a platform where a large number of transactions can be reviewed at once. As per the bank reports, new age chips can now process 1.78 trillion instructions per second. The biggest development in analytics is the improvement in data visualization tools. Data analytics improve visualization and identification of patterns and links between different suspicious accounts. These used to be hidden under layers of numerous organizations, thus bypassing controls of the legal and financial system. With the use of a proximity analysis, two or more unrelated entities within the same locality which are being involved with the layered and red flag transactions may be identified by the banks using such tools. Another approach called predictive modelling, being an advancement in the statistical modelling, helps to find fraudulent transactions [20].

Wire transfer screening is also considered to be one of the best money laundering controls where technologies like knowledge-based systems and link analysis are used. Knowledge-based systems can automatically make inferences about wire transfers and other data and link analysis can help identify relationships among individual accounts, people, and organizations. Effective use of link analysis requires a considerable database necessary to provide the required indicators of money laundering activity [21].

Internal controls in banks and other financial organizations include establishing an Anti-money laundering strategy, which is a set of procedures designed to guard against someone using the firm to facilitate money laundering. For the AML strategy to be a successful one, the internal policies, controls and processes should be designed effectively

in adherence to the Bank Secrecy Act while appointing a knowledgeable and experienced compliance officer to monitor day to day operations and audits of that particular organization.

Conclusion

Through our risk analysis, it is understood that money laundering is a global problem deeply affecting the financial sectors and economy growth of its affected countries. While detecting and preventing money laundering transactions using internal controls, it is difficult to prevent it completely because of its volume and growth. The three steps of committing the crime include placement, layering and integration. Shell companies, diverting the investments, casino acts, drug acts, real estate frauds, terrorist financing are a few of methods of laundering money.

Establishing an effective and efficient anti-money laundering strategy in each and every financial organization could help prevent money laundering to some extent. With the use of emerging technology like machine learning, database analytics, link analysis and knowledge based systems as discussed above, a few of the suspicious transactions may get detected and later used for further investigations. Though the data related to the money laundering acts is very limited, there is a scope for further research in the field of bitcoin money laundering and combating terrorist financing and money laundering.

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Artwork Born from the Borderlands

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Abstract

As an artist, research in my profession is recognized as the creation of original artwork, exhibiting those artworks, having images of the artworks published or exhibitions reviewed, and participating in professionally relevant activities as an expert in the field. My artwork is primarily inspired by the Mexican folk art and religious shrines of my Mexican heritage and upbringing in Southern Arizona, about 50 miles from the Mexico border. It is a small snapshot of international exchange, a sample of culture moving beyond national boundaries and into the global.

While my use of materials, subject matter, and aesthetic vocabularies is built on the foundation of the traditional Mexican folk art which inspired it, I blend it with American Modernist styles. My artwork can be understood as a visual example of the fusion that organically happens for those living in “the borderlands”.

My presentation will (1) summarize the cultural blend I describe above, (2) show examples of my original artwork (my research), and (3) explain how the exhibition and exposure of this type of artwork informs communities about the aesthetic styles of diverse cultures.

Keywords: Folk Art, ceramics, Southwestern borderlands, Mexican-American art

Main Conference Topic: Original artwork; “Borderland” inspired artwork created by Lisa Marie Barber

Introduction

Most artists will tell you they started creating when they were very young, influenced by school projects, craft materials found in their house, and the artwork that surrounded them. I was no different. However, I didn't realize until I attended the University of Texas at Austin to obtain a Masters of Fine Art (the terminal degree for artists) that the influences woven through my artwork were very different than what my professors and peers were accustomed to. My work was "too busy", had "too many colors and patterns", and did not align with contemporary Western craft's definition of refinement.

My professors were supportive and seemed confident in my potential, but we simply couldn't connect on what my work was supposed to look like. I tried to pare down the colors. I tried to simplify. Nothing hit their mark. About 2 months into my degree program, my committee and I were talking and, for some reason, I brought up my Mexican heritage and where I was from—Tucson, AZ. Everything changed. From then on, my professors didn't try to change my art and style; they recognized my work as being a product of a culture and environment that often resides outside the mainstream of contemporary art. I am still grateful to them today for being cognizant of their biases/presumptions and for validating my differences.

Description of related work: Mexican Folk art and Shrines, presence and influence

Mexican folk art is the most pervasive influence in my artwork. Whether incorporated in my ceramic installations or mixed media quilts, compositional strategies of Mexican folk art and religious shrines are at the root. Having grown up in a bi-cultural home where Mexican Catholic customs dominated, creating work around this aesthetic was natural—it was the artwork of my household and my community. Its traditions value public accessibility, pattern and decoration, dense arrangement of imagery, and celebratory portraits of everyday life. These elements are often underrepresented in contemporary American/Northern European art where "less is more" philosophies and conceptual dominance are lauded. Even in a time when post-modern and pluralistic ideas have supposedly made all sectors of social and academic culture inclusive, there is still much emphasis around the non-diverse, status quo of past decades (Rosatti 1990). This bias is evident in most American art museums and, as I personally witnessed in my education, in academia.

Mexican Folk art and Shrines: The artwork I knew



Figure 1: Mexican Catholic Shrine



Figure 2: Aurelio Flores, "Tree of Life", ceramic.

Growing up about 50 miles from the Mexico border, attending catholic mass in largely Hispanic congregations, and visiting Nogales, Mexico at least 1-2 times a year, I was surrounded with the artwork pictured above. It imprinted on me. Its decorative and "excessive" qualities instilled in me a belief that ornamentation and abundance denoted value and importance.

Materials never had to be "fine" and tools were expected to be simple. Evidence of the hand working a surface was something to value; it proved the presence of the maker. Additionally, art and "making" was something accessible to everyone; everyone could play a role in creating something special. Throughout my life and career, I've remained loyal to these practices and, as a professor, I strive to teach these values.

With the exception of the kilns needed to turn clay into ceramic, and a large mixer used to reconstitute/recycle discarded clay salvaged for my supply, none of my tools are mechanical and most are like eating utensils; all can be carried in one pocket of my jeans. Additionally, my quilts are created through hand sewing; very rarely do I employ a machine. In a time when everything is increasingly digitized and computer interactive, I'm committed to "low-tech" methods. My process is one that has been used in every civilization and culture and remains available to most.

While my artworks may not be visually understood as simple compositions, they are simple in concept and method. At their heart, they serve as personal meditations on the ease, happiness, and beauty that outlines every day.

Process and results: The artwork I create

Figure 2 and 3: "Heart Shaped World" ceramic. 108" x 158" x 200" and "Big Heart City", detail of the same piece.



Figure 5: Lisa's House, quilt. 88" x 63"

Figure 6: "Girl", ceramic. 71" x 66" x 63"

As evident in my artwork samples, my work is not a recreation of the folk art which inspires it; it is something different. To me, it is a merging of two cultures and understandings- American and Mexican, traditional and contemporary. Further, it's important to note that the Mexican art which influenced me is, in itself, a fusion of global

cultures-Islamic, Spanish, Catholic, and Indigenous American-that mingled as a result of centuries of conquest occurring in the Iberian Peninsula through to Latin America (Vazquez 1996). Like those residing in my hometown centuries ago, I am a blending of those once separate, coming together.



Figure 7: Interior of San Xavier del Bac Mission in Tucson, created by Spanish Missionaries and indigenous tribes in the 18th Century

Conclusion

As stated in my abstract, artists/art professors typically do creative activity (as opposed to research) and, specifically, this means creating original works and showcasing/exhibiting them. (Giving presentations at academic conferences is neither an expectation or a regular occurrence in my field.)

While I am active in my studio producing multiple works a year, I have tried to use my position as an art professor as one where I can call for increased inclusion. I view my role as being one that informs galleries, art centers, students, and audiences, that there are a variety of aesthetic choices and preferences; what we see in American museums-and sometimes, what we champion in our classroom studios-isn't a representation of all the diversity of how art is made and what compels its making (Goodwin Wilson 2005).

Throughout my career, I have sought to exhibit my artwork nationally, making note of my borderland style and my Mexican-American heritage. I have exhibited in San Francisco, New York, Chicago and throughout the U.S. I participate in internationally competitive artist residencies, deliver public workshops, and teach my courses with special attention and appreciation of ethnic diversity within visual art. Of particular interest to me, is exhibiting in communities of color, where I cannot only validate some of the aesthetic styles within the community, but serve as a role model and bridge for younger artists. In all, I hope that in the years to come, acknowledgement and inclusion of ethnic/cultural styles and methods are more easily recognized, celebrated, and exhibited throughout the U.S.

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Faculty professor of art and director of Liberal Studies at the University of Wisconsin- Parkside. Her artwork has won several awards has been featured in over 40 solo and two-person exhibitions from San Francisco to New York in the United States.

Research and Technology Transfer in the Field of "Intelligent Systems for Mobility" at Ostfalia University in Lower Saxony / Germany

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Abstract

For the automotive industry worldwide and in Germany in particular, there are currently major challenges in innovation and changes in technology. These challenges are related to considerable social impacts, for example by internationally active players such as Google or Apple who are aiming for the automotive sector as companies outside the automotive industry. Under the headline of digitization they are targeting new business models in the "old economy". The available time of the vehicle passengers is a valuable resource that such companies want to take over. Platforms for autonomous driving are also being tested here. Due to the importance of the automotive industry in the Braunschweig region (local region of Ostfalia University), the participants must join forces to actively create future innovation paths. Key topics of innovation in the field of "intelligent mobility" are sustainable and efficient drive concepts, safe electromobility and infrastructure, semi-autonomous and autonomous driving, digitalization of the vehicle (networking with Internet services) and smart mobility.

This paper gives an overview of research and transfer in that filed at the Ostfalia and addresses a project example.

Keywords: intelligent systems for mobility, electromobility, autonomous driving

Main Conference Topic: Digitalization and Industry 4.0, Intelligent Systems for Energy and Mobility

Intelligent Vehicle Systems and Safety

The increasing use of intelligent and connected vehicle systems will improve energy efficiency and vehicle safety. An efficient and safe traffic flow results in a significant reduction of the overall economic costs in the transport sector and increases safety for road users. New potentials result from the digitization and connecting of vehicle systems with each other and with the infrastructure, as well as from the technology of autonomous driving (Car to X communication and networks).

The current challenges in reducing emission are showing that fuel consumption and pollution from motor vehicles can hardly be reduced further by optimizing the combustion engine and powertrain. On the other hand, low-emission electric vehicles as a key technology cannot yet achieve the required ranges. This is due to the actual low energy densities of

electrochemical storage (batteries). As a result, the customer acceptance in that technology is still a topic.

The sharing of chemical and electrical energy as a drive source in hybrid vehicles provides a transitional solution to this conflict. In view of that win, research and development for hybridization and full electromobility are getting more and more important. Appropriate hybrid systems have been researched and developed, ranging from micro over mild to full hybrid and plug-in systems, as well as pure electric vehicles with range extenders.

Electromobility and Infrastructure

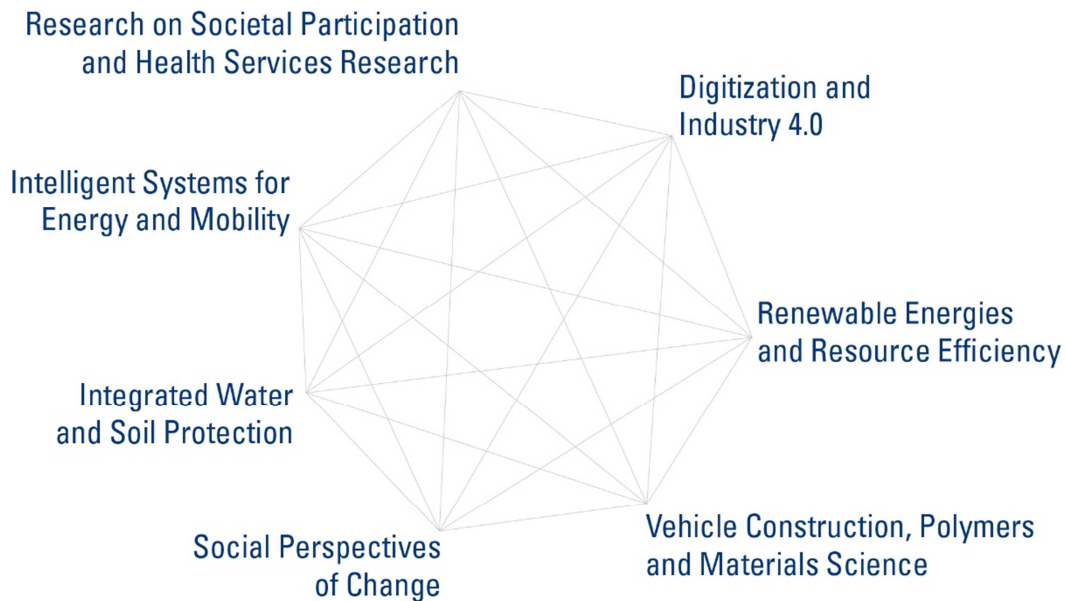
Electromobility can be a main key to sustainable mobility. But sustainability in this context is only achieved when the required electrical energy is supplied from renewable sources (e.g. wind turbines). To achieve this energy, generation and distribution as well as energy management and storage (Smart Grid) must be developed together. It is not enough to replace one drive concept in the car with another. Research and development in electromobility covers a lot of fields: the technical development of electrically powered vehicles, their communication technology (networks), production, distribution and provision of renewable sources of energy for electric vehicles. User stories and scenarios in electrical and autonomous driving must be analyzed.

The overall potential for improvement by increasing driving range, reducing charging times as well as costs of electric vehicles are in competition with the state of technology of today's combustion engine vehicles. The electric car seems currently still at a disadvantage. The above considerations alone are therefore not sufficient to noticeably improve the social acceptance of electromobility. In addition to the technical measures, economic and social aspects have to be taken into account. Topics such as generating energy, distributing energy, the ways of mobility (for example cars, buses, e-bikes) and the potential of digitization are resulting in an overall new system. New business and usage models are necessary.

The investigation of the technical aspects will result in the optimal use of regenerative energies for mobility. The realization of electromobility with a high proportion of regenerative energy offers an important potential for increasing social acceptance. The right combination of renewable and conventional energy production, energy storage and use is assigned to play a key role. In particular, the optimization of charging processes of the storage (vehicle storage, stationary storage) and the intelligent control of producers and consumers based on fast communication methods are of special interest.

Research Areas at Ostfalia

The professors and researchers work on socially relevant challenges in the seven research areas in a cross-disciplinary way. Two of those areas will be considered more closely in the following.



Renewable Energies and Resource Efficiency

This research area is mainly concerned with the development of methods and competences for increasing the efficiency of buildings, districts, production facilities and processes, with particular reference to sustainability and environmental compatibility. Thematic focal points are energy and building technology systems, energy-efficient and resource-efficient production methods as well as the use of biomass to produce materials and energy. The following faculties are actively engaged in the research area:

- Faculty of Electrical Engineering
- Faculty of Automotive Engineering
- Faculty of Mechanical Engineering
- Faculty of Supply Engineering

Intelligent Systems for Energy and Mobility

The object of research are intelligent systems for managing integrated system components in the area of energy management and supply, vehicle dynamics, electrical drives, driver assistance and integral vehicle safety. In the energy area, the focus is on the use of renewable energies. Involved faculties are:

- Faculty of Electrical Engineering
- Faculty of Automotive Engineering
- Faculty of Computer Science/IT
- Faculty of Mechanical Engineering
- Faculty of Transport-Sports-Tourism-Media
- Faculty of Supply Engineering

Project Example ZuFOR: Future Vehicle Technologies in the Open Region Lab

The transdisciplinary joint project “ZuFOR” at Ostfalia University covers the period from 1st October 2016 to 30th September 2020. ZuFOR means: “Future Vehicle Technologies in the Open Region Lab”/“**Z**ukünftige **F**ahrzeugtechnologien im **O**pen **R**egion Lab“, funded by the Ministry of Science and Culture of Lower Saxony and the Volkswagen Foundation.

The project comprises three technical subprojects respectively focusing on innovative vehicle technologies in active safety systems for passenger cars, lightweight plastics structures in car manufacturing and intelligent, cross-linked electric vehicles with Range Extender. The technical subprojects are complemented by an integrative “horizontal” project designed to facilitate and intensify knowledge transfer between project groups and business, research institutions as well as networks.

Within the subproject “Intelligent Electric Vehicles with Range Extender in Traffic Systems with Vehicle 4.0” (iREX 4.0) research work focuses on cross-linked driving of autonomous electric vehicles with fuel cells serving as range extenders (RE). The aim of the subproject iREX 4.0 is the development of a flexibly scalable, predictive, electronic vehicle management (peVM). This system comprises predictive algorithms for autonomous, energy-optimized operation also by means of extended, cloud-based, digital maps and V2X communication as well as subordinated vehicle functions required for driving, such as chassis- and energy management. The present work focuses on an intelligent route guidance of an optimized velocity profile for the selected route, for prediction of the power the vehicle needs to reach its destination, and for a model predictive power distribution to the energy sources battery and fuel cell.

Conclusion

Electromobility will only be successful in the long term if renewable energy is provided, suitable business models and sustainable mobility concepts are developed and social issues are resolved. The Centre for Electromobility (CEMO) at Ostfalia as well as the research fields “Digitization and Industry 4.0” and “Intelligent Systems for Energy and Mobility” are working areas at Ostfalia University. Here professors and researchers from the faculties of Electrical Engineering, Automotive Engineering, Computer Science, Mechanical Engineering, Transport-Sports-Tourism-Media, Supply Engineering and Business work together on solutions for the technical, economic and social challenges of intelligent mobility systems. However, cooperation can only be successful if it is transdisciplinary with companies, politics and civil society. It is important to use the competences in the region and to test and apply them in practice. The region in south-east Lower Saxony is a “showcase” for electromobility. In the district of Wolfenbüttel there is an initiative for the application of electromobility in rural areas and in the city of Braunschweig there is already a test route for autonomous driving, with even more to come.

Developing the mobility of the future together and establishing the products nationwide not only makes a contribution to environmentally friendly and flexible mobility, but also ensures the economic success of a region.

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To Study the Impact of Sustainable Careers in A Globalized World

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Abstract

In this fast changing and evolving globalized world, where change is the only constant aspect of survival, it has become essential to shed a different yet complimentary light on the subject of sustainable career means apart from studying its impact on employability and its stimulating and hindering factors on one's career span and various ways it affects productivity and personal growth. Careers are a complex phenomenon where conceptual models and cause effect relations are not applicable, there are various factors and dynamics which impact the sustainability of one's career throughout the career span. This research paper also aims to reflect on the various pitfalls and challenges that an employee might face and to understand the various factors that are involved to protect their sustainability in this ever changing and a fast-paced globalized world. Changes with regard to time, workplace and social place have relevant implications on the career sustainability and growth of an individual. Sustainable careers are essential as it helps an individual to focus on the intersection between the talents and what the world needs from him on the one which sustains it emotionally. In this research study, we will aim to understand the ways in which the careers can be sustained and enhanced, the way one can aligns personal goals with organizational values to excel and progress in their span, the way it promotes the development of employee's personal resources underlying their sustainable abilities to work. We also aim to analyze the new trends and opportunities and how it can influence employability where people can be sustained and enriched in their work.

Keywords: Sustainable careers, career enhancement, employability, employee development

Main Conference Topic: Economy, Entrepreneurship, Tourism

Introduction

An article that was published in the Atlantic in the year 2015 explored what could happen if machines would replace all the jobs that are available and we became a "world without work". The author, (Thompson, 2015) suggested three possibilities wherein he stated that some people who will be displaced from the workforce would be devoting all their time to leisure, whereas some people will seek to build communities outside the workplace and some will fight either passionately or fruitlessly in order to gain their position back in the formal workforce of which they were once a part of. All the above stated features are the features of consumption, communal creativity and contingency.

In this ever-shifting career landscape, one of the logical steps toward career development and career enrichment is to move for sustainable careers which is defined as the variety of paid and unpaid work experiences that provide continual growth, renewal and that intersect multiple life contexts resulting into the meaning and well-being of other individuals over the time (Lawrence, 2017). In addition, sustainable careers also suggest that there is a role for social justice in the area of career development. The main factor which makes a sustainable career different from a normal career is that it reflects influence of life experiences and persistence on the employability and it responds this to the current context of the working environment (Lawrence, 2017). Apart from that, it also throws a reflection as to the needs of not only the workers but also the employers unlike many of the existing theories that focus on either of the two. (Valcour, 2017)

Another important fact is that with advancements in technology, it is no secret that there are more and more robots that are being developed which aim to replace the human workforce. But as of now, it is also true that today, some jobs, for instance in the healthcare sector and in those of the truck drivers are safer to perform manually than automating them. That's, according to new study that focuses on the future of automation in the coming 5-10 years. These workers must constantly focus on the changing working conditions and upgrade their skill set at regular intervals. That makes robots hard to handle their jobs for instance, in the case of the truck drivers, government still require them to be on board even if they are not driving. Not surprisingly, all the jobs which are repetitive in nature would be the ones that are most prone to automation. This means, that the workers that are employed in retail, warehousing and other industries that demand repetitive jobs, are most likely to lose their jobs in the coming years. (Meyer, 2017). Also, new study conducted by the McKinsey Global Institute estimates that between 400 million to 800 million of today's jobs are likely to be replaced by automation by 2030. This research conducted fuels up an already concerning picture in today's employment landscape. Not only in the U.S, but also across the whole globe, it is the middle class that is going to suffer the most, office administrators and the construction workers are the ones that are feared to lose their respective jobs or see a depression in their wages in order to keep them competitive toward the robots

All the above stated things might be seen over the top for some, but just like some of the scariest nightmares, all these things are turning out to be rooted in our reality. From factory line jobs to professions like accounting, medicine, amongst others, Artificial intelligence means that at present, more and more jobs can be automated and performed by machines or by algorithms (Marr, April). So, there is no doubt that with increasing technological developments, automation will take over most of the jobs and sustainable careers is one of the most important solutions at which we must focus today. But are sustainable careers a doom or a gloom for the corporate world? What effects would it have on us? All these concerns will be covered in the research

Given this situation, there are three major objectives of the research that are to be presented. First, we wanted to know the necessary factors that companies must consider to transform not only the employer's but also the employee's career into a sustainable career. The second objective of the research would focus on the importance of the sustainable

careers for the efficient age management which would help the older generation in the workforce to improve their overall effectiveness in the organization. The third, and the final objective of this research would focus on the various challenges that the Human Resources of any company or organization would face in order to tackle automation and develop sustainable careers for its employees

Research Objective 1: To study the necessary factors that companies must consider to transform not only the employer's but also an employee's career into a sustainable one.

A 2018 Gallup study observed critically that 85 percent of the employee's function below their potential and they don't feel engaged in work. Globally, this study implies that most of the companies work on autopilot. Also, there are instances where in employees give up their personal beliefs and values in order to have a positive number in an employer's cost to reward benefit matrix for an employee. On the other hand, regardless of the size of the company or the organization, have problems in changing their management beliefs that sometimes make them struggle in order to establish their relevance in the industry. All of the above stated information would be taken care of in the research ahead.

Research Objective 2: To study the importance of sustainable careers for efficient age management and for the improvement of quality of the ageing generation at workplace

Over the next few decades, both career length and retirement age are expected to rise, thus creating more inclusive work places by increasing their quality is a pre-condition of a win-win situation for both employers and employees regardless for age.

Research Objective 3: To analyze factors that the Human Resources should inculcate in the organizations to ensure sustainable career development of the employees.

As much important as the sales, marketing, finance or the operations department is to a company, Human Resources are equally or more important than them, as they make sure that the company is functioning properly and that the employees remain motivated and engaged throughout their term in their workforce. With automation and technological development, the human resources of all the companies would have to reinvent themselves in order to make sure that their workforce remain competent and have high spirits with changes in the environment around them.

Related work

Sustainable employment has become one of the most important topic for today's generation. Because of the aging dejuvenation and rejuvenation of the workforce of a company, most of the companies will have to rely on the contribution put forth by individuals who are more experienced in their workforce. Because of the increase in the retirement costs, workers today are working longer than they once did. Because of this situation, the sustainable labor market participation of the experienced employees has drastically increased in a company or an organization. At all the levels of the management, initiatives have started which aim to promote workers sustainable employment and extend their participation amongst the older workforce (Karen Van dem, 2017)

Primarily, there are three indicators of sustainable employment that were considered to be the crucial requirements for all the employees to continue working in a satisfactory way. Worker's employability, worker's engagement and affective commitment were the crucial factors recognized by researchers, organizations and social parties to have the same importance as that of labor participation of the employees in general and that of the older employees (Karen Van dem, 2017).

In contrast, by the end of the twentieth century, the nature and the notion of what a career is changed dramatically. Newer concepts of boundary less organizations (Ashkanas, 1995) and boundary less careers emerged (Arthur, 1994). Careers became more and more transitional, flexible and dynamic in nature. Today, the new model of careers comprises of a variety of options having many possible directions for development. People today have experienced newer ways of defining what career success means to them. It can be a sideways move, a change in the direction of the organization or of their personal aspiration. Because of this, people today can choose from a variety of options and there is no single way of defining what success is, hence a new term that revolves around multidirectional careers paths. This multidirectional pathway does not stop in the actual career path undertaken but most importantly it means for the evaluation of the career success. Today, individuals all across the globe have a number of ways in which they can define what success means to them. This can be career satisfaction, work life balance and other measures of self-perception. All the stated things have contributed to an individual apart from the external measures of income, rank and status amongst the others. (Baruch, 2004)

The main shift is there in the change of the psychological characters. From the organizational point of view, it is shifting mostly from offering the careers to secure an individual's employment to "opportunities for development" (Rousswau, 1996) From an individual's point of view, it can be looked as a firewall to the traditional commitment to the organization moving to a number of commitments which mostly includes a traditional commitment to the organization. Strong individual approach and point of view is accomplished by social cognition and prominence to a number of life constituencies. We can thus infer that people have less organizational commitment in them (Baruch Y. , 1999). These refer to several levels of meaning including identification, associations and relationships. And, most importantly these relationships can depend on the career stage a person is in (Cohen, 1991)

It is to be taken into consideration that technology and economic factors are severely affecting careers as well. Because, in a competitive economic climate, many organizations are shifting from hiring permanent workers to hiring part time employees in order to maximize their profitability and flexibility. The Knowledge based economies have left most of its people behind, most importantly those that have limited education and this has contributed to an increase in the inequality in pay and also in the benefits (Weil, 2014)

The development of an organizational culture that supports sustainable careers, most importantly must focus on developing and implementing leadership that is willing to implement change management at different levels of management. Typically, the

supervisors are given the role of being a gatekeeper wherein they decide that who has access to the flexible working schedules and who has not (Tomilson, 2018). Leaders set the tone and reinforce the culture of any company or an organization. There are three elements that are identified by (Tideman, 2013) that were needed by leaders for sustainability which includes context, consciousness and continuity. Because, they represent a mindset that recognizes the complexities in the whole process and a long-term perspective. (Kira, 2014) put forth into notice that leadership is an essential part of a company or an organization, but employees must also be active participants in it as well.

A culture focused on career sustainability can help individuals overcome the societal and organizational barriers that influence individual employees who are pursuing challenges in public policy and development. A sustainable career remains a blur vision for the individuals who are not secured with their work which also include those individuals that have experienced job loss or are being underpaid as compared to what all expertise they possess or if they are doing multiple jobs to fulfill their financial needs. All of these economic pressures put them in mental stress and the well-being of an employee is at stake which ultimately deviates an individual from the path of sustainable career (Pfeffer, 2010). At the same time, organizations have the power to shift some of the burden on the individuals through the endeavours which include making the adjustments in the hiring process and extending non monetary benefits to the employees at all the levels of the organization. Apart from that they should also develop the required skills that they will need to develop for a sustainable career.

Organizations must also realize that development of an organizational culture that promotes sustainable career is deeply embodied in investment, well-being and the long-term success of the employees working in a company or an organization. By its very nature, a sustainable career develops safety, reduces stress and supports its employees. All of these factors ultimately motivate an employee to work whole heartedly for any given company or organization under any circumstance. Apart from which it also invests in the career development of the employee

Research Methodology: Exploratory research is research conducted for a problem that has not been clearly defined. It often occurs before we know enough to make conceptual distinctions or posit an explanatory relationship. Exploratory research helps determine the best research design, data collection method and selection of subjects. The research design used was exploratory research design as the researcher was unaware of the problem and the researcher was exploring the best appropriate means to find the solution to the research topic. This research was conducted with an aim of doing a Qualitative analysis of the topic which required the researcher to do an extensive review of a number of Books, Journals, magazines and Periodicals for the research. Owing to the shortage in time and the necessary resources, this research can also be conducted using a quantitative analysis of the appropriate data which would further enhance the sheer effectiveness that the research already has.

Research Findings and Recommendations:

Research Objective 1: To study the necessary factors that companies must consider to transform not only the employer's but also an employee's career into a sustainable one. In today's New economy where the dynamics are changing every day, wherein uncertainties and hardships in career patterns are highly prevalent worldwide, focusing upon sustainability of individuals careers is of utmost importance and needs to be prioritized. As employees in today's scenario have moved from an expectation of lifelong employment towards a focus on the need to protect their employability and make their career growth sustainable in the organizations. It is important for organizations to increase knowledge of those elements that contribute to sustainable careers for all employees and to enable a better understanding of factors at different levels which affect their sustainability in the organization.

Various macro- level factors account for the aforementioned changes in careers, including an increasingly dynamic and globalized economy and rapid technological innovation, which are reflected in decreased stability of employment and an increase in the pace with which industries expand and contract, management practices also have exerted an profound impact on career patterns of the individuals in the organizations. Most significant among these are organizations delayering resulting in fewer opportunities for promotions or better career development opportunities, decreased emphasis on employer-driven career management programs, increased focus on short term financial results, the use of off-shoring to countries with lower costs and externalization of majority of workforce into contract positions that do not offer security of employment. Nowadays it also argued upon that more emphasis needs to be given on developing the employees internally rather than hiring talent from the external labor market and should be the core talent strategy for all the organizations.

In addition to these macroeconomic shifts and changes in managerial and employment practices, demographic factors are also driving increased career complexity. It is clear that individuals must now focus primarily on crafting their own career sustainability, large organizations with robust career development offerings which focus on other aspects. Rather than moving employees systematically through a prescribed set of training workshops, work assignments and positions, nowadays large employers are more likely to offer employees a menu of career resources and expect them to avail themselves of offerings related to their career objectives. Many employees face the challenge of sustaining their employability without employer support. The career pandemonium that characterizes the contemporary labor market creates anxiety and confusion for many people as they try to guide their own careers. Individuals are not alone in their efforts to craft stable careers in this new and complex world of work but even the employers face complex talent management challenges that result from the same trends that have reshaped the individual careers in this fast changing environment.

A recent global survey of 1605 companies found that nearly three in four report difficulties attracting qualified employees and more than half indicated they are having difficulty retaining these potential and talented employees. Work life conflict drives a

substantial amount of voluntary turnover, especially among the women. There is a strong consensus among the CEO's that a lack of key skills among their workforces and in the external labor market poses a primary threat to profitability of the organizations.

Many companies provision of developmental opportunities is limited, whether lack of budget, creativity or culturally – embedded learning orientation. When we consider the challenges that individuals face in managing their careers along with major talent management challenges that companies are struggling with at present, we can infer that they have been shaped by a common set of challenges that are changes in economic and labor market conditions, managerial policies and practices and demographic and attitudinal factors which immensely impact the sustainability of careers across the globe.

To overcome these challenges and enable sustainable workforce in the organization, it is essential for organizations to pave way for more opportunities and find ways to attract, retain and motivate the managers and employees , develop their skills ,nurture their talent in ways which is cost effective and responsive to both the needs of the business and the needs and preferences of the employees . It is important for organizations to create a fusion of career related needs and goals of individuals and alignment of them with the business strategies of the organization which can come together to create a sustainable career in the future. (Karen Van Dam, 2015)

Figure 1: Four Primary Attributes of a Sustainable career

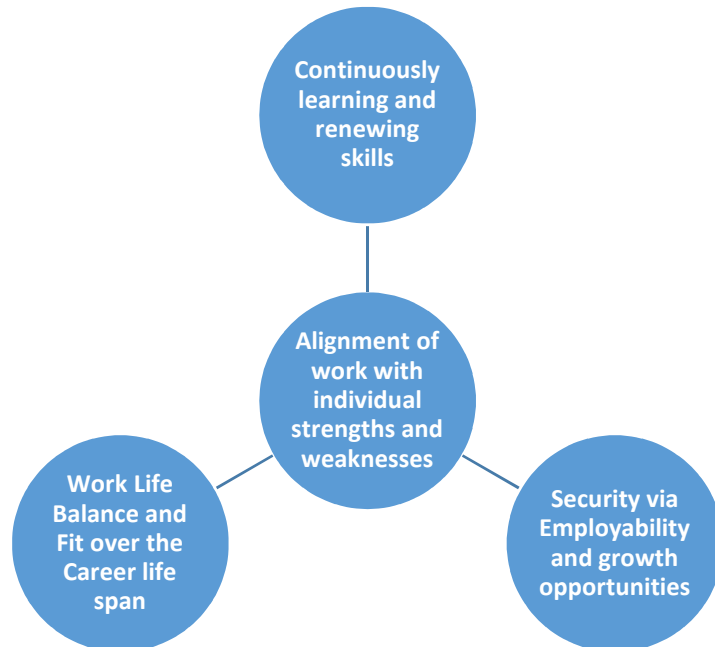
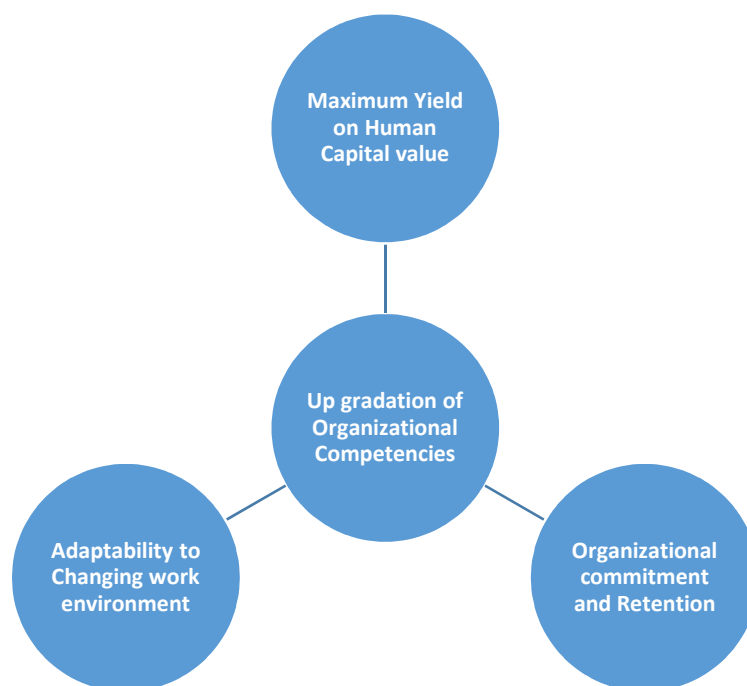


Figure 2: Employer's perspective: Four pillars that characterize sustainable careers for employees



Recommendations for Objective 1:

- The first important thing for organizations to consider is to align work with employee's strengths, interests and values, by doing this firms stand to yield greater value from their human resources and also for the employees it boosts their intrinsic motivation, and commitment towards the organization increases. This alignment not only energizes employees and contributes to their satisfaction and well-being but also pays dividends for firms creating a sustainability for both organizations and employees.
- The second thing for organizations to create a sustainable career for employees is via learning and renewal updating of organizational competencies, the knowledge, skills and abilities distributed among members of an organization's workforce are constitute elements of the core competencies that underlie its potential for competitive success in its marketplace. The ongoing process and updating skills and knowledge that marks each individual sustainable career contributes to the employer's competencies to evolve over time to meet the market challenges.
- The third thing for organizations to consider is to maintain a work life balance for the employees to maintain their sustainable career in the organizations. Sustainable careers are dynamic where it's necessary for the organizations to create a fit which well suits the organizational goals and also the personal lives of its employees. (Valcour M. , 2015)

Research Objective 2: To study the importance of sustainable careers for efficient age management and for the improvement of quality of the ageing generation at workplace

The need to develop tools which support employers and managers in coping with the consequences of an older and more age- diverse workforce derives from crucial macro-level changes and challenges. The demographic ageing process is measured as the growth in the relative and absolute share of the older population; organizations need to strike a balance to maintain age diversity as it can reap in better results leading to more capital and profit generation for the organizations.

At the European level, the number of people aged 65 and over is expected to increase by two million per year over the next few decades. Inevitably these trends are reflected in the age structure of a labor force which is also growing older, challenging labor market regulation policies and consequently the sustainability of social security systems. Faced with these trends, the imperative identified for organizations to understand and enable is to promote active ageing in the organizations, active ageing can be defined as a strategy to make the “ageing well” process possible in ageing societies, which implies working longer, retiring later and more gradually, learning throughout one’s life, being active after retirement and engaging in capacity enhancing and health sustaining activities.

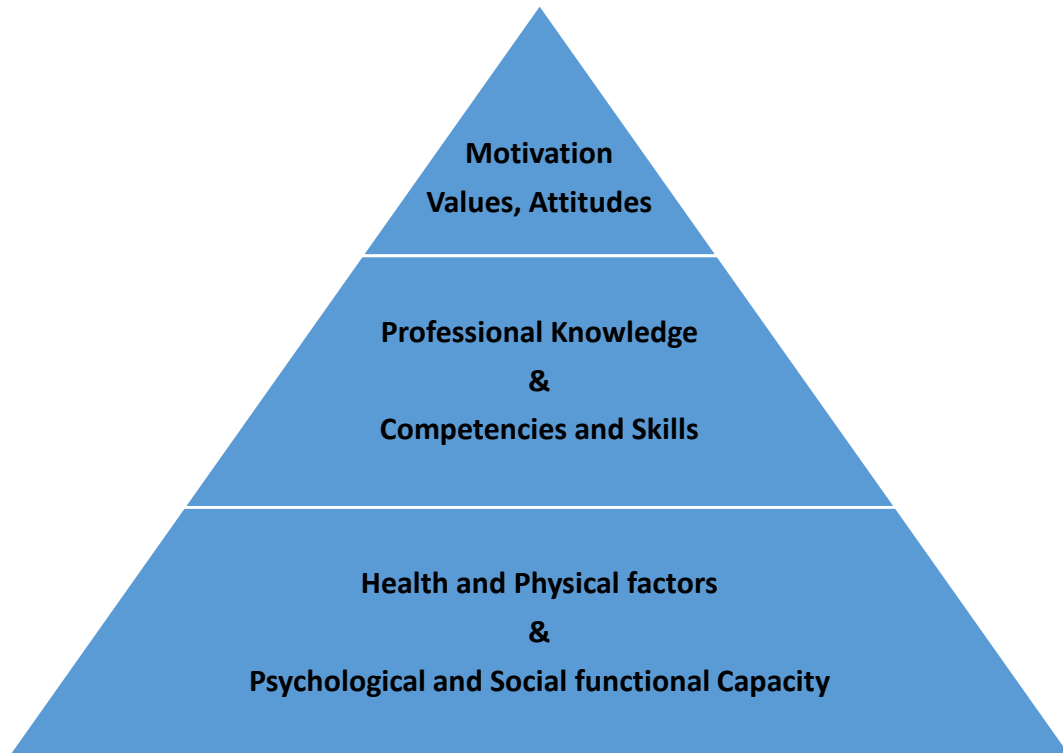
Although the concept of active ageing is multidimensional, labor market participation still represents its most crucial dimension, given that prolonging work careers is becoming increasingly crucial for the social and economic sustainability of the organizations in the marketplace, the inclusion of older employees in the organizations is necessary both from a social and personal perspective. Due to improved living conditions and increased well-being in old age, a growing number of employees want to remain active for longer in the organizations. What emerges, therefore, is a need to keep people in work longer in order to expand the workforce, together with a need to promote more inclusive workplaces for people of every age. Better working conditions for older workers represent a pre-condition for achieving these goals. The percentage of over 60’s is expected to reach 25.5% by 2030 and the old age dependency ratio is expected to rise to 41.1% by 2030 and 56.3% by 2050.

Within the domain of studies devoted to analyzing the conditions of older employees, several different approaches have been used. On one hand, most have concentrated to varying degrees on measuring changes in work performance correlated with the increase in chronological age of the employee, whereas some investigations have addressed the obstacles to older employees remaining in employment and hurdles which may be addressed by adopting different practices within the organizations.

Organizations need to inculcate an diverse workforce in the organizations as the older workforce comes with broad experience and knowledge which will also enable organizations to foster innovation and execute strategic decisions in the organizations, it is necessary for organizations to create opportunities for the older workforce and to help them execute their talent , work organizations need to be supported in the processes described above, and this requires the development of new policies and tools and methodologies in the field of age management and how their careers can be sustained and be made consistent with the

features of the social-institutional and cultural context , and which in turn is not only profitable for the older generation workforce but for the organizations as well in the future. (Marcaletti, 2014)

Figure 3: Work ability concept



Health and Physical factors & Psychological and social functional capacity create the base of the work ability concept as the entire weight of the other floors rests at the root level and these factors are crucial and basic for an employee in his/her career start. The Second level represents the professional knowledge and competencies as their continuous development are used to meet the demands of work life. The third level represents that employee attitude, beliefs and motivational factors towards his work and organization and how one manages the relationship between work and personal life.

Recommendations for Objective 2 :

- The work ability reflects not just an employee's performance but also the competencies which older employees possess which have been accumulated over the years with experience in the organization, it is important for organizations to acknowledge these abilities of the older employees by giving them equal opportunities at the workplace as they have a wealth of experience and tacit skills which are like strategic assets of companies and for this adequate tools and policies need to be defined in order to foster the intergenerational processes which can transfer these strategic knowledge and skills.

- Older generation employees can serve the organizations with efficiency and can yield profits, their various competencies and skill sets can be leveraged upon like occupational expertise, anticipation and optimization, personal flexibility, corporate sense and balance which form the root competencies for any organization. (Marcaletti, 2014)

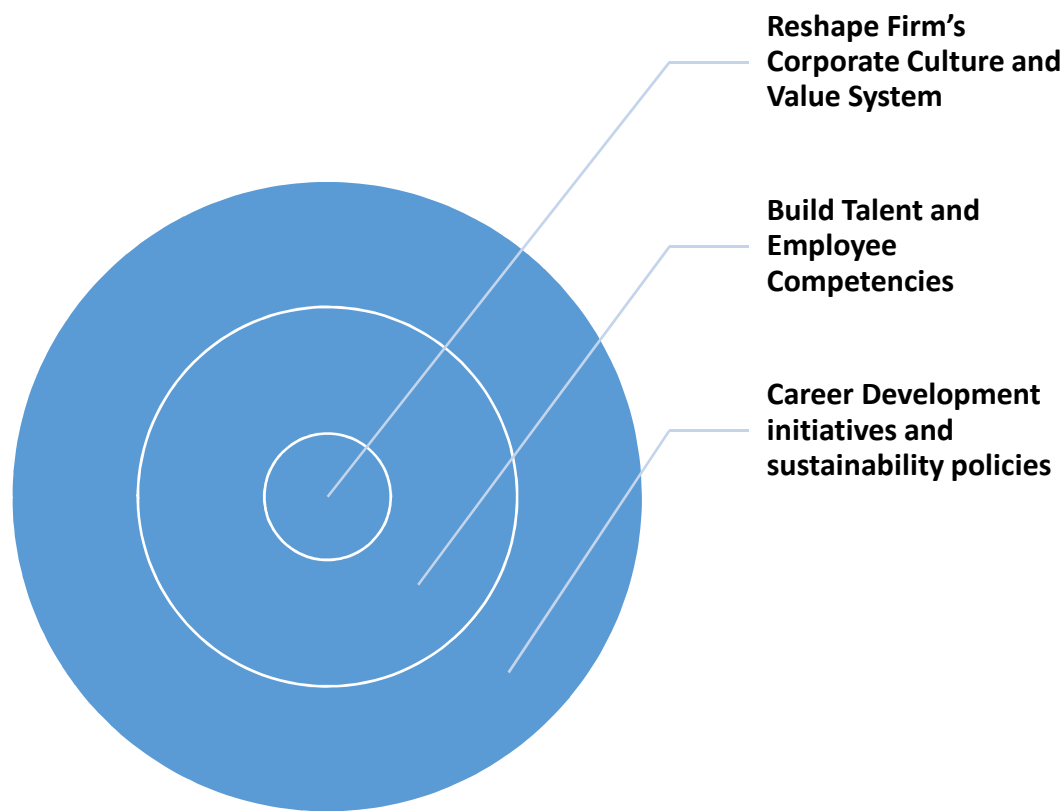
Research Objective 3: To analyze factors that the Human Resources should inculcate in the organizations to ensure sustainable career development of the employees.

Sustainable effectiveness occurs when the values, processes, capabilities, mind set and culture that are needed for organizations to succeed in the long term are changed according to the emerging needs and interventions are made to ensure sustainability of both the employees career and organization overall. In this process, the role of the Human resources department is very crucial and also plays a major factor in creating value, organizing work, treating people appropriately and guiding behavior in ways that will enable growth, prosperity and sustainability. Sustainable management is about changing the organization's identity, mind set and culture in ways that have a profound effect on the daily actions, thoughts and beliefs of an organization's leadership and its employees.

Sustainable business practices are being established and applied in most business functions ranging from operations to finance to marketing and sales and a host of sophisticated measurement systems and educational programs designed to disseminate, promote and enhance sustainable performance and career of employees in the organizations. Yet despite the adoption of more sustainable practices within companies, one important group of business leaders has remained largely involved in the transformation and creating sustainability of the employee's career i.e. the Human Resource professionals (HR). HR function represents one of the crucial links between businesses and the society they serve. HR professionals are largely responsible for recruiting talent, analyzing workforce trends, shaping employment policies and procedures and helping manage many external impacts of their organizations from outsourcing to downsizing, in many companies HR leaders are also deeply involved in corporate philanthropy, employee volunteerism, legal and ethical compliance and building community relations.

These and other roles of the HR are central to the challenges that companies face when it comes to embracing and embedding sustainability and for development of sustainable careers of the employees, which means when issues included under the umbrella of sustainability are considered HR has a major role to play in the organizations where HR knowledge, involvement and leadership is of core importance. In this dynamic and fast changing era HR needs to align himself as the strategic partner of the organization and think and analyze ways in which various factors can be considered to ensure sustainable career growth of the individuals in the organizations , for the development of a sustainable work environment HR needs to thrive hard and come up with new sustainability trends and programs which will lead to a better work life balance and sustainability for the employees in the organization which would also help organizations yield on their people management and achieve great results in the future. (Weber, 2013)

Figure 4: Key Factors HR needs to consider for sustainable career development of employees



This diagram represents the factors HR needs to adopt in the organization where the core level consists of reshaping the organizational culture and value system, this is the most essential role of the HR is creating sustainable work place for the employees as the core beliefs, culture, mindset needs to be changed in order for sustainable growth of the individuals and it is very essential for an HR to be an efficient Change Agent and smoothly enable this process in the organization. The second level consists of building talent and competencies aligning the individual talent with the strategic goals, nurturing this talent and upgrading the skills of the employees on a continuous basis with training programs and changing situations. The third and outer level consists of providing the employees with career development and challenging opportunities to engage them and leverage on their existing competencies in the organization. The HR needs to understand these core levels and factors and take initiatives to foster a culture of innovation, security for the employees and also for the overall organizational growth.

Recommendations for Objective 3:

- Just as HR can advance sustainability, sustainability can help HR deliver on its existing responsibilities, objectives can be defined via HR related policies and goals, such as diversity, competitive wages and benefits, health and wellness, harassment policies and security of privacy and job, good labor management relations and other positive aspects of employment. Sustainability can also be leveraged to help HR

deliver happy, productive and motivated employees who are willing and able to meet today's demanding competitive challenges which can also help in greater success of the organizations.

- HR can help the organization strengthen its crucial capacities by including collaboration and outward focus, this will enable cross- functional teams to meet and share and teach one another their best sustainability practices and encouraging internal boundarylessness and promoting smart, focused internal collaboration.
- HR can enable necessary culture change for creating sustainable careers for the employees which would help to create exciting opportunities which would benefit the organization and its employees, changing management styles, core values will help sustain talent and also ensure employees with a sense of belongingness for the organization. (Weber, 2013)

Conclusion

With the advancement of the technology and the management techniques it has become very difficult for not only the employees but also for the employers that they are able to sustain their careers, apart from which with an increase in the literacy rate, there is an exponential increase in the younger workforce which pose a threat for the older generation to establish their relevance for their organization. Keeping that in mind, any company or organization across the sphere won't be able to make their employees career a sustainable one of they don't change their organizations core beliefs and value systems and inculcate a culture of sustainable career development in the organization. With all being said, the researcher wants to conclude by saying that companies and organization all across the globe must create relevance and not awareness toward the concept of sustainable career

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Brief biography of the author

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Assessment of Student Learning In Competency-Based Online Mba Courses

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Abstract

The University of Wisconsin-Parkside recently launched a fully online MBA program in partnership with Academic Partnerships (AP). As we scale the online program, we are planning to incorporate a few successful elements of Competency-Based Education (CBE) in the design of online courses while adhering to the rules of credit-based MBA courses that students take within a semester time-frame. Our goals in this project include developing detailed and comprehensive competencies for the online MBA program; designing each online course by aligning it with program-level and assessment-level competencies; aligning each graded assignment with at least one assessment-level competency; providing flexibility for students to complete their assignments and demonstrate mastery of competencies at their own pace within a semester time-frame; comparing student learning and success rates in the online MBA courses (with competency foundations) to those in other online and face-to-face MBA courses. Our specific research questions are: What do student success rates in online courses with elements of CBE elements incorporated look like? How do these success rates compare with student success rates in other face-to-face and online MBA courses? What are student success rates in the competencies that our industry advisory board suggested? Each online course will be first evaluated for design in terms of (i) clarity of competencies, (ii) whether each unit/assignment in the course is aligned with program-level and assessment-level competencies; (iii) whether students are made aware of competencies and outcomes; (iv) whether rubrics are designed for assignments to evaluate student work. A modified Quality Matters (QM) rubric was used to evaluate the online MBA courses for design. Once the courses are designed, courses will be offered and student performance for competencies will be assessed using rubrics. Student performance will be classified into three categories: "Achieved Mastery with Distinction"; "Achieved Mastery"; "Student's Competence is Still Emerging." Student assessment results in terms of percentages will be reviewed and compared with assessment results for similar courses in the face-to-face program. Statistical regression techniques, chi-square, p-value tests will be applied on the data to study correlation or differences between the assessment results. While these tests work for direct assessment of student learning, we plan to use indirect assessment results such as student course evaluations to compare student's self-reported satisfaction rates in the online courses with CBE elements as opposed to face-to-face and other online courses. We hope that these results will advance the state of the art in terms of designing online courses and programs for adult, non-traditional students and will lead us on a path to be a highly successful online program. This paper will discuss the design and implementation of our online MBA program and future directions for this research project.

Keywords: Online MBA, Competency-Based Education, CBE, Program Assessment

Main Conference Topic: Online Programs, University Growth and Sustainability

Introduction

Competency-Based Education is gaining momentum as an alternative to traditional face-to-face and online delivery modes. In highly flexible CBE programs, students can start anytime, and demonstrate mastery of program competencies at their own pace without the time constraints of semesters and quarters. While fully flexible CBE programs are deemed ideal by adult, working, and non-traditional students, universities require extensive changes to their existing infrastructure and policies to launch true CBE programs. In addition, universities in the USA need to go through comprehensive and lengthy approval processes with accreditation agencies such as the higher learning commission whose policies on CBE are still evolving (Eaton 2016).

The students that are typically attracted to CBE programs are defined as students that are “older, place-bound, and vocationally minded, with significant prior work experience and some prior college experience” (Kelchen 2016). Originally, when the University of Wisconsin-Parkside launched a fully online MBA program in partnership with Academic Partnerships (AP), it was not planned to be an MBA program in the CBE format. However, it is believed that typical students that enroll in CBE programs may find our online program even more attractive if a few successful elements of CBE are incorporated in the design of online courses while adhering to the rules of credit-based MBA courses that students take within a semester time-frame.

Related Work and Research Questions

University of Wisconsin-Parkside’s online MBA program’s curriculum integrates competencies among multiple business areas and will challenge students to apply knowledge to real-world settings. Gervais (2016) defines CBE as “an outcome-based approach to education that incorporates modes of instructional delivery and assessment efforts designed to evaluate mastery of learning by students through their demonstration of the knowledge, attitudes, values, skills, and behaviors required for the degree sought.” Based on the experience of our faculty in developing the first competency-based undergraduate Business program in the UW System, the above definition was further refined to arrive at the following terms to guide the development of CBE courses.

- *Competency*: The knowledge, attitudes, values, skills and abilities students demonstrate as a function of the degree program.
- *Program-Level Competency*: The “top level” competencies that define the scope of the program, and through which all other competencies are connected. Our online MBA program currently has 14 program-level competencies.
- *Assessment-Level Competency*: The specific competencies defined at a finer-grain level. Assessment-level competencies are aligned with program-level competencies; each assignment that student completes in a course (e.g. discussion messages, writing assignments, projects, technical assignments, managerial assignments, exams) are aligned with assessment-level competencies. The number of assessment-level competencies may range from 60 to 90 in our online MBA

program.

- *Outcome:* A learning outcome is a written statement of what the successful student/learner is expected to be able to do for each assessment-level competency.

Outcomes are very specific, with each assessment-level competency containing approximately 4 to 8 outcomes.

The following are the goals of this project:

- Develop detailed and comprehensive competencies for the online MBA program.
- Design each online course by aligning it with program-level and assessment-level competencies (see definitions in Section 3).
- During course design, align each graded assignment with at least one assessment-level competency.
- In course design, provide flexibility for students to complete their assignments and demonstrate mastery of competencies at their own pace within a semester time-frame.
- Compare student learning and success rates in the online MBA courses (with competency foundations) to those in other online and face-to-face MBA courses.

The main research question that we intend to address is whether student success rates are higher if we integrate good practices of CBE in our online MBA courses and whether students are well-prepared to contribute to the workforce by meeting the competencies that employers seek in students.

- RESEARCH QUESTION 1: What do student success rates in online courses with elements of CBE elements incorporated look like? How do these success rates compare with student success rates in other face-to-face and online MBA courses?
- RESEARCH QUESTION 2: What are student success rates in the following specific competencies suggested by our industry advisory board:
 - Apply professional behavioral skills with a particular emphasis on the practice of ethics, diversity and inclusiveness, and creative management.
 - Work effectively with corporate governance structures including the Board of Directors to implement strategic vision.
 - Analyze disruptive innovation and its impact on the organization.
 - Utilize data analytics and quantitative analysis to support strategic and operational decisions.

Literature and research on CBE program and student success rates is advancing at a more rapid pace in recent years. For example, Rainwater (2016) notes “students found CBE to be beneficial in numerous ways including the ability to learn at their own pace and during times suited to their schedules. ... Students agreed, however, that CBE was best

suited to students who were mature, disciplined, and able to direct their own learning.” Mayeshiba and Brower (2017) reviewed the retention rates of 565 students in the University of Wisconsin flexible option CBE programs and concluded that “academic outcomes strongly predict a student's likelihood to reenroll within 6 months. Students who mastered at least one competency set during their first subscription were particularly more likely to reenroll. ... academic outcomes from the previous subscription and the student's longevity in the program also significantly predicted retention.” However, Since CBE programs are becoming prevalent more recently, there has not been much data on student success rates in specific competencies. Our goal in this project is to gather student success data in the research questions outlined above.

Model and Data Sources

This study will first incorporate CBE principles into online MBA courses that are currently under development. These principles will include articulation of competencies; alignment of each assignment with competencies; provision for practice assessments. Student performance in these courses will be assessed for specific program-level competencies including the competencies suggested by the industry advisory board. The comparative study will compare student assessment results from the online MBA courses with those from face- to-face courses that the investigators regularly teach. A statistical study based on hypothesis testing will be conducted to study whether students in the online MBA courses/program perform better in terms of demonstrating competencies and other measures such as retention. The data sources we will use include the following:

- (1) Student retention rates in the online MBA program
- (2) Student assessment results for program-level competencies from the following courses in the online MBA program: Creative & Innovative Management; Information Technology for Business Decision Making; Quantitative Models for Supply Chain; Optimization Techniques; Technologies for data Analytics; Advanced Strategic Management
- (3) Student assessment results for program program-level competencies in similar courses from our face-to-face MBA program
- (4) Student assessment results for program-level competencies in the online MBA consortium courses that the principal investigators teach
- (5) Graduation and retention rates in our face-to-face MBA program
- (6) Student surveys in online and face-to-face courses

Implementation & Evaluation Methods

5.1 Evaluation plan for the RESEARCH QUESTION 1:

Each online course will be first evaluated for design in terms of (i) clarity of competencies, (ii) whether each unit/assignment in the course is aligned with program-level and assessment- level competencies; (iii) whether students are made aware of competencies

and outcomes; (iv) whether rubrics are designed for assignments to evaluate student work. A modified Quality Matters (QM) rubric will be used to evaluate the online MBA courses for design. Each course will undergo a peer evaluation for its design, and the developers will be asked to modify the design of online courses if the courses do not meet the QM rubric. Once the course are designed, courses will be offered and student performance for competencies will be assessed using rubrics. Student performance will be classified into three categories: “Achieved Mastery With Distinction”; “Achieved Mastery”; “Student’s Competence is Still Emerging.” Student assessment results in terms of percentages will be reviewed and compared with assessment results for similar courses in the face-to-face program. Statistical regression techniques, chi-square, p-value tests will be applied on the data to study correlation or differences between the assessment results. While these tests work for direct assessment of student learning, we plan to use indirect assessment results such as student course evaluations to compare student’s self-reported satisfaction rates in the online courses with CBE elements as opposed to face-to-face and other online courses; student satisfaction results from course evaluations will be translated into numeric values to achieve this comparison and conduct statistical tests. Specific questions in student surveys will ask students for feedback on the incorporated CBE

elements (e.g. self-paced nature of assignments). Additional direct measures that will be used include student retention rates from year 1 to year 2 for the online MBA program as compared to student retention rates for the face-to-face MBA program.

5.2 Evaluation plan for the RESEARCH QUESTION 2:

As suggested in Table 1, several courses will be used to gather student performance in specific competencies that our industry advisory group comprised of local businesses have suggested.

Table 1: Competencies and Courses for Assessment of Competencies.

Competency	Course in which it will be evaluated
Apply professional behavioral skills with a particular emphasis on the practice of ethic, diversity and inclusiveness	Creative & Innovative Management
Work effectively with corporate governance structures including the Board of Directors to implement strategic vision. Ethical issues will also be addressed.	Advanced Strategic Management
Analyze disruptive innovation and its impact on the organization.	Information Technology for Business Decision Making
Utilize data analytics and quantitative analysis to support strategic and operational decisions.	Quantitative Models for Supply Chain; Optimization Techniques; Technologies for data Analytics

Student assessment results along with student surveys from these courses will be analyzed

using statistical techniques (see 5.1) and these results will be shared with the industry advisory board. These results will instruct the program faculty on the effectiveness of online MBA courses and the program in meeting employer needs and whether any design or content changes are needed to the online MBA program.

Conclusion

In this research project, we are developing an online MBA program and incorporating some principles of competency-based education (CBE). We designed a few research questions on comparing the assessment results of student learning with and without CBE principles. In future, we plan to evaluate these research questions using both direct and indirect evidence from our online MBA program.

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Brief biographies of the authors

Dr. Michele Gee is a professor of Strategic Management, Global Business, and Creative & Innovative Management. Professor Gee also serves as the Associate Dean in the College of Business, Economics, and Computing (CBEC). As Associate Dean, she is the director of CBEC's two graduate programs: the MBA Program, and the Master of Science in Computer and Information Systems Program. As Director of CBEC's graduate programs, she has been instrumental in developing, coordinating and analyzing assessment criteria, rubrics, and reports for assurance of student learning. Her assessment responsibilities are important for students/courses in the departments of business and also computer science. In addition, Dr. Gee's assessment responsibilities and experience are critically important to maintain AACSB International accreditation of the business program. Professor Gee has won many awards for teaching, advising, community service, research, and assessment activities. Dr. Gee completed online instructor training conducted by

University of Wisconsin Extension experts provided to train and assist UW System professors. In addition, the UW System MBA Consortium certifies her as an online instructor. Currently, Professor Gee is developing and teaching in the UW- Parkside Online MBA Program being implemented with support from Academic Partnerships. The three online MBA courses she has been developing and/or teaching are required courses for the graduate students: MBA 700: Creative & Innovative Management; MBA 741: Contemporary Challenges in Management; and MBA 796: Advanced Strategic Management.

Dr. Suresh Chalasani is a Professor of Management Information Systems. He teaches in a number of online, CBE, and face-to-face programs including Management Information Systems, Health Information Management and Technology, Sustainable Management, Project Management, and MBA Consortium. He serves as the Academic Director for the first competency-based Business degree program in the UW System --- flexible option Bachelor of Science in Business Administration offered by UW-Extension --- a program that he helped design and implement. He serves as the co-chair of the campus-wide assessment committee at UW-Parkside; assists in the development of assessment plans for a number of programs, and gathers and analyzes student assessment data for a number of programs with the goal of improving student success especially in online and CBE programs. Dr. Chalasani is currently developing two classes in the online MBA program: MBA 720: Information Technology for Business Decision Making; and MBA 729: Technologies for Data Analytics.

Dr. Parag Dhumal is associate professor of Business at University of Wisconsin-Parkside (UWP). He joined UW-Parkside in August 2010. Professor Dhumal also serves as the Faculty of Bachelor of Science in Business Administration (BSBA) program, an online competency based (flex) degree program offered by University of Wisconsin-Extension since its inception in January of 2016. Professor Dhumal has developed many online courses for programs offered by UWP and MBA Consortium program jointly offered with other University of Wisconsin Universities. These include Business Statistics I and II (QM 210 and QM310), Supply Chain Management (BUS 427 and graduate level MBA 784), Operations Module for MBA 711 course. He successfully completed summer workshop to develop online courses and has received grants to support development. For BSBA flex degree program, he has developed six (6) competencies and three projects in the area Supply Chain Management and six (6) competencies and two projects in the area Business Analytics. Upon joining UW-Parkside, Professor Dhumal successfully completed the training program offered by UW-consortium to teach online classes. In addition to courses that he developed, he has taught Project Management (PMGT 341), Project Management Tools and Techniques (PMGT441), and Project Management Simulation (PMGT442). Currently, Professor Dhumal is developing and teaching in the UW-Parkside Online MBA Program being implemented with Academic Partnerships. The three online MBA courses he is developing and will teach are – MBA 718: Global Supply Chain Management, MBA 762: Quantitative Models for Supply Chain Management, and MBA 761: Optimization Techniques.

Is Sex Impeding Female Middle-Managers from Being Mentored?

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Abstract

Global female representation in the workplace has made tremendous strides over the last few decades, with women constituting more than 50% of the U.S. labor force. This improvement of gender diversity is backed by educated women leading the way – with "women earning 60% of all bachelor's and master's degrees and approximately 50% of doctoral degrees". Yet when it comes down to climbing the corporate ladder of success, this female representation dwindles down, especially in the top managerial positions, despite the benefit that organizations have been proven to experience with female leadership. The rationale behind this misfortune is explained using a lack of mentorship – a glass ceiling barrier to female career advancements, among several other barriers. This literature review will focus on the barriers to and the lack of mentorship and shed light on its role in holding back female middle-managers from unlocking their full potential to reach the top executive positions, across various industries.

Keywords: glass ceiling, females, mentorship, career advancement

Main Conference Topic: Business Management

Introduction

We live in a world, which comprises of an almost equal male to female ratio, give or take cultural and regional factors that may cause a slight variation in this number geographically. Global female representation in the workplace has made tremendous strides over the last few decades, with women consisting of almost 47% of the U.S. labor force (according to the U.S. Department of Labor, 2017). This ratio dwindles down in some regions (if not all), when looking at female representation in schools, universities and the job market. Here are some notable mentions of female representation at the workplace as summarized by DeWolf (2017) with data taken from the U.S. Department of Labor:

- Women's participation in the U.S. labor force has climbed since WWII: from 32.7 percent in 1948 to 56.8 percent in 2016.
- The proportion of women with college degrees in the labor force has almost quadrupled since 1970. More than 40 percent of women in the labor force had college degrees in 2016, compared with 11 percent in 1970.

- The range of occupations women workers hold has also expanded, with women making notable gains in professional and managerial occupations.

Yet, when it comes to the job market (both within the U.S. and globally), specifically looking at middle-managers who have made their way to top executive positions, female representation drastically drops, when compared to male counterparts. Management ranks and board of members are filled predominantly by males, with only 27% of the women in management occupations having made it to become a Chief Executive Officer (DeWolf, 2017).

Yes, gender differences have always existed in the work force - be it in the form of female under-representation, unequal pay or females not being allowed to work at all, if we traced history back enough. Tremendous advancements our societies have made in the past couple centuries have made some changes, but not enough changes. Why is that, despite the number of educated females on the rise every day?

The Glass Ceiling, “the invisible barrier that many women face as they advance through the ranks of their chosen professions but are able to progress only so far before being stymied in their efforts to reach the upper echelons” as stated by Chisholm-Burns, Hagemann & Josephson (2017) can be used to explain why. It is what is known to stop females from reaching the top positions in the job market. This Glass Ceiling can manifest in a plethora of barriers such as conscious and unconscious biases, lack of mentality to pursue leadership, lack of mentors, lack of policies that support work-life balance, lack of networks, as summarized by Chisholm-Burns et al. (2017). This literature review will focus on the barriers to and the lack of mentorship and shed light on its role in holding back female middle-managers from unlocking their full potential to reach the top executive positions, across various industries.

Mentorship and Career Advancement

Durbin & Tomlinson (2014) define mentors as “individuals with advanced experience and knowledge who are committed to providing upward support and mobility to their protégés’ careers”. The positive impact a mentor can have on the mentee is known to all. Mentors play a variety of roles, including that of someone who lends a helping hand and cast away the mentee’s doubts of succeeding – be it in school, at home or the workplace.

But what exactly does mentorship entail? Manwa (2014) described mentorship as “someone with seniority and greater experience that guides, tutors, coaches, and advises others while acting as a role model and a confidante so that the protégés gain a better understanding of the formal and informal structure of the organization”. The role of a mentor can further evolve to encompass roles previously narrowed into “career development” to include functions such as sponsorship, coaching, protection, challenging assignments and exposure and “psychosocial support” which includes acceptance and confirmation, counseling, friendship and role modelling, as elaborated by Durbin & Tomlinson (2014).

Much research has been done to explore the link between mentoring and career success, with favorable results, stating the positive impact mentoring has on career

progression (Durbin & Tomlinson, 2014). Bozionelos et al. (2011) did a study of the general managerial population to back this line of thinking and found a positive correlation between mentorship and career success. Be it objectively or subjectively, when you are doing well in your career, moving up in the career ladder is a smooth possibility.

Mentorship also has a link to networking, which is another factor which aids in career progression, as the more connections one has within the industry and particularly the organization they are working in, the easier it is to move up. The role of a mentor is important to help establish this network of people to connect with. Silverhart (1994) elaborates on this through using the findings of his study where “agents with mentors inside the agency, regardless of whether the mentor is an experienced agent or a manager, clearly are the most likely to survive the first year”, implying the ability of the agents with mentors inside the agency to have done better at work thanks to the connections and support provided by the mentor. Durbin & Tomlinson (2014) further backs this networking link by explaining how mentoring also “acts as a channel for the exchange of tacit knowledge and information that is often linked with promotion opportunities”, linking career progression and mentoring. Okurame (2007) adds to this thought with his research on how it is the females who have found mentors “who offered access to resources and other senior colleagues within the organization” that have been progressing successfully in their line of work.

Mentorship Across Different Industries

The positive impact of mentorship in career progression is prevalent across most, if not all industries as briefed below:

- Teaching Industry: A mentoring gap and general unavailability of mentors have been identified as an impeding factor, when it comes to mentorship among female faculty, to attain career goals in the teaching industry (Blood, et al. 2012). A study by Joy Van & Jeanquart (2000) pointed out how in research institutions in the U.S., the more mentors one has within the field, the better is their likelihood to succeed at work, when looking at university professors, further backing the need for a mentor to perform well at work, regardless of the stage in their careers.
- Banking Industry: According to a Nigerian case study by Okurame & Balogun (2005), mentoring even when done informally, is related to career success, when looking at bank managers. This link was tied by the authors to the link between mentorship and learning and development, which naturally helps with career success.
- Hotel Industry: Literature reveals that since mentoring can help facilitate “acceptance, feasibility and enhance credibility of an employee, thereby increasing their chances for promotion”, mentors do play an important role in career progression (Manwa, 2014).

- Engineering Industry: When novices in the engineering sectors were followed, mentoring was documented to contribute to career development outcomes such as career satisfaction and promotion as discussed by Wong (2018).
- Healthcare Industry: Finley (2005) conducted a study which explored mentoring through several angles and found evidence supporting the claim of how there was direct mentoring provided to help managers rise to future senior executives. Edmunds, et al. (2016) backed these findings by conducting research where he examined fourteen studies within the 1992-2014 period, and reported that as compared to men in healthcare, females were faced by a lack of mentors and role models, indicating this to be one of the reasons females struggle to make it to the top roles in the healthcare market, even when they have the same qualifications as their male counterparts.

Lack of Mentors for Female Managers

Now that the positive impact of having a mentor to help through career progression has been highlighted, the focus can be shifted onto the female population. Lack of mentorship for females, has been identified as one of the many glass ceiling barriers impeding female middle-managers from succeeding, as identified by the following studies (keeping all other variables such as education, experience and work performance, consistent).

A study by Wallace (2016) examined “women and their ascent to managerial positions” in Fortune 500 companies in the U.S., through paying close attention to their mentoring opportunities. The results indicated that the lack of effective mentoring for women in the workplace, as compared to men, had a direct consequence to their career progression. A report by Edmunds, et al. (2016) that compiled the results of fourteen studies ranging from 1992 to 2014, in a North American setting found that women consistently lacked the presence of adequate mentors and role models, as compared to men.

According to Blood et al (2012), insufficient mentorship was identified as being the most common obstacle women faculty face when trying to advance in their career. As mentioned before having a mentor can also help in networking within the workplace and the industry. Durbin & Tomlinson (2014) emphasize the power of this kind of networking opportunity that a mentor can bring in, as a “lack of access to mentors is a significant barrier to women’s career progression because they are likely to be denied access to important information shared by the dominant group who are usually men”.

A study by Raj et al. (2016) points out how a lack of mentors or sponsors can have adverse effects on women. In their study of gender-based differences in productivity among medical faculty, they pointed out how “faculty members who do not have supportive mentors may have more trouble getting articles they have authored accepted by refereed publications, which may have contributed to the lower rate of publication found among women versus men”. In a field such as teaching where getting published is crucial to their success in the career, the graveness of the effect of lack of mentorship is upsetting.

The most obvious reason one can think of for this lack of mentorship for the female workforce is the power of stereotyping and gender roles, bringing down females and their contribution in the workplace, for many decades. The work done by a female employee is downplayed, especially when it is not in a traditional female role job. A negative perception of the inability of females to do mostly male dominated jobs is a big factor holding back females (Ferguson, 2018). Moving up from middle-managerial positions to executive positions is one such area where female presence is limited, thus making it even harder for women to rise to that role. The lack of a mentor in a higher position, to help break this stereotype and move up, makes it even harder for female managers. This vicious cycle needs breaking, to escape and move up the career ladder.

Another reason as to why female middle-managers are finding it difficult to find mentors is explained using Social Psychology's *Similarity-Attraction Paradigm* which was used by Young, Cady & Foxon (2006). The authors explained how it is more likely that people look for mentors who are like them. Sex being one of the fastest ways to identify similarity, female middle-managers tend to look for female mentors. This lacking of females in executive roles, maybe a reason female middle-managers are not finding the necessary support to climb up the corporate ladder. This paradigm is not saying that for female middle-managers to succeed, they need a female mentor, but that the similarities they may share with the female mentor, deficiently helps in finding a mentor they can relate to.

Additionally, Ferguson (2018) talks about the *role congruity theory* also being a reason, female middle-managers face this kind of upward momentum hardship at the workplace. According to his theory, "female leaders will experience prejudice because the role of leader aligns more closely with the stereotypic male gender roles than it does with stereotypic female gender roles". One could argue that this is how the world works, since with certain fields such as in the STEM disciplines, there is a lack of female presence not just in managerial roles, but in the workforce in general (DeWolf, 2017). But Ferguson's study is not only talking about the STEM disciplines, but the general workforce across all industries, where certain positions above that of the pay grade of a middle-manager such as that of a director, CFO or CEO are made well in line for only a male candidate to take that job.

Chisholm-Burns et al. (2017) adds to this line of thinking by pointing out how "impeded access to mentors, who might be able to share their own experiences and provide guidance, likely exacerbates a particular challenge for women in their professional lives: achieving work-life balance". The long-traced stereotype of men to be the bread winners and women to be the home-makers is often one of the reasons such executive positions are not expected to be filled by a female manager. Women have been criticized for centuries for their inability to juggle and manage their responsibilities at home and in the workplace, despite the strong-willed efforts females in the workplace do, to help fight this stereotype, by outperforming at the workplace.

Why Does the Sex Matter in Mentorship?

Edmunds et al. (2016) sheds light on how women often face difficulties in finding same-sex mentors and role models. Studies have even shown a inclination of employees to have a preference for a same-sex mentor. A study by Okurme (2008) based on self-reports that examined the preferred mentor gender revealed a strong connection between gender of respondent and that of preferred mentor and protégé. This preference was thought to have occurred because of the differences in mentoring preferences of males compared to females.

Research by Chisholm-Burns et al. (2017) has demonstrated that “women may not have access to needed mentors and sponsors, particularly those of the same gender, which has been rated as an important criterion in mentor selection”. Gender differences in mentoring can perhaps be explained using the varying approaches to mentorship. According to Young, Cady & Foxon (2006), females approach mentorship much like they do in a friendship, where emotional intimacy is present, compared to that of male mentorships.

This mentation is backed by Fowler et al.’s (2007) research which stated that female employees preferred female mentors, as female mentors were known to have provided personal and emotional guidance, career development facilitation, and role modelling to a greater extent than male mentors. This is well in line with Okurame’s (2007) research where the author pointed out how female mentors are able to provide more “personal and emotional guidance, career development facilitation and role modelling” as compared to their male counterparts, thus in turn being able to offer more psychosocial support than their male colleagues. Groysberg (2008) further added, “when men mentor women, they are thought to be less able to offer psychosocial support. When women mentor women, they may not be in a position to facilitate integration into the firm’s culture because they are less well integrated themselves”.

Interestingly, research by Young, Cady & Foxon (2006) also suggests discrepancies in not just the gender of the mentee but also that of the mentor, as when males mentor males, the benefits of mentorship are more as when compared to when a female mentor mentors a male or female mentee, at the workplace. Regardless, as Durbin & Tomlinson (2014) summarized, women across all fields, despite the stage in their careers they are at, need mentoring relationships, to help them with their upward career trajectory.

Strategies to Overcome the Mentorship Barrier

No matter the barrier to female career success, overcoming the barrier is not going to be easy due to historic bias - roots that are dug deep into years of female oppression and gender stereotyping. The breaking of the glass ceiling barrier of mentorship, is going to have to be achieved, through following the suggestions given below, and more.

- Overcome taboos: Since a big part of the reason for the lack of mentorship for women lies in historical bias, overcoming bias seems to be an important part of moving forward. Manwa (2014) remarks that one of the reasons women were not mentored, is due to taboos that were associated with cross-gender mentoring. Since

it is established that there are not many women executives out there to mentor the female middle-managers to get to that level, female middle-managers must turn to male mentors to help them get to that level.

- Self-advocacy: Women need to actively pursue and seek out mentors, sponsors through the workplace and networking events and not downplay their contribution to major projects. Women need to use such instances to “market themselves and their contributions to the organization” like Chisholm-Burns et al (2007) mentioned. Studies have shown that there is a better chance of success and mentorship effectiveness, when the mentees are motivated to succeed (Duster, 2010).
- Organizational responsibility:
 - Organizations should be made aware of the benefits of mentorship for both males and females alike, and the top managers of each organization should make it a priority to make sure mentorship is practiced within the organization. Managers need to get to know their teams well and help in the pairing process as well, as it is not easy for all the employees to find a mentor or mentee, without the initial push.
 - “Organizations should actively recruit, develop and train, and support women in leadership roles” (Chisholm-Burns et al., 2017), be it through formal meeting, coaching programs or help in identifying mentors.
- The pairing process: Putsche et al. (2008) sheds light on the importance of the mentor-mentee pairing process and how success of the process depends a great deal on how well the pair has been matched, regardless of the formal or informal nature of the mentorship. Pflieger & Mertz (1995) backs this line of thinking by emphasizing the importance of the pairing between the mentor and mentee. This pairing, which includes training, preparation and understanding from both parties, is crucial to the success of the mentorship.
- Public sector involvement: Since the statistics on poor female representation in top managerial positions is widely known, the governments and public sector needs to take special interest and make conscious efforts to make changes and improve female representation, as it has been shown to help nations and businesses in advancing, with the diversity in thought and action that female leaders bring in Mercer (2015).

Conclusion

The role of a mentor in an employee's career trajectory cannot be emphasized enough. Since it has been established that lack of mentors is one of the reasons that female-middle managers are having a harder time than their male counter parts in career progression, organizations need to pay special attention to rid their companies of this problem and much work needs to be done to help remove this glass-ceiling barrier.

This can take various forms such as re-writing job descriptions of the various higher roles within the organization to make it a fit for males and females, offering formal mentorship programs, etc. Society needs to change their perception about females running an organization as a lot of good can come out of it as there is evidence that “when women thrive, businesses thrive” (Mercer, 2015). Businesses will be able to perform to their full potential, once they open up all the roles in the organization to males and females alike.

As for the women that already did make it to the top despite the unfavorable process, they need to consider it a professional responsibility to help bring other women to their status. The fact that they may not have had the support the women leaders of tomorrow will hopefully have, should not hinder them from helping the future generations.

Future research

There are several areas that I haven't explored:

- Literature review of male and female mentoring to find out if ethnicity of mentee is known to be a factor in mentorship
- Build models through interviews and consider other variables such as length of mentorship and relationship between the mentor and mentee
- Differentiate between psychosocial mentoring and career mentoring

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Hospitality Management Education in India

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Abstract

The objective of hospitality management education is to give hospitality industry professionals who have capabilities of carrying out business activities and keeping a willingness to face management problems in future without any hesitations. Presently, around 1000 hotel management institutes including private and government colleges offer courses in hospitality management in India. Nearly 15000-18000 hotel management students are passing out every year through different hospitality management courses. The present trend in hospitality management education in India not only gives good learning experience but also gets job opportunities across the world for students. In order to improve the quality and standard of hospitality management education, curriculum should be modified and frequently updated as per requirements of industry. Accreditation and affiliating bodies must take essential steps to provide value hospitality management education through unified syllabus, contents and training. Hospitality management institutes and colleges should appoint qualified faculty members and must improve their knowledge and teaching abilities through effective faculty development programmes and training. Meanwhile, adequate training should also be given to students as per industrial needs and institution-industry tie ups must be strengthened.

Key Words: Challenges, Education, Hospitality, Management, Quality

Main Conference Topic: Education and Challenges of Teaching Professionals

Introduction

Hospitality management education appears as powerful catalyst for developing economies thus these economies consider hospitality as an instrument for their visualized prosperity and growth (Mill & Morrison, 1999). India is giving greater amount of importance for development of hospitality and its related sectors (Honey & Gilpin, 2009). The Government of India is allotting considerable amount of money every year in order to develop hospitality education and sector. India is always looked as highly favourable place for hospitality management educational programmes across the world. In recent times, number of government and private institutions and universities are focusing and offering various types of management programmes in hospitality.

However, the objective of hospitality management education is to give hospitality industry professionals who have capabilities of carrying out business activities and keeping a willingness to face management problems in future without any hesitations (Tesone & Ricci,

2005). Development of skills and proper use of knowledge are the most important aims of hospitality management educational programmes in order to meet demands of hospitality industry by professionals (Chathoth & Sharma, 2007). But, these management educational programmes failed to develop professionals as required by industry.

Evolution of hospitality management education in India

Indians are well known for their hospitality across the nations from ancient times. In olden days, guests depended on road side establishments and temples for their food. In India, different institutions gave accommodation to guests and pilgrims across the states. In the British period, dak bungalows and circuit houses are in operation in India and the first commercial hotel in India is Taj Mahal, Mumbai constructed in the year 1903. With the development of transport facilities, people are highly mobile. Hotels, motels, resorts and inns were started over the period of years in India. In order to give knowledgeable and talented human resources to hospitality industry, hotel management institutes were started. The Institute of Hotel Management, Catering Technology and Applied Nutrition, Mumbai is stated as first institute in entire South East Asian nations in the year 1954 and six students were enrolled (Bhardwaj & Choudhary, 1997).

Three year diploma programme in hotel management & catering technology was started in the year 1958 and it was recognized by Directorate of Technical Education, Maharashtra. There was a greater need to develop skilled human resources for hotels that leads to emergence of Food Craft Institutes at different places in India. Ministry of Tourism had undertaken hotel management education in 1984 and formed autonomous body named as National Council for Hotel Management and Catering Technology (NCHMCT) an affiliating institution to supervise the standards of hotel management education in all the institutions operated by the Government of India under uniform rules and regulations and syllabus. Food craft Institutes were promoted as hotel management institutes in this time period.

Around 54 institutes were affiliated to National Council for Hotel Management and Catering Technology (NCHMCT) consisting of 21 central institutes and 12 state government institutes. The council frames syllabus for the courses to assume uniform standards in hospitality management education. At first, it offered three year diploma after 10+2 which was then changed into three year undergraduate programme in collaboration with *Indira Gandhi National Open University* (IGNOU) in the year 2002.

From the year 2005, NCHMCT in coordination with IGNOU offers post graduation degree in Hotel administration. In addition, institutes of hotel management and many private hospitality institutions emerged in large extent. But majority of them were offering non recognized diplomas and degrees. Few of them were tied with state technical education board and most of private hospitality institutions were affiliated to *All India Council for Technical Education* (AICTE) and universities (Almeida & Choudhury, 2015).

At present, around 1000 hotel management institutes including private and government colleges offer courses in hospitality management in India and 31 Government

and 12 private colleges are affiliated to NCHMCT. These institutes offer degree, diploma and certificate course in hotel management and specialized courses in food and beverage production and house keeping (Kumar, 2018). In addition, more than 25 institutions are offering short courses for enhancement of skills and knowledge as required by hospitality industry and these courses are offered on the basis of regulation of AICTE and different universities. Nearly 15000-18000 hotel management students pass out every year through different hospitality management courses.

The hospitality management courses in India are shown in Figure 1.

Figure 1: Hospitality Management Courses in India



Accreditation and quality of hospitality management education in India

The growth of hospitality management institutes is not checked properly in India. Many of them are not recognized and having adequate infrastructure facilities and they do not follow standard norms, regulations and procedures, curricula, qualified faculty members and pay and benefits. These create inefficient human resource management system in which professionals are misplaced and experiencing pestering in their professional jobs. Because of this, talented and aspiring students are not ready to choose hospitality as their career choice and it leads to employing average skilled professionals in hospitality industry. Thus, quality of hospitality management education is an important aspect for producing talented and skilled professionals for hospitality industry (Gursoy et al. 2012).

Indian hospitality management education has significant impact in current situation of hospitality industry and it cannot be avoided. There is a greater scope for higher education and research in various functional areas of hospitality industry. Even though, number of institutes offer diploma, under graduation and post graduation course and certification

courses, these are not at expected standard of quality and there is a scope for introduction of research programmes in hospitality management.

NCHMCT is tied with distance education programme of IGNOU for conducting under graduation and post gradation degree programmes. AICTE and various universities are also involving in accreditation of hotel and hospitality management institutes and colleges. Because of these arrangements, there is confusion and irregularities in accreditation process and reduction in quality of hospitality management programmes. Therefore, there is an urgent need for single affiliation body for all the educational programmes in hospitality management in India. In addition, curricula are improved with innovative ideas in order to meet the industrial standards and needs of hospitality industry.

Recent trends in hospitality management education in India

The globalization and economic liberalization policy of India give enormous opportunities to hospitality industry and greater scope for expanding and improving hospitality management education in India. As an outcome, huge number of hospitality institutes were started and gave threat to quality and standard of hospitality management education in at all levels in India. Students with hospitality management education realize their significance and role not only in restaurants, motels, hotels and catering services, but also in healthcare, retail, communication, food processing, banking and business process outsourcing industries (Kumar, 2018).

Due to privatization of educational sector, significant number of foreign and international institutes and universities from United Kingdom, United States of America, Switzerland, Australia, Malaysia, Singapore, France and New Zealand are entering in to hospitality management education to offer various programmes and are creating tough competition for domestic hospitality management institutes and colleges. In order to meet out challenges posed by foreign institutes, many hospitality management institutes in India are establishing strategic alliance with different international institutes and universities through transfer of students, exchange programmes of students and faculty members, exchanging of curricula and internship programmes and those institutes charge higher amount of fees by misusing these international collaborations and arrangements (Yang, 2014).

Challenges in hospitality management education in India

The major challenges in hospitality management education in India are (Amoah & Baum, 1997):

- Lack of curriculum as per industry requirements
- Lack of value based curriculum and training
- No uniform syllabus across India
- Poor coordination among institutes and affiliation bodies
- Lack of efficient use of technologies

- Lack of modern equipments
- Inefficient teaching methods
- Insufficient training to faculty members
- Poor programmes for development of faculties
- Lack of encouragement for students to involve in support activities

Future of hospitality management education in India

Changes in life styles of people and globalization are helping growth of hospitality industry and reaching new height in future. Because of growing economy and performance of hospitality industry, it provides huge opportunities for those who are studying this course. The present trend in hospitality management education in India not only gives good learning experience but also gets job opportunities across the world for students. The hospitality industry is expected to grow around nine per cent in next 10 years, it requires huge amount of professionals in the field of hospitality management (Singh, 2012).

The demand for skillful and intelligent hospitality professionals is mounting in a faster rate, not only in India but across the world. In spite of experiencing good growth over the periods, the Indian hospitality industry is witnessing scarcity of professionals. In order to meet demand of hospitality industry, the hospitality management education has to be expanded in large extent in the upcoming years to ensure high quality and professional supply of manpower to this fast growing industry (Wang & Tsai, 2014).

Conclusion

Hospitality management education is playing an important role in growth and development of hospitality industry and providing talented professionals to this industry. In order to improve the quality and standard of hospitality management education, curriculum should be modified and frequently updated as per requirements of industry. Accreditation and affiliating bodies must take essential steps to provide value hospitality management education through unified syllabus, contents and training. Hospitality management institutes and colleges should appoint qualified faculty members and must improve their knowledge and teaching abilities through effective faculty development programmes and training. Meanwhile, adequate training should also be given to students as per industrial needs and institution-industry tie ups must be strengthened. Faculty members should use modern equipments and efficient technologies and methods to teach and improve involvement of students in their learning process.

In India, hospitality education is offered mostly by private institutes, colleges and universities, hence, government should offer various course in hospitality management at cheaper price with scholarships. In addition, participation of industries in framing syllabus and providing training must be encouraged in order to improve practical knowledge and abilities of students of hospitality management. In order to assure employment to students, earn while learn programmes should be introduced effectively. Further, hospitality management education must be integrated with tourism management education in order to

enhance skills and knowledge of students and they will be employable in both industries as they are highly interrelated.

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Low Income Housing a Two-Tale Story in Harare City, Zimbabwe

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Abstract

Housing is one of those basic social conditions that determine the quality of life and welfare of people and is central to sustainable development yet it has remained a challenge in both developed and developing nations. Rapid urbanisation creates massive demand on housing delivery and rigid land and planning policies have made it difficult for the Local Government to meet the increasing demand for housing by the poor majority. In the world's billion-plus populations, housing provision in transitional countries housing delivery has also remained a challenge. Millions in world cities have no proper housing and lives in informal settlement which have unwelcoming conditions. In Sub-Saharan Africa, the number of those without adequate housing continues to increase and most governments are in poor state of no adequate finance to resolve the issue. In Zimbabwe, there is a wider disconnect in terms of housing provision especially for low-incomes, and the situation has never been better since the Operation Murambatsvina in 2005 which left 700, 000 people homeless and this has been perpetuated by economic meltdown the whole country has been facing. The research aimed at investigating the low income housing experiences in Harare. The data was gathered using desktop approach from journals, articles, books and reports in order to get a larger understanding of current housing situation in Harare. The findings highlight that, even though the local authority have tried partnering with building societies and housing cooperatives in providing low and medium income housing, there are still critical housing challenges in Harare leading to most people resorting to informal societies with unwelcoming living conditions. The paper concludes by recommending that the government is supposed to anvil suitable land, subsidise on construction material and where possible upgrade and regularise informal settlements and local authorities should accelerate the implementation of low cost Public Private Partnerships in housing development to reduce the costs of land development.

Keywords: Housing infrastructure, informal settlement, building society, low income housing, cooperatives

Main Conference Topic: Sustainability, Environment and Risk Management

Introduction

It's easy to understand the fundamental need for shelter since housing services provisioning is inseparable from socio-economic development of cities and their inhabitants. People require protection from weather elements, somewhere to bring up their families, a place to work from and a home to call their own yet, at present, over one billion people -a fifth of the world's population –are either homeless or live in very poor housing (United Nations, 2014). Over 200 million people, 62% of Sub-Saharan Africa's urban population, live in slums and high urbanisation rates result in the continuing growth of poorly serviced areas (CAHF 2016). According to United Nations (2014), housing is one of those basic social conditions that determine the quality of life and welfare of people and is central to sustainable development. United Nations, (2005) report stipulates that “Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, and housing and medical care and necessary social services”. However, the overgrowing population in cities due to urbanisation and industrialisation is putting governments and municipalities under pressure beyond their functional capacity leaving them unable to adequately provide housing for poor urban citizens. Public housing service delivery has always been seen as a small task and mandate of local governments and public works department and this has perpetuated the public housing challenge leaving most people homeless (Alm et al 2011). In developing countries like Zimbabwe and Malawi, poor families are forced to improvise with their housing simply because they cannot afford the ever increasing building materials and the influx prices of land. Sometimes, those with low or no incomes at all, are prevented from acquiring stable, decent and affordable houses quite simply by archaic, unsympathetic local building standards and regulations. These challenges have hindered sustainable development of cities since these have led to increase in mushrooming of unplanned settlements (informal settlement) with inhospitable living conditions (Durand-Lasserve and Selo, 2009). Also, the rigid land administration and planning policies have made it difficult for the Local Government to meet the increasing demand for housing by the poor majority.

Related work

Housing and housing affordability

Housing according to Pugh 1980,50 is “a fixed space and it exists in localities where private investment and publicly provided infrastructure are part of the local environment”. Rapoport (2001:145) “defines housing as a system of settings within which a certain system of activities takes place. According National Housing Policy's definition (2006:10) housing is a, “the process of providing functional support by sustainable maintenance of the bulk environment for the day-to-day living and activities of individuals and families within the country”. In this regard this paper adopts a hybrid of all three definitions which is paraphrased thus; that housing is a ‘fixed space’ by design that should be provided for by ‘private investment’ and ‘public infrastructure’ in a ‘sustainable’ and ‘process’ based ‘system of settings’ from which day-to-day living and activities occurs.

Housing affordability has become a common word in describing the wrathless of improper housing in developing nations. Physical characteristic of a house varies from one nation to another and depend on geographical location of an area, build materials available, the builders, cultural preferences and values as we as the technological knowhow of that area. Ademiluyi and Bashira (2008), the building should be in harmony with the environment, both physically and aesthetically. A household is said to have a housing affordability problem, in most formulation of the term, when it pays more than a certain percentage of its income to obtain adequate and appropriate housing. Though widely used the term 'affordability' in the English Language the concept is still hard to define. Collins Dictionary defined 'afford' as being able to pay without incurring financial difficulties. But Robinson et al were of the opinion that it is very difficult to decide exactly when one does have financial difficulty and often, things are considered unaffordable even when some income is clearly greater than the cost of an item.

Housing service business

Sustainable housing services requires more than just infrastructure. It includes various physical as well as human, institutional and financial elements (Dore, 2015). According to World Bank, 2012 good management is the 'art of possible' and the key to effective management is both pragmatic and strategic. Thus, for cities to have sustainable housing there is need to have reliant financial capital, human capital and various institutions. There is also need to take into account various standards addresses sustainability in housing services delivery. Mabogunje, (in Jackson ed., 1978:78) defines standard as follows; "Standards are two types; "official standards are those established by legislation, byelaws, or other rules and regulations, while cultural standards are those derived from traditional practices or found tolerable and acceptable by a large number of people." The guide to these standards is called "criteria' they may be related to social values, or they may be recommendations offered by professional or scientific bodies and based on research, case 21 studies or professional judgment" and these "standards should be scientifically desirable, culturally feasible, and socially acceptable" (Alabi, 2012).

Table 1: Universally accepted standards of housing services

Legal security of Tenure	Security of tenure means that all people in any living arrangements possess a degree of security against forced eviction, harassment and other threats. All states are obliged to offer security tenure to their citizens.
Availability of services and infrastructure	To ensure the health, security, comfort, and nutrition of its occupants, an adequate house should have sustainable access to natural and common resources, safe drinking water, energy for cooking, heating and lighting, sanitation and washing facilities, means of food storage, refuse disposal, site drainage and emergency services.
Affordability	Affordable housing is housing for which the associated financial costs are at a level that does not threaten other basic needs. States should take steps to ensure that housing costs are proportionate to overall income levels; establish subsidies for those unable to acquire affordable housing.
Accessibility	Adequate housing must be accessible to those entitled to it. Thus, there should be adequate road network and transport systems that promotes easy mobility
Habitability	Habitable housing provides the occupants with adequate space, physical security, shelter from weather, and protection from threats to health like structural hazards and disease.
Location	Must permit access to employment opportunities, healthcare, schools, childcare and other social facilities. To protect the right to health of the occupants, housing must also be separated from polluted sites or pollution sources.
Cultural Adequacy	The way housing is built, the materials used, and the policies supporting these must facilitate cultural expression and housing diversity. The development and modernization of housing in general should maintain the cultural dimensions of housing while still ensuring modern technological facilities, among others.

Source: Housing Standards Source House 2001

Strategies for Low income Housing Delivery

There are several forms of low income housing. It is vital to point out that the housing challenge “cannot be solved by any one method” (Harris & Giles, 2003: 167). In practice, it is important that different housing delivery approaches be used for different segments of the society, taking into consideration contextual conditions. For instance, the low income

housing can be owned and operated by local authorities under the public housing departments (Chirisa and Paradza, 2017). These can be primarily owned by the local government but funding usually is from the state government. The other form of low income housing can be the ones owned by private entities especially that non-profit organisation. Most of these forms of low-income housing are evident both in developed and developing countries. However recently, they have been emergency of co-operative housing, that also have been doing much to curb housing problems in cities and these co-operatives are usually owned by independent resource groups though funding also sometimes comes from the central government.

Public Housing by the Local Government

Housing itself is often considered an object, a notoriously heavy, fugitive, non-substitutable resource necessary for life (Bakker, 2010), hence the reason why most housing infrastructure provision in many countries is still concentrated in hands of state and local government. Traditionally, housing used to be a household responsibility and through, self-help communities and individuals achieved their own housing services (Alabi, 2012). However, the case has changed through industrialization which has left housing as a global crisis concentrated in hands of the state or local government. Public housing can be defined as housing provided by the local authorities to its citizens and usually by the aid of the government. These houses are planned for and serviced before allocated to the public. Thus, the government can plan, build and then ret out or sell out the housing units for people. With public housing by local government planning precedes all the stages and there is zoning of land providing adequate supporting facilities to support the housing development (Gumbo, 2015). Though owned and operated by the local housing authorities established by local governments, they are usually funded by federal government and associated with various challenges. Onibokun (1996) identified some of the flaws in the past strategies used by local governments for tackling the housing problem namely: The problem of governments attempt to directly construct and supply housing, inadequate infrastructure, ineffective programme implementation by government, narrow conception of housing needs, inadequate data base, the error of utilizing planning as a game of numbers to impress the public and -playing the political chess game with housing and its advantage for looting public treasury. This has hindered effective housing service delivery and led to housing to be commoditised leading to intervention of Public Private Partnership.

Private Public Partnerships (PPPs) and Housing Service Delivery

Due to growing demand of housing in African States while the government and municipalities have little capacity and resources to meet the demand, the private sector can be the only way out to bail this problem. UNCHS (1993:180 in Jones, Pisa, 2000), considers partnerships to be an active and deliberate process whereby agents work together in an interdependent fashion toward a common agenda or goal. Pugh (1994), describes partnership arrangements as the joining-together of government policy makers, government agencies, community based organizations, non-government organizations, private builder and/or householders; and that, the success of the enablement approach is dependent on the

success of partnerships. Pugh's definition is a more inclusive approach for adaptation by this study. PPPs have in most countries in the world have yielded positive results in terms of housing provision, increasing accountability, transparency and efficiency in housing sector. PPPs, have been postulated as a model that promotes economic development through sustainable housing provision. Though it is not a recent phenomenon the PPPs became mainly dominant in 1970s in United States and United Kingdom (Chirisa 2015). Many countries have adopted the concept, for example the government of Australia used it provide most of its social infrastructure projects. The Ecohome is one of the prominent housing projects in Australia with a number of partners involved (Huang et al, 2010). In Canada, approximately 20 percent of their new infrastructure are designed, developed, operated and maintained by under PPP arrangement which has saw an increase in low-housing income provision (Moskalyk 2008). PPPs can be viewed as more sustainable and efficient way to tackle housing challenge in urban areas. In developing countries, PPPs gained prominence the previous decade and housing reforms in India (Kolkata) under PPPs flagship have managed to solve housing challenges which its ineffective policies had failed to do in past decades (Priya and Jesintha 2011). There was also adoption of PPPs in Nigeria and it saw an increase in housing stock addressing challenges of housing affordability (Ibem; 2011). However, in Lagos the PPs failed to cater for the needs of low-incomes and poor since high volume of the housing provided by PPPs only catered for high-income earners. In Zimbabwe, nothing much has been published about the PPPs, the country still faces a huge deficit in provision of housing, which emanates from the colonial era and rapid urbanisation that started after independence. It is also crystal clear that the challenges of housing provision could not only be solved by the public sector but need for PPPs is vital to finance housing. However, the were number of different PPPs in Zimbabwe in various sectors mining, agriculture, through bilateral and multilateral agencies for low income housing, UNDP, CDC, USAID, OPEC just to mention a few. However, the PPPs framework is still not well defined and no policy has yet been published to guide this vital strategy.

Planning and Housing in Harare Colonia Era (1946-1980)

Under apartheid era the legislations and policies, land was designated for occupation according to race groups, residential areas treated as racial "zones" (Auret 1990). The Industrial development which came after World War 11 exposed the planning and housing policies of colonial era. A need to shelter Africans arose, which required changes in the policies of colonial era. Town Management Boards were created then later changed to Town Councils to plans suburbs giving birth to Merck Park in 1994, then Highlands in the following year (1945), Waterfalls three years later (1948), Greendale 1950, Hatfield 1952, Malbereign and Mount Pleasant 1953 and 1954 respectively and these all belonged to white settlers . Also, the African cities were developed and with poor and unwelcoming living conditions. The residential for the Africans were created in the South part of the city where industries were. The Town and Country Planning Act (No. 22 of 1996) saw the guidelines of developing townships of Africans. As the African population increased from approximately 32 000 (1940) to more than 75 000 (1951), native locations and housing were developed in line with

The Native Accommodation and Registration Act No 6 of 1946 by the municipality of Salisbury. The following Table shows housing for African in Colonia Salisbury:

Table 2: Establishment of Native Townships in Harare; Source: (Rakodi, 1995)

Area	Year Occupied	Brief Summary
Mabvuku	1952	Was created on Donnybrook farm the council and was mainly for people who are married
Mufakose	1959	Was created on Crowborough Farm and houses were both detached and semi-detached and for married couples and those with higher incomes
Rugare	Mid 1950s	It was found by Railways to house their employees. It was detached and semi-detached type of housing
Dzivarasekwa	1961	Located in North-west as employee suburb
Marimba Park	1961	Low density- small low higher income earners with free hold title
Kambuzuma	1964	Core housing scheme for middle income; free hold tenure and a government township
Tafara	1967	Established by the Greendale Town Management Board mainly to house domestic workers who worked in North-East suburbs
Glen Norah	1971	Government's development and employees that were married and other given to the city council for letting
Glenview	1979	Site and services schemes and also conventional house for letting out and material the city provided of loan basis

Planning Context after Independence

Harare inherited a colonial planning framework that sees a strict divide between low, medium and high-density areas. The government was sensitive to the issue of housing at the time of independence, and from 1981, promoted private ownership of formerly publicly owned housing in the high density suburbs. Early 1980s, in need to transform from capitalism to socialism, the Government of Zimbabwe saw the housing policy as a tool for redressing the inequalities that came as a result of colonisation (Rondenelli, 1990). This was mainly by improving the standard of accommodation for lower income earners by providing already stands and finished housing to Harare urban poor (Chirisa and Paradza, 2017). When, Zimbabwe gained independence, the policies were mainly centred on improving housing especially by providing houses for low income earners. Projects began mainly centred to improve housing in Harare and between June 1980 and 1989, the city had allocated more than 15 000 stands against 50, 055 on the waiting list. (Wekwete, 1994) In the same time, the city had approximately 74, 800 with 63, 446 houses totally owned and 11,

413 rented by municipality. This period also saw development of housing in Warren-Park, Hatcliffe and Budiro, with the aid of World Bank and USAID. USAID provided 50million USD to Government of Zimbabwe for provision of 20-000 low income housing and nine other towns.

Brown (2001) claims that modern planning methods adopted by the city have entrenched the historical urban divide since independence in 1980, with 'low-density' areas being a proxy term for those areas previously set aside for Europeans and high-density areas for indigenous Africans. Today this pattern is evident in the low-density areas being occupied by the city's rich and high-density areas occupied by the poor, on the outskirts of the city. In Harare the high income earners are concentrated in low density suburbs such as Borrowdale, Malbereign, Mount Pleasant among others and since independence in 1980, Harare has perpetuated the segregation of people within the city by concentrating on building low-income, single-use houses on the peripheries of the city. Since 2006, the state has become the primary supplier of land on which residential stand production has occurred (Marongwe et al, 2011). Much of the land on which urban expansion has taken place has occurred on previously privately-owned farms, located on urban and peri-urban land, which became state-owned after the advent of the Fast Track Land Reform Programme in 2000 (Tibaijuka, 2005). Mid-2002, Harare city announced that illegal structures amounted 10,000 in Harare high density suburbs and this was mainly perpetuated by rural urban-migration the city was experiencing. To make matters worse, construction of adequate housing was being hindered by access to land, overloaded infrastructure and utilities and weak municipality. The saw development of National Housing Programme aimed at boosting housing provision and clear housing deficit and the programme aimed to acquire thirty thousand hectare of land precisely peri-urban land over the country.

However, it was very unfortunate that the country was under sanctions making it difficult to get external funding and sound privatisation to achieve its goals of adequate housing provision. This lead to high deficit of housing and let to construction of unplanned backyard housing by landlords in Harare to house growing populations. Also this saw development of informal settlements using temporary structure such as wood, grass and plastics which were readily available. To curb this, Harare city saw the implementation of Operation Murambatsvina in 2005 to restore order in city through destroying illegal structure as discussed below.

Operation Murambatsvina of 2005 and Operation Restore Order

Early 1990s, the government adopted the concept of decentralisation where by autonomy and power were decentralised to local authorities. The strategy for development saw equitable distribution of residential sectors, administration and institutions in less developed regions seeing the rise of Growth point in rural areas. This was a way to reduce urbanization, however due to climatic change and lack of capacity to till the land, urbanisation to cities still increased and also Growth points have no sound industrialization to accommodate more employees. This led to congestion of cities, urban decay and improved urban poverty saw the development of informal settlements and unplanned

backyards to accommodate growing populations. In 2005, Harare saw the rise of Operation Murambatsvina (no to filthiness) as a means to regulate increased urbanization by diminishing all the slums and squatters that have highly emerged in Harare cities through destroyed of unplanned backyard houses, informal houses and so on (Tibaijuka 2005). In 2005, in Harare illegal infrastructure had become the order of the day leading to social evils effecting sustainable development. This had also led to social chaos due to illegal dealings. The operation left more than 700, 000 people homeless (Tibaijuka 2005). To regain support, the government subsequently responded with Operation *Garikayi/Hlalani Kuhle* (Operation Live Well), by constructing housing units to accommodate the victims of Operation Murambatsvina. The Ministry of Local Government developed core houses (four roomed) those families that were previously affected. The latter initiative failed to close the gap, and with the economic crisis peaking in 2008, the housing backlog grew rapidly. The problem was mainly perpetuated by lack of funds, economic meltdown and poor institutional capacity.

Low Income Housing by Central Africa Building Society (CABS) and Fidelity Life Assurance

Building societies also in Harare city plays a vital role in the financing of housing within the country, as well as the actual development of housing. Owing to Harare's large housing backlog, building societies have sought to provide mainly low and middle-income housing, often in medium and high-density suburbs of the city (Chitongo, 2017). For the past years the Harare city have entered into various partnerships with different stakeholders including Fidelity and CABS Building society to ensure adequate provisioning of housing especially low income house. In Harare there have been several attempts to increase low income housing stock. Old Mutual, through its investment vehicle Central Africa Building Society (CABS) has developed 2 800 low-cost housing units west of Budiro (Chirisa, 2015). Though uptake is slow, the well-built suburb is a good example of public-private partnerships in the development of social services aimed at reducing poverty. CABS have another \$6 million housing project in the offing. In 2012, the Harare City went in an agreement to build 3 102 core houses for low income earners in Budiro and as part of this deal, CABS decided to provide affordable mortgage finance. However, due to economic meltdown of the country, by 2015, only 500 houses had been finished out 3 102 units. The partnership was meant to provide for low income however, it failed dismally and it is said the City of Harare and Zimbabwe Building Society partnership housing stands 'were unaffordable to low-income households'. When housing provision is driven solely by a public sector institution, issues of affordability can be catered for. The reverse is true in the case of housing provision by private entities. Fidelity Life Assurance in 2011 was given a mandate to develop a total of 5 304 serviced stands in South-View, Harare. Fidelity first developed 317 stands in phase one of Manresa Fidelity Park in Arcturus in 2011.

Table 3: CABS Project; Proposed Housing Prices

	TYPE A	TYPE A+	TYPE B
	2 Rooms	2 room + slab	4 rooms
Current Price excluding VAT	22,002.00	23,871.00	27,185.00
15% VAT	3,300.30	3,580.65	4,077.75
Price including VAT (100% loan)	25,302.30	27,451.65	31,262.75
10% Deposit	2,530.23	2,745.17	3,126.28
Loan Amount (90% loan)	22,772.07	24,706.49	28,136.48
INSTALMENTS INCLUDING HOC & LIFE COVER			
Instalment on 90% loan over 10 yrs	366.00	397.00	453.00
Instalment on 100% loan over 10 yrs	406.00	441.00	503.00
Instalment on 90% loan over 20 yrs	286.00	310.00	354.00
Instalment on 100% loan over 20 yrs	317.00	344.00	393.00
MINIMUM GROSS SALARIES			
Min. monthly gross income - 10 yr mortg. (90% loan)	850.00	922.00	1,050.00
Min. monthly gross income - 10 yr mortg. (100% loan)	945.00	1,025.00	1,167.00
Min. monthly gross income - 20 yr mortg. (90% loan)	652.00	708.00	806.00

Co-operatives an Answer to Low-income Housing in Harare City

As a response to chronic housing shortages, housing cooperatives that were born in 1986 and they have since multiplied are doing much in attempt to increase the affordable housing stock. Housing cooperatives are very popular with the low and medium income people who cannot afford to buy complete houses or afford any of the housing options that are available including the so called 'affordable' housing options (Paradza and Chirisa 2017). In fact in the Harare city, these co-operatives are the only institutions active and mostly visible in the low cost housing sector since the late 1990s. Cooperatives in Harare city came in context as a way to bridge housing challenges in Harare city (Nyakuwa, 2010). With a Housing backlog of over 1, 25million in Zimbabwe and over 500, 000 backlogs for Harare only co-operatives came as a strategy for securing low cost housing especially in the peri-urban areas of Caledonia and for the past two decades, co-operatives have done much to curb the gap of low income housing in Harare city (Muunganirwa, 2017). According to Nyakuwa, (2010), between 2000 and 2012, Harare City managed to allocate 12,554 housing stands to 254

housing co-operatives, with 2,301 housing units completed. According to the Zimbabwe National Association of Housing Cooperatives (ZINAHCO), an apex body that represents housing cooperatives, since the year 2000, through its membership, more than 20 000 stands were serviced and more than 10 000 housing units were developed. The cooperatives acquire land from private owners, government or local authorities and then service it using subscriptions from members. Also, in 2011, 2,954 residential stands were allocated to 76 housing cooperatives by Harare city. In 2011, as well the city of Harare had trained and registered 243 housing co-operatives with a total membership of 15,311. A key example of this was the domestic workers in Malbereign in Harare who approached the city council and was eventually allocated land in Gillingham to construct the houses (Muunganirwa, 2017). This housing project is what is known as Tashinga Housing Cooperative. Chombouta Housing Co-operative was formed in 2004 and is based in Kuwadzana and with to total membership 240 people. In the area of Kuwadzana a high density suburb of Harare, the co-operative managed to get a piece of land which has got 115 stands averaging 350 m² in size (Chirisa and Paradza, 2017). The co-operative purports to be open to all members of the public who are in need of a house in Harare and uses the waiting list criteria for its members to benefit stands as and when they became available. In many areas, housing co-operatives have been effective and yielded good results, however it differed with areas, while some did well, in some cases managers defrauded members for their personal benefit, and failed to deliver on agreed goals (CAHF, 2015). In November 2013, this prompted the former local government minister I. Chombo to issue a directive compelling all co-operative members to stop paying contributions since they weren't doing good but even caused more harm and perpetuated poverty by stilling from poor low income areas exacerbating poverty in the city. Co-operatives have been accused of charging exorbitant prices that are beyond the reach of poor home seekers who constitute the majority on the housing backlog (Muunganirwa, 2017)



Figure 1: A Cooperative Township (left) and a Municipal township (right); Source: CAHF 2015

Research design and methodology

Research methodology is concerned with explanation of particular research, study undertaken, types of data to be collected, method to be used and particular techniques of analysis of data used. The research methodology would comply with requirements of reliability, validity and feasibility and generate the best possible results of the research. Schwart, (2007) defines Research methodology as a theory how inquiry should be proceeded and involves analysis of the assumptions, principles and procedures in a particular approach to inquiry. Methodologies explicate and define the kinds of problems that are worth investigating, what constitutes a research problem, testable hypothesis, how to frame a problem in such a way that it can be investigated using particular designs and procedure and device means to collect data.

According to Spasford and Jupp; (2008), research design is a framework or plan for study that guides collection and analysis, presentation. Research design can be defined as the plan and structure of an investigation used to obtain evidence to answer the questions. Hence every research needs a plan. The goal of a sound research design is to provide results that are judged to be credible. Durrheim, (2004), notes a research design as a strategic framework for action that serves as a bridge between research questions and execution, or implementation of research strategy. The researcher used Desktop approach to gather information about housing situation delivery in Harare. Information was gathered through literature reviewing in order to get a fuller understanding of current housing situation in Harare. During the study, the researcher used various researching tools in order to obtain adequate data of current housing situation in Harare. Thus data was gathered from journal, articles, books and reports.

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Case Study

The study focused on Harare city is the capital city of Zimbabwe, with population estimated over 2.1million. It is situated at a 1,483 elevation and its topography is hilly in the centre-city and flatter in Southern area and is undulating in the North. The city was founded as a fort in 1880 by the Pioneer Column and became city of Salisbury 1935. Harare, has a predicted population of approximately 1 800 000 people in 2015. This figure is expected to grow (by 3.54% annually) to 2,337,000 people by 2025 (UN Habitat, 2014). The city is surrounded by satellite town namely Norton, Ruwa, Epworth and Chitungwiza. Once glamorous and even dubbed the 'Sunshine city' the city is now characterised with high urban decay, massive housing shortages, poor road networks and potholes due to economic meltdown and have failed to fulfil the name.



Figure 2: Harare city region, showing Harare City Council boundary ; Source : Google and Modified

Research Findings

Over the years the country has battled to provide accommodation to the populace which has led to massive illegal land developments in Harare and Chitungwiza. The two cities are battling to demolish illegal constructions but failing due to the shortage of low cost houses. The city of Harare's housing waiting is said to be above 500, 000 while 120, 000 people are low income earners. Harare's housing deficit continues to grow despite valiant efforts by government to facilitate the availability of accommodation for its citizens (Chirisa, 2017). The main challenge perpetuating housing challenges in Harare is of affordability due to disparities in income levels. It has been quoted that a basic four roomed house in Harare goes at a minimum of US\$25000 which is far beyond affordability of the low income earners in the city. Most residents have resorted to renting (Herald, 2017). The country's housing backlog currently stands at an estimated 1,25 million and government has put in place a housing delivery strategy under the country's ZimAsset economic blueprint to construct 313 368 houses countrywide by end 2018. However, these targets on reality are on the paper only on the ground nothing much has been done due to resources constraints and economic meltdown of the country. While the, the housing challenges continues to perpetuate most of the urban poor has taken refuge in unplanned informal areas since they are not able to pay for monthly rentals that for at least \$US50-60 in high density suburbs. This has worsened urban sprawl in the city with over 60% informal settlements in both urban and peri-urban Harare.

Informal Settlement in City of Harare

The inadequate housing situation in Harare has resulted in mushrooming of informal settlement. This has been perpetuated by the rapid increase in urban population and the limited capacity by the government to offer adequate housing to citizen especially those with low incomes and the urban poor. According to a UNDP 2014 country report on informal

settlements in Zimbabwe, at least 60 percent of urban residents are living in informal settlements in which a majority of the dwellers live in extremely poor conditions. Some of informal settlements suburbs in Harare are Glenview (extension), Epworth, and Caledonia and so on. The muddy wetland of Dzivarasekwa Extension is yet another informal settlement in the Harare and is a home to more other families that have sustained a living in such conditions for close to a decade.



Figure 3: Mushrooming of unplanned Houses in Peri- Urban, Caledonia Harare; Source : Field work 2017

These areas are not connected with water and sewer networks leading outbreak of diseases like typhoid and cholera due to open defecation and drinking unsafe water (Gouverneur, 2014). Director of Vision HIV/AIDS – an NGO based in Hatcliff Extension, notes that squalid conditions in the informal communities have led to chronic stress and depression among adults in the settlements while the spread of diseases like cholera and tuberculosis and malaria are also become prevalent. Also, most of these informal settlements are created in wetlands which have also many side effects to the environment. Non- governmental organisations that work with people in these slum communities have

established that there is rampant sex networking amongst sexually active people while poverty has been shown to be the main driver of risky sexual behaviour.

The diagram below shows the distribution of informal settlements in Harare City

Distribution of Informal Settlements in Harare

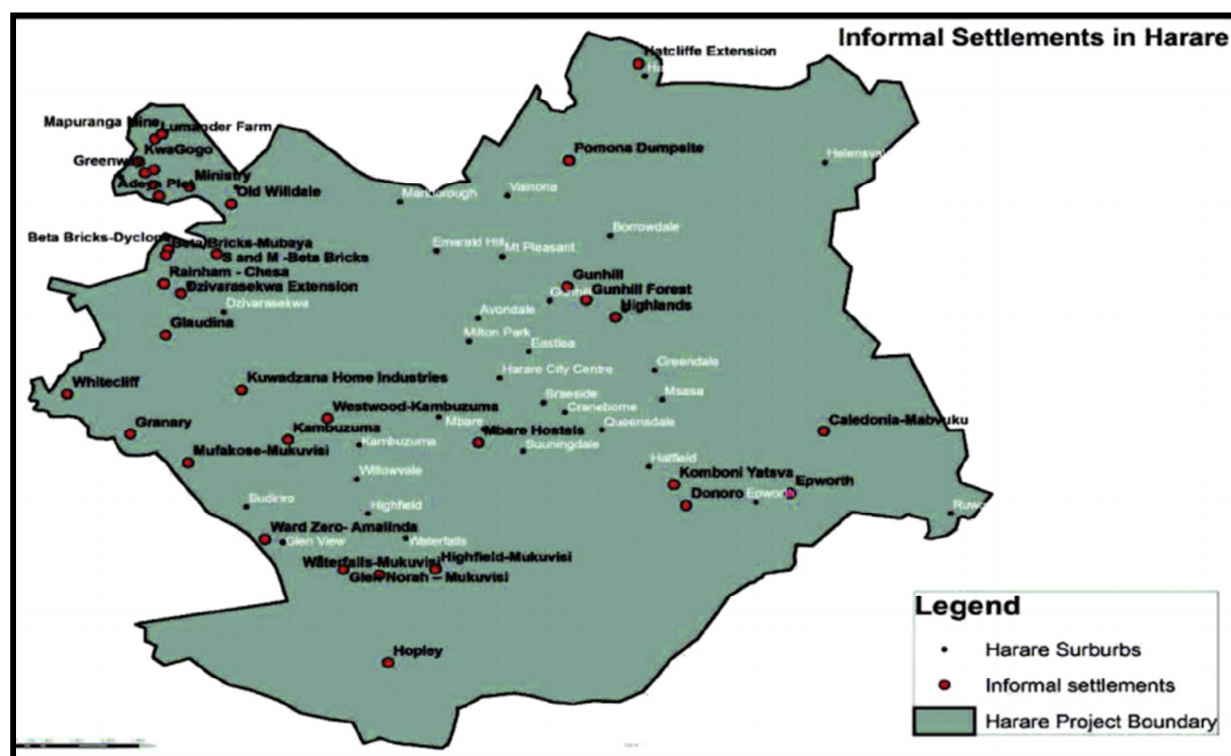


Figure 4: Distribution of Informal Settlements; Source: Nyakuwa 2010

Contributing Challenges to Housing Shortages

Corruption has been widely cited as one of the major factors hindering efforts by the authorities to provide decent and affordable housing to the majority of Zimbabweans, especially the poor. Land barons, housing cooperatives and some council officials have been found to be at the centre of the sleaze. Areas that are meant to benefit the low income earners and the poor is converted and manipulated by those with economic and political “muscles” leaving the poor majority remaining constrained with high rentals that are also unaffordable. It also very unfortunate that there is no transparent and account table leadership in the housing department making problems of housing to perpetuate and the housing waiting lists continues to grow yet little is being done. The housing cooperatives and the council’s housing policy issues have to be dealt with in a more transparent and accountable manner. Those who are under the waiting list continue to pay money annually such that they name won’t be removed on the list. Harare city also is being affected by economic meltdown of the country which also has high negative impacts on housing provisions. Thus, the city suffers from high finances deficit and cannot afford to cater for all citizens housing needs this has been exacerbated by rural urban migration that has for the past two year exceeded the capacity of the local authorities to provide adequate housing. On the other hand the economic melt-down of the country has left the stakeholders/

investors with no confidence in partnering with Harare city which also hinders progress in housing delivery. The rate payers have become reluctant to pay for services the city offer to them since they cannot afford them which also have negative impact to development thus the city failing to get enough profits/funds to provide adequate low income housing for people.

Recommendations and conclusions

The provision for proper and affordable housing calls for a unified effort. The government is supposed to anvil suitable land, subsidise on construction material and where possible upgrade and regularise informal settlements. Land is a finite resource, which if not managed effectively, may result in Government only meeting the needs of the current generation and ignoring those of the future. Harare city should its housing services should be prioritise building of flats for both high and low earners as a way to save and conserve land. Public resources are supposed to be allocated in a fair manner on a need basis. In that vein, measures must be taken to ensure the same beneficiaries don't continue to benefit from different Government schemes. Land is a finite resource and people must disabuse themselves of the notion that the resource is inexhaustible. Manufacturers of building materials have to come up with technological innovations that reduce costs in production of their products, so that many can benefit through affordable prices. Thus, the city must ensure that they are enough programmes to provide adequate housing scheme for all citizens in an equitable manners and these housing schemes must be well planned, having adequate basic facilities such as water, roads and sanitation networks. Thus the local government need to prioritise the issue of adequate housing service delivery.

The city should not just create dormitory residential areas without opportunities for employment, thus, there is need for a delicate balance such that there will be sustainability in cities development. There is need for mixed use developments/ integrated socio-economic development such that we do not cement disparities that came as a result of colonisation, whereby housing was provided in peripheral areas of the city and without any industrial development and adequate road accessibility hindering mobility of people towards economic opportunities. For cities to become safe, resilient, sustainable and safe, low-income housing developments should be backed up by improved accessibility towards economic opportunities of various sectors like manufacturing and industrial. There is also a need for a balance between distributions of land to fill in the immediate social injustice needs that has perpetuated cities with thousand homeless. The government have to ensure that housing costs are proportionate to overall income levels, establish subsidies for those unable to acquire affordable housing, and protect tenants against unreasonable rent levels or increase.

Care must also be taken to make ecological considerations and come up with green cities that have breathing spaces. Green belts are the lungs through which cities breathe. Thus the city of Harare needs to relocate all those people who mushroomed in wetlands. The Government and local authorities should accelerate the implementation of low cost PPPs in housing development to reduce the costs of land development. This can provide a win-win

situation as the approach reduces the cost of developing land for home ownership and it makes it possible for councils to benefit from well-constructed and completed structures through rates payments. In same vein, the Government should speed up efforts to revive rural agriculture to improve food security for both rural and urban population and reduce rural-urban migration through improved food securities in rural areas. There is need for improved financing for climate change resilience programmes and measures to improve agriculture. There is need to establish more irrigation initiatives to combat the effects of climate change and this creates employment in rural areas reducing migration that put pressure on housing provisioning in cities. Lastly community-city engagement is through planning, and development of infrastructure is vital to achieve inclusive and sustainable cities. In particular, communities contribute their imaginations with regards to the form and structure of the settlement they want.

To sum up, Harare has high disconnect in housing service delivery especially low income. Despite all the partnership with various stakeholders, many people in Harare still lives in slum settlement where there is no access to basic services such as water, electricity and sewer networks perpetuating poverty and reducing sustainable development. These challenges are mainly perpetuated by influx growth of population caused by rapid rural urban migration against the ability and capacity of the government of delivery services.in-order to curb these challenge the research came up with various recommendations that includes subsiding of land to ensure everyone access it and upgrading of informal settlement by proving tittle deed and sewer and water networks.

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To Study the Importance of the Competency Behavioral Interview as Talent Management Strategy in the Organizations

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Abstract

The purpose of understanding the competencies is to align the individual skills and behavior to work. In implementing accurate and fair selection methods which include interviews, employers have an array of options in front of them. But organizations today rely themselves on that matches the performance and the retention needs of the of the organization as well as the culture of the organization. In this dynamic world, where change is the only constant dimension, organizations all across the sphere are striving hard to retain their talent and yield upon them to yield human capital and organizational growth.

Behavioral interviews are based on the analysis of the job skills and the requirements of a certain kind of a job. It studies the individual's critical experiences in the past apart from noting down their behaviors demonstrated in a particular situation that immensely helps the managers to gauge the attitude of a potential employee which can help them to have better understanding of the employee working under them for the purpose of talent management. This competency based approach is gaining momentum al across the globe as it is incredibly useful for the recruitment of the potential employees apart from retaining their star talent as well. In this research paper, the researchers would aim to study the various interviewing techniques that can be useful for the purpose of talent management and increase the effectiveness of the employees

Keywords: Talent Management, Behavioral Interview, Competency, Recruitment

Main Conference Topic: Economy, Entrepreneurship, Tourism

Introduction

Global technological and managerial advancements have caused a lot of changes in the way the corporate world works. Managements must therefore take some time and find a way to make sure that they find what their core competencies are and gain organizational systems to make sure that they have a competitive advantage amongst the other competitors in the long run. Because of more and more companies trying to find some space in the industry, over the years, it has become very difficult for the companies to distinguish and compete with one other. For instance, if there is a manager that leaves an organization

to join a rival organization, it is a common understanding that the top management would like to replace the outgoing manager with an in-house employee, but if they are not able to get one, the top management might outsource the employee into the organization. And, it might happen that the out sourced employee is unable to get accustomed to the working environment of the organization as a result of which there will be massive disruptions in the organization.

In this highly competitive corporate world, the single most important aspect to choose as a challenge for any company or organization across the sphere would be to make sure that they are able not to retain their star talent employees apart from making sure that they are hiring people who are the right fit as per their culture and values. And, the only way in which the employers can make sure that they are able to accomplish the above stated things is by interviewing their current employees for the sake of promotion as well as making sure that they are taking important steps toward new employee selection and succession planning process. In order to make sure that the selection process is a fair one, the organization can try a number of ways and techniques, interviewing being one.

It is essential to choose the right kind of the interviewing technique to make sure that the employee is getting matched up with the retention and the performance needs of the organization. Behavioral interview is one of a kind interviewing technique that focuses on a prospective candidate's past experiences of how they applied the necessary knowledge, skills and abilities. Mostly, the answers that are given while there is a behavioral interview that takes place, give a brief idea to the employer as to whether the employee is able to handle certain situations or if the employee is worth the promotion that is addressed.

In the recent years there have been an increased focus on talent acquisition and management, but not most of the organizations have nailed the art. Therefore, keeping this in mind the researchers have the following objectives for the research paper. First, the researchers would study the barriers that are faced by a company or an organization in talent management. The researchers would then study the impact of behavioral interview in talent acquisition. And finally, the researchers would assess the importance of the competency based behavioral interviews

Research Objective 1: To study the impact of competency behavioral interview as a Recruitment and Selection tool for Talent Acquisition

There are many theories and researches that state about the implementation of the talent management, but companies all across the globe find it difficult to implement talent management because of several factors which the researchers will address in the paper

Research Objective 2: To study the importance of competency behavioral interview for effective succession planning as a Talent Management Strategy

Behavioral interview has gained an upward momentum amongst the employers across various industries, but there has not been substantial research that has been done that states the impact that the behavioral interview had on the acquisition of employees that fit as per the organization's culture, values and needs.

Related work

(Ed., 2001) believes that talent management is one of the most important ways through which the companies can identify the voids within and fill in with their prospective employees in order to fulfill their goals and objectives efficiently and effectively. It is to be noted that the managerial talent is a combination of the leadership ability, strategic thinking, strong analytical skills that can attract talent around him having functional talent to deliver the desired results. According to (Williams, 2000) talented people are the ones that have great abilities to be successful in a variety of activities in their fields. This particular section of literature review showcases the definitions of talent management. Strategic talent management is the process that involves the systematic identification of the key positions that are required to make sure that they are fulfilling the managements goals and objectives which in turn provides them competitive advantage over its rivals. Development of the pool of talent and making sure that an environment is being developed in the organization that takes care of ensuring that the incumbents are not only able to nourish their talent but also are able to ensure that they are able to showcase it in the organization where they are working (Collings, 2014)

(Clieaf, 1991) has suggested that, recent management research has affirmed that the most broadly utilized determination apparatus, the customary contracting meeting, has just a 15-20 percent possibility of precisely foreseeing occupation execution. The staffing procedure in a few associations requires change, and instruments now accessible can make administrators and supervisors progressively powerful in anticipating the activity execution of potential workers. The money related effect that a skillful versus a minor entertainer can have on an enterprise can be considerable. On a recently finished staffing task for a chief of universal duty arranging, it was assessed that a potential efficiency gain of \$3 million in duties spared more than three years could be acknowledged by procuring a very skillful versus a normal worldwide expense executive. The more senior the position, the more noteworthy the profitability affect from contracting an able entertainer. The key is having the capacity to characterize and gauge compelling conduct that produces primary concern results, and to recognize the normal from the exceptionally skilled entertainer in a precise and solid staffing process

As per (Wiley, 1992), firms that prevail in the following decades must perceive the statistic changes in the workforce and create techniques to pull in and hold representatives 1!. Trends in the availability of American laborer's are required to change significantly during the 1990s. Amid this time, the dynamic improvement of numerous associations will be tried by basic work deficiencies and different workforces. Given these difficulties, businesses will encounter expanding challenges in finding and pulling in best competitors in an aggressive work advertise. Consequently, they will think that its basic to create imaginative enrollment techniques and to reconsider approaches to showcase their organizations and their employment (Rooney, 2009) is in the opinion that success in the working environment is never again estimated exclusively by execution in expert examinations; it is additionally controlled by the applicant's capacity to illustrate 'center capabilities' significant to the situation for which they are applying. Along these lines, competency-based meetings were

acquainted with spotlight on the competitor's past execution in the work environment as a method for anticipating likely future execution. Since competency-based meetings are not as regular as the customary meeting, they can be a wellspring of tension for applicants. The initial step when you are called for meeting is to get some information about the structure and sort of meeting you will embrace. Take a gander at the particular employment detail. Regardless of whether you are moving toward a competency-based meeting from a representative's or a business' point of view the experts certainly exceed the cons. When moving toward competency-style inquiries addresses think 'Situation, Action and Result' and you are ensured a progressively effective result.

Research Methodology:

Exploratory research is research conducted for a problem that has not been clearly defined. It often occurs before we know enough to make conceptual distinctions or posit an explanatory relationship. Exploratory research helps determine the best research design, data collection method and selection of subjects. The research design used was exploratory research design as the researcher was unaware of the problem and the researcher was exploring the best appropriate means to find the solution to the research topic. This research was conducted with an aim of doing a Qualitative analysis of the topic which required the researcher to do an extensive review of a number of Books, Journals, magazines and Periodicals for the research. Owing to the shortage in time and the necessary resources, this research can also be conducted using a quantitative analysis of the appropriate data which would further enhance the sheer effectiveness that the research already has.

Findings and Recommendations:

Research Objective 1: To study the impact of competency based behavioral interview as a Recruitment and Selection strategy.

Competency based behavioral interviews are defined by a process that first starts with the job, function or the organizational analysis that would define its organizational competency, and most importantly, every question asked can then be traced back for the analysis. The purpose of each and every question asked in such types of interviews can be clearly and concisely explained. Because of this linked approach this style of interviewing enables the interviewer not to ask irrelevant questions that will not provide any information about the job or the competency based information. Apart from which these types of interviews makes it easier for the employers to measure the candidates as these types of interviews are measured with same criteria, also these types of interviews allow the employer to analyze all the prospective candidates right from the very beginning as competency based behavioral interviews focus primarily on the job related competency's. It does not intuit a person's problem solving abilities with their response to a vague question. Also, these kinds of interviews don't assume that the people with higher technical superiority are the best fit for the job. (Hoevemeyer, 2006)

Competency based behavioral interviews take a holistic approach while recruitment and selection of an employee for any role in an organization. As compared to the traditional

interviews, they first seek to analyze a candidate's technical knowledge to narrow down the candidates, after which these interviews seek to have a screening interview in order to find the candidates who have critical skills which include skills that are not mentioned in the resume and finally it uses the candidates for identifying the competency for success in the position to determine the best candidate for that position. To sum up, Competency based behavioral interviews help the employer to grab an opportunity to find out whether a candidate is appropriate enough to capitalize on the competency that are required to make sure that he successfully utilizes its position in the organization. As a result of which the employer gets to know whether the candidate is eligible for the job apart from getting to know his skill set on the required competency and most importantly know the candidate's skill set in that competency in the future. (Hoevemeyer, 2006)

Behavioral Interviewing has been around in the corporate world since the past 25 years, but little do people know about it. These type of interviews start with a belief that the past performance of an individual is the best predictor of that individual's future performance. It has the primary focus on finding that whether they have the require technical skills in order to handle the job apart from knowing whether they will grow in the future and to know that whether they will fit in the current team or not. Competencies are the skills that are observable, measurable and are essential for a successful job performance and it is rightly said that the workers who lack their core competency skills are bound to fail in their jobs. (Cook, 2013)

Competency based behavioral interviews are widely used for job interviews and there are evidence that showcase that with the standardization and usage of the behavioral questions improve the chances of finding the best suitable candidate for the interview. Job competing competency can be matched with the strengths of the candidate in the pre hire phase of the employment. Behavioral based interviews are related with the job related competency may be used to get the best candidate possible. A structured interview would thus help an employer to identify the potential performance of the candidate based on the competencies identified during the interview. (University of Missouri Kansas City, 2015)

Figure 1: Preparing Competency Based Interview:



- **Determining Job Competency:**

The most important aspect of the development of the competency based interview is for the employer to know, what the duties of the job would be on the basis of which the employer would determine the required necessary competencies required in order to perform that particular job. Typically, these competencies are established when the analysis of the job duty is being made

- **Developing Behavioral based Questions:**

Here the interviewer who is typically the employer has to make sure that he develops the necessary questions that are required to find out that whether the candidates past experiences would be helpful in finding out that it is able to full fill the jobs criteria and most importantly know that the candidate would be successful in the future. This is the part that utilizes the maximum number of time and hence it is the most important part of developing an interview as apart from making sure that the interviewer is able to provide quality question, it has to also make a note of finding questions that would provide a platform to him so that he can compare all the candidates on the same lines.

- **Interviewing Candidates:**

Here, the candidate must provide the same questions to all the candidates who are coming for the interview. It should be noted that during the interview the candidate would provide the interviewer with a lot of questions, but it is the duty of the interviewer to identify the necessary information and filter out the rest of the information that is not relevant to the job duties. Speaking of which, the interviewer must also make an account of asking follow up questions which would help the interviewer to validate the candidate's response

- **Evaluation of the Candidates:**

Here the interviewer is required to make sure that it is doing an unbiased evaluation of the candidates as per their response to the behavior based competency questions, wherein the interviewer can use a scale or a matrix to evaluate the candidate's response and at the end arrive at the conclusion of selecting the appropriate candidate for the job.

Recommendations for objective 1:

- Organizations all across the globe must shift their focus from conducting a competency based behavioral interview rather than conducting a traditional interview as research has shown that these interviews are three to five times more effective and efficient as compared to the traditional interviews in order to know what a person's true potential is. As after conducting the traditional interview if the employer finds out that it is not the right fit, competency based behavioral interviews can make sure that the employers are not only saving money, but also they are hiring talent which would be good for the company in the long run.
- It is also essential for organizations to align the organizational competencies and value set during the recruitment process with the existing competencies of the individuals and understand if the individual would be the right fit for the organization and would yield better results, this would also help in reducing the attrition rate and safeguarding talented employees in the organization.

Research Objective 2: To study the importance of competency behavioral interview for effective succession planning

Succession planning and management is a crucial aspect for all the organizations, if a company needs a consistent base of capability for achieving improved performance and readiness for leadership roles, they also need to select for those same capabilities, Competency behavioral interviews are constructed to diminish these dilemmas while considering high potential talent for the key positions in the organizations. While skills and knowledge can be taught, there are varying opinions whether certain attributes can be developed or whether employees must be selected for such key positions who already demonstrate the use of those attributes and behavior.

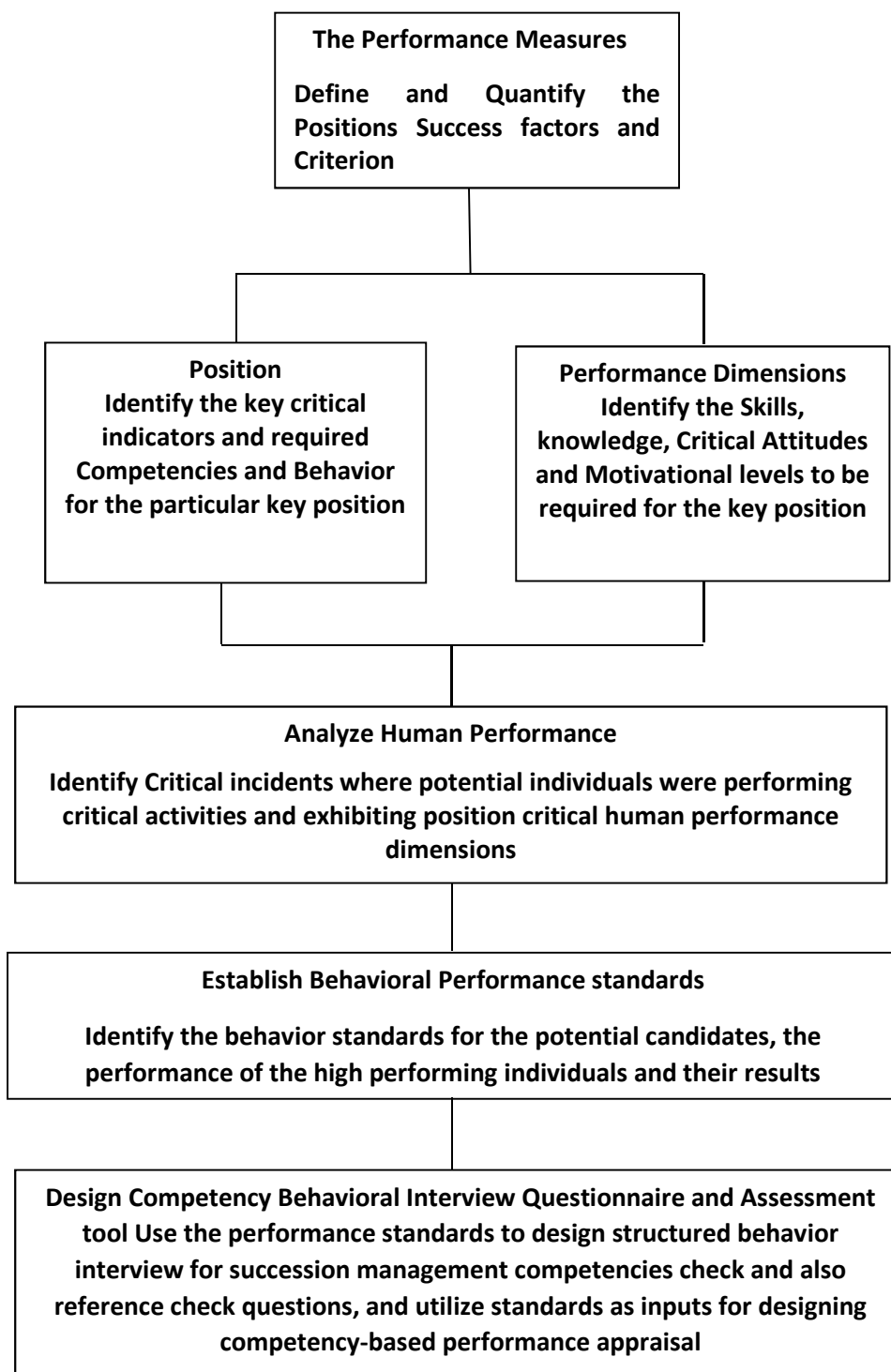
As organizations evolve and create new strategic plans to meet ever changing business challenges, they are also defining their ideal talent which can take the legacy ahead of the organization in an efficient and competent way. Organizational succession management today requires the alignment of various functions and respective competency models to gauge the high potential talent and gauge their capabilities for managing the top positions in the near future. While selecting the high performing talent in the organization and grooming them to acquire the managerial positions ahead requires a lot of analytical and strategic thinking as they need to have the set of competencies which are in alignment with the organizational goals and objectives and which can be gauged through competency behavioral interviews as the individual is gauged on various parameters which help in effective succession management in the organization.

While selecting potential candidates for succession planning the basic competencies are not looked upon much but adequate importance is given to a variety of strategic competencies that the individual possesses and which can be analyzed during the Competency interviews. Problem solving and decision making competencies are crucial to understand if the individual will be able to take strategic decisions for the organization in the future and certain set of questions like , problem-solving style of the individual and how in critical situations he has taken decisions ,How he/she has behaved in a situation of crisis or asking about a difficult decision that he/she made in the last year ,Such questions help the interviewer to gauge the competency skills the individual has to manage top position and challenging roles.

Competency based interviews also help for succession planning as they aim to understand the leadership and people management skills along with the strategic and analytical skills, in the interview to identify the leadership talent that will be fit for the top management positions a set of questions asking the individual like ,Do you create an environment that empowers success in others, Can he/she build relationships inside and outside of the organisation and be client focused, is he/she capable of creating a realistic vision, setting challenging but achievable goals and establishing a learning environment for the benefit of organization and employees , the individual explains a series of incidents where they have demonstrated such behaviors and attitude and it helps the interviewer to understand the mindset and perception of the individual towards these varying situations,

this also helps in analyzing the existing competencies the potential candidate has which can be beneficial for the organization in effective succession management. (Clinical Professionals UK, 2015)

Figure 2: Succession planning analysis for strategic positions with the use of Competency Behavioral Interviewing Assessment Method



Recommendations for Objective 2:

- The succession management process in organizations requires change, and with array of tools now available can make executives and managers more effective in predicting the job performance of potential employees and leveraging on this existing competent talent to fill the key positions of the organization, it is essential for organizations to identify and prioritize the appropriate performance dimensions and behavioral performance standards into two or three major clusters based on how critical the dimensions are for various senior level positions.
- Another efficient factor for organizations to consider is to have a set of structured Competency Behavior interview questions which are designed upon the most important tasks, performance standards and dimensions which are required for the key top management roles and observed behavior that has led to exemplary performance in the specific key position being analyzed. Other dimensions ranked important but not put into group one (highest importance) may be used as assessment criteria in further Structured Behavior Interviews or structured reference checks. This way the succession management planning for organizations would be planned and in an productive and efficient manner with the use of Competency Behavioral Interview assessment technique. (Clieaf, 1991)

Conclusion

Competency based behavioral interviews are not only essential for an employer to make sure that it is acquiring new talent, but it also makes sure that it is helping in talent management by doing fair and appropriate recruitment and selection. Behavioral interviews help align the existing capabilities and competencies of the individual with the organizational objectives and goals which helps in better results and achievement orientation for the organizations. It helps to gauge the potential talent and help in better hiring process and efficient talent acquisition along with future talent management with the help of succession planning and management.

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Brief biographies of the authors

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Challenges in Implementing Research Based Learning in Higher Education in India: Teacher's Perspective

Pallavi Sood, Rajit Verma, Prairna Gupta

Abstract

The higher education system of India is the third largest in the world, after the United States and China. It has evolved over the last 75 years since independence and tried to keep pace with the requirement of modern education. However, even now the sector faces numerous challenges in terms of quality, cost, imparting skill-based training and enhancement of employability in young graduates. Improvement in pedagogy will always remain a major challenge as it has to evolve constantly. In this regard, integrating teaching with research has emerged a major factor for making learning contemporary, relevant and practical. Educational research is a significant field that contributes to developing and enriching regular teaching, and enabling better learning outcomes.

The aim of this paper is to determine the challenges faced by teaching professionals in classrooms and their perspective about aligning research with the pedagogy. The study is exploratory in nature with response analyses. The data was collected from 120 teaching professionals from different colleges using a survey instrument. Responses were analyzed using factor analysis. The findings revealed that while majority of the teaching professionals agree that the understanding of the subject increases with aligning research with regular teaching, factors like time constraint, unavailability of adequate resources, lengthy course coverage and negative attitude of students are some of the major challenges.

The study is important as higher education needs to carry research into a class-room, if we have to keep students updated. This is also important from the perspective of raising employability quotient and creating better learning outcomes for the graduates.

Keywords: *Higher education, Millennial, Research, Factor Analysis, Response analysis*

1. Introduction

The higher education system of India has evolved immensely over the past decade. Higher education has largely become an input to the growth and development of the country and is also seen as an opportunity to enhance the skill and knowledge threshold. **(Arimoto 2015)** The complexity of higher education structure in India can be attributed to various categories of institutions like universities, colleges, institutes of national importance, polytechnic colleges and many more. **(Bettinger and Long 2010)** The universities are further categorized as Central universities which are formed by government of India, by an act of parliament which are responsible for arranging and distributing resources required by University Grant Commission(UGC), State universities, Deemed universities (aided and unaided) and Private Universities. **(Indian Express, 2011)**

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Most of the universities in India have affiliated colleges where undergraduate courses are being taught. According to the Department of higher Education, Government of India, there are 16,885 colleges, including 1800 exclusive women's colleges functioning under these universities. Apart from these institutions, distance learning is also an important part of the Indian higher education system. **(Higher education, Lambert, 2011)** Although, some institutions of India such as IITs are globally acclaimed for their educational practices, still Indian educational Institutions has not made to top 100 in the current year as well. According to the reputed QS world university rankings, Only two institutions — the Indian Institute of Science, Bangalore and the Indian Institute of Technology Delhi were included in the top 200, among the rankings mostly dominated by American institutions.

Although the nature and benefit of research-related teaching have received considerable attention in recent years **(Malcolm 2014)**, its place in higher education policy and practice still tends to be vague. None of the Indian University has still managed to make it to the list and one of the major causes attributed to the above, is lack of research oriented educational practices. According to an article in the Indian Express, 'If we aim to dominate the global discourse, we need educational institutions that not only create skilled human resource but also boost indigenous research and development, power the country's intellectual and entrepreneurial leadership and instill scientific thinking among the masses. For a country that aspires to become a major global player over the next quarter of a century, mediocre education is not the way forward.'**(The Indian Express, 2016)** The Indian higher education system is in desperate need to create an innovative educational infrastructure which focuses on boosting research and research based innovative practices apart from delivering knowledge.

In today's era, the role of research is quite significant for its sustainability and development, and it is equally imperative to have knowledge-driven growth based on innovation. Educational research is a significant field that contributes to developing and enriching regular teaching, and enabling better learning outcomes. **(Akerlind, 2004)** The quest for knowledge accelerates research to a great extent. The quality of research work directly impacts the quality of teaching and learning in the classroom, thereby benefiting not only the students or the teachers, but also contributes to the growth and development of the country.

The promotion of research and its practical applications will help the institutions to evolve as a knowledge reservoir in the global arena. It can challenge and change educational practices and

classroom delivery. **(Jenkins, 2004)** In this regard, integrating teaching with research plays a major role in making learning contemporary, relevant and practical. It is high time that the educational institutions start recognizing the importance of research based learning and dwell upon modern and more comprehensive learning activities in higher education. **(Bak & Kim, 2015)**

Our education system faces a number of constraints and challenges and quality research is one of them. Except for a few prestigious institutes, most of the others are bleak in terms of quality and quantity of research. The mandatory research goals for individual faculty are mostly lacking, the lack of an encouraging academic environment, ill-equipped libraries, labs and equipment, and inadequate systems or infrastructure for research is among many factors. **(Financial Express, 2017)** Nevertheless, it is an important contextual factor to understand the linkage between research and teaching. For example, student engagement in the research process may be easier within research groups and with different levels of researchers. In humanities, the dominant mode of research is highly individual and engaging students is significantly harder, on the contrary, opportunities to share research results with students may be easier. **(Kyvik, 2013)**

2. Review of Literature

In existing literature, several studies have examined the higher education stream for different reasons in different institutional settings. For instance, various studies have highlighted the major areas of concern in higher education as lack of financial resources, poor academic management, inadequate access, etc. **Neumann (1994)** proposed a three tier structure, distinguishing the tangible, intangible, and global nexus. The tangible nexus states transmission of knowledge from a teacher to students, the intangible nexus is more implicit integration of research in teaching, whereas the global nexus focuses on the structural unit and its impact on the curriculum.

Brew (2001) explains the difference in research orientation by differentiating between the two dimensions of research among academic researcher's awareness and orientation of researchers' intentions. It was found that their interest in doing research is likely to impact their orientation in incorporating research into teaching. **Griffiths (2004)** identified three approaches for incorporating research with teaching in the classroom. In this, research-oriented teaching involves inquiry-based activities and learning occurs through research experience. The two-way interaction enables a partnership in knowledge production. **Trigwell (2005)** found that in a research-led environment the students have a better learning experience and are more likely to indulge into an in depth approach to learning.

Isabel (2009) discussed the mapping of quality assurance of teaching & learning in higher education. The author suggested that the quality assurance contains features of specialty like, identifying the cohesive core of the researchers and pragmatic approach to research. **(Grant and Wakelin 2009)** studied the link between teachers' own research and their teaching. It was found that research activities indeed seem to impact teaching, more so than teaching impacts research. **Asif (2013)** determined the improvement needs required in higher education benchmarking. The study used analytical hierarchy process to develop a framework and concluded that continuous improvement is necessary for achieving quality

excellence in higher education. **Gresty et al. (2013)** identified the challenges of research-related teaching in higher education. The challenges were divided into, intrinsic risks related to the actual teaching practice, extrinsic risks that impact the teacher from outside of the explicit teaching process and learning risks identified from the student perspective. **Malcolm (2014)** evaluated the higher education policy and practices. It was found that mostly the research related practices in Indian higher education tend to be vague and an improved linkage between research and teaching can benefit academics up to a great extent. **Eve & Marja (2015)** evaluated the link between research & teaching activities in Estonia by surveying 577 university teachers. It was found that research active teachers are more likely to engage the students in the class and hence the interest and involvement in research based teaching practices is growing. **Drazena & Mirela (2015)** studied the perception of creativity in higher education. The research was based on a survey conducted among teachers and students. The findings reveal that both teachers and students are aware of the necessity of creativity in teaching process.

3. Research Objectives:

1. To identify the perception of teaching professionals for research based learning activities in the classroom
2. To recognize the key challenges in implementing research based learning in higher education

4. Research Methodology:

The study is exploratory in nature and uses primary data. The data has been collected through a survey of 120 teaching professionals across different colleges. The questionnaire consisted of 8 questions with sub items. The questionnaire used to collect the data, was put through a pilot test to test its validity. The data collected was then analyzed using Exponential Factor Analysis.

Factor analysis is mainly used to reduce a large number of variables into fewer numbers of factors. It extricates maximum common variance from all the variables and puts them into a standard score. As an index of all variables, this score can be used for further analysis. Factor analysis is part of general linear model (GLM) and also has several assumptions: there is a linear relationship, there is no multi co-linearity, including relevant variables into analysis and existence of true correlation between variables and factors.

This paper in particular uses exploratory factor analysis which assumes that any indicator or variable may be associated with any factor. This is the most common form of factor analysis used by the researchers and is not based on any prior theory. EFA is essential to determine underlying factors/constructs for a set of measured variables. EFA requires the researcher to make a number of important decisions about how to conduct the analysis because there is no one set method.

5. Analysis and Interpretation:

The study is intended to analyze the challenges in implementing research based learning in higher education in India – A Teacher's perspective. In order to examine the challenges faced by the teachers, a survey was conducted on a total number of 120 teachers in Punjab and Himachal region. The initial stage of analysis is done by checking the reliability amongst the various questions and their responses by applying Cronbach's alpha test. The result of the test indicates that the questionnaire is best fit to use for further analysis as the test static value is more than 0.6.

Table 4.1: Reliability statistics by applying Cronbach's alpha test:

Reliability Statistics

Cronbach's Alpha	N of Items
.746	22

Source: Author's computation

Table 4.2 depicts the results of KMO and Bartlett's test:

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.680
Bartlett's Test of Sphericity	Approx. Chi-Square	1000.971
	Df	231
	Sig.	.000

Source: Author's Computation

Factor analysis is used to analyze the challenges in implementing research based learning in higher education in India: A Teacher's Perspective. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy are both tests that can be used to determine the factorability of the matrix as a whole. The results value of Bartlett's test of sphericity is significant ($p < 0.001$, $p = 0.000$). In addition, the Kaiser-Meyer-Olkin measure is 0.680 which is greater than 0.6. It is suggested that if the Bartlett's test of sphericity is significant, and if the Kaiser-Meyer-Olkin measure is greater than 0.6, then factorability is assumed. Thus, based from the results, it is appropriate to proceed with Factor Analysis to examine the challenges in implementing research based learning in higher education in India.

Further table 4.3 listed below highlighting the test of communalities. The result of the communalities explains the total influence on a single observed manifest variable from all the factors associated with it (Costello and Osborne 2005). It is equal to the sum of all the

squared factor loadings for all the factors related to the observed variable. The value ranges from 0 to 1, where 1 indicates that the variable can be fully defined by the factors and has no uniqueness. This means that a value of 0 indicates that the variable cannot be predicted at all from any of the factors. Table 4.3 depicts the results of communalities based on the various questions and responses:

Communalities

	Initial	Extraction
VAR00001	1.000	.668
VAR00002	1.000	.570
VAR00003	1.000	.756
VAR00004	1.000	.613
VAR00005	1.000	.669
VAR00006	1.000	.615
VAR00007	1.000	.660
VAR00008	1.000	.700
VAR00009	1.000	.604
VAR00010	1.000	.684
VAR00011	1.000	.647
VAR00012	1.000	.568
VAR00013	1.000	.705
VAR00014	1.000	.711
VAR00015	1.000	.709
VAR00016	1.000	.583
VAR00017	1.000	.766
VAR00018	1.000	.819
VAR00019	1.000	.692
VAR00020	1.000	.715
VAR00021	1.000	.678
VAR00022	1.000	.780

Extraction Method: Principal Component Analysis.

Source: Author's Computation

Table 4.4 depicts the rotated component matrix of all the variables:

Rotated Component Matrix^a

Variables	Components						
	1	2	3	4	5	6	7
Q.10 Research enhances the effectiveness of teaching – learning process	.807						
Q.3 Do you link classroom teaching with research based practical applications?	.744						
Q.8 Understanding of the subject increases with research	.726						
Q.11 Students should be encouraged to participate in research based learning	.654						
Q.9 Joint research based activity with your students in the class are useful	.609						
Q.12 Large number of students in the classroom		.587					
Q. 15 Lack of motivation		.799					
Q.13 The negative attitude of students for research based learning		.688					
Q.14 Lack of instructional aids		.655					
Q.16 Time constraint		.648					
Q.18 Financial Constraints			.881				
Q.19 Work Life balance			.733				
Q.17 Unavailability of adequate resources			.631				
Q.1 Have you done any joint research based activity with your students in the class?				.740			
Q.6 Does your institution provides access to advanced database and statistical packages helpful in research?				.665			
Q.4 Do you assign research activities to the students?				.524			
Q.7 Research should be a part of regular course curriculum for the students.					.660		
Q.2 Have you been recognized for any significant contribution to any research area?					.716		
Q.22 Lack of knowledge of research basics among the students						.843	
Q.20 Lengthy course coverage						.734	
Q.21. Lack of support from the institution						.607	
Q.5 Do you read books or professional journals							.801

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

- a. Rotation converged in 11 iterations.

Source: Author's Computation

Table 4.4 shows the rotated factor matrix for the questionnaire. Tabachnick and Fidell stated variable with factor loadings more than 0.45 were chosen in this study because loadings equals to 0.45 is considered average, whereas loadings 0.32 is considered less good. After performing Varimax Rotation Method with Kaiser Normalization, Factor 1 comprised of six items with factor loadings ranging from 0.54 to 0.8. The items in Factor 1 are 10, 3, 8, 11, 9, and 12. Factor 2 comprised of four items with factor loadings ranging from 0.64 to 0.79. The items in Factor 2 are 15, 13, 14 and 16. Factor 3 comprised of three items with factor loadings ranging from 0.32 to 0.83. The items in Factor 3 are 18, 19 and 17. Factor 4 comprised of three items with factor loadings ranging from 0.74 to 0.53. The items in Factor 4 are 1, 6, and 4. Factor 5 comprised of one item with factor loading of 0.71. The items in Factor 6 are 22, 20 and 21. Factor 7 comprised of one item with factor loadings are 0.8. The item in Factor 7 is 5. Seven new factors were successfully constructed using factor analysis and assigned as the factors affecting the learning style activity. Table 4 shows the name of the new factors and percentage of variance explained for each of the factors. The first factor shows the highest percentage of variance explained when it was extracted. When the first factor, challenges in implementing research based learning in higher education in India – Teacher's perspective was extracted, and then 15.447 percent of the variance would be explained.

Table 4.5 the total variance explained:

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.398	15.447	15.447
2	2.249	10.224	25.671
3	2.130	9.683	35.354
4	1.961	8.913	44.268
5	1.828	8.308	52.575
6	1.802	8.191	60.766
7	1.543	7.012	67.778

Source: Author's Computation

Above mentioned table 4.5 displays the total variance explained at seven stages challenges in implementing research based learning in higher education in India. Seven factors were extracted because their eigen value is greater than 1. When seven factors were extracted, then 67.778 percent of the variance would be explained.

Table 4.6: List of newly constructed factors:

Factor Number	Name of the factor
1	Teacher's perception towards research based learning
2	Classroom based challenges in implementing research
3	Personal Challenges in implementation of research based leaning
4	Research based activities in the classroom
5	Faculty's contribution in implementing research
6	Paucity of knowledge
7	Teacher's familiarity with research and its components

Source: Author's Computation

6. Findings & Conclusion:

In the light of the objectives of the study, it was found that majority of the respondents perceive that the understanding of the subject increases with aligning research & classroom teaching. Also, the respondents revealed that there are several challenges & hurdles in implementing research based learning which makes it difficult for them to link research with classroom teaching.

It is quite evident that there are certain challenges faced by them, inside & outside the class which are still hampering the co-existence of the two important aspects of academics: Research & Teaching.

The study is important as higher education needs to carry research into a class-room, if we have to keep students updated. This is also important from the perspective of raising employability quotient and creating better learning outcomes for the graduates. It is therefore suggested that it is high time to move past traditional teaching practices and collaborating more of research in the classrooms, establishing its linkage with the respective course.

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Learning 4.0: Challenges Ahead

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Every country's education system is its basis for progress. For a successful education system, there should be a balance between tradition and the willingness to accept current social trends. Global connectivity, smart machines and new media are just some of the drivers reshaping how we think about work, what constitutes work, and how we learn and develop the skills to work in the future. Educationists debate the many ways in which the content of education and process of learning needs to be changed over the years ahead. Education 4.0 which will respond to the needs of Industry 4.0 or forth industrial revolution, where man and machine align to enable new possibilities. Education 4.0 will establish a blue print for the future of learning from childhood schooling, to continuous learning in the workplace, to play better role in society. Now, we will have a quick look into the term Industry 4.0.

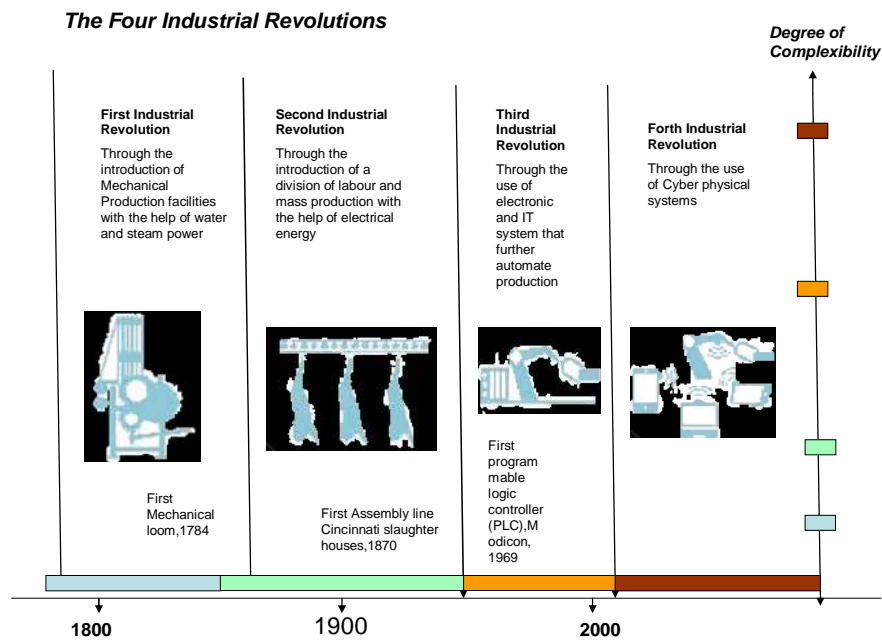
Industry 4.0 has been called the new *buzzword* of the manufacturing industry. As the suffix indicates, this is the 4th wave of distinct industrial advancements, and has thus been titled "The Fourth Industrial Revolution". The term Industry 4.0 was officially presented at the 2012 Hannover Fair in Germany as one of ten "Future Projects" that form Germany's High-Tech Strategy 2020. The title 4.0 indicates that Industry 4.0 is considered the fourth industrial revolution, a logical continuation of the previous three industrial revolutions. the *first* industrial revolution started when the first mechanical loom was invented in 1784. Hand production methods were replaced by machinery and small workshops evolved into the factory system that allowed producing on a more massive scale.

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It wasn't until 100 years later that the second industrial revolution started, between late 19th and early 20th century. With the spread of electricity, the second revolution introduced major industrial developments such as the assembly line and mass production. The period between the second and the third revolution lasted for only a few decades. Starting from the 70s, the rapid adoption of electronics and IT enabled further automation of production in factories. The current, 4th revolution, started in the 2000s, takes automation even further and revolves around cyber-physical production systems. It overlaps largely with the technological advancements known as Smart Factories, the Industrial Internet of Things, Smart Industry, or Advanced manufacturing.



Industry 4.0 is a combination of several novel technological advancements:

- information and communication technology,
- cyber-physical systems,
- network communications,
- big data and cloud computing,
- modelling, virtualization and simulation,
- improved tools for human-computer interaction and cooperation

Information and communication technologies

80% of the innovations in manufacturing are based on ICT. Digitization and the wide spread application of ICT allows to integrate all systems throughout the supply and value chains and enables data aggregation on all levels. **Cyber-physical systems**

In cyber- physical systems, physical components, such as 3D printers, drones and robots, and digital software components, such as data analytics and sensor technology, are aggregated into a network of interacting elements.

Network communications

Reliable high-quality communication networks are a crucial requirement Industry 4.0 and therefore it is important to expand the Broadband Internet infrastructure where needed.

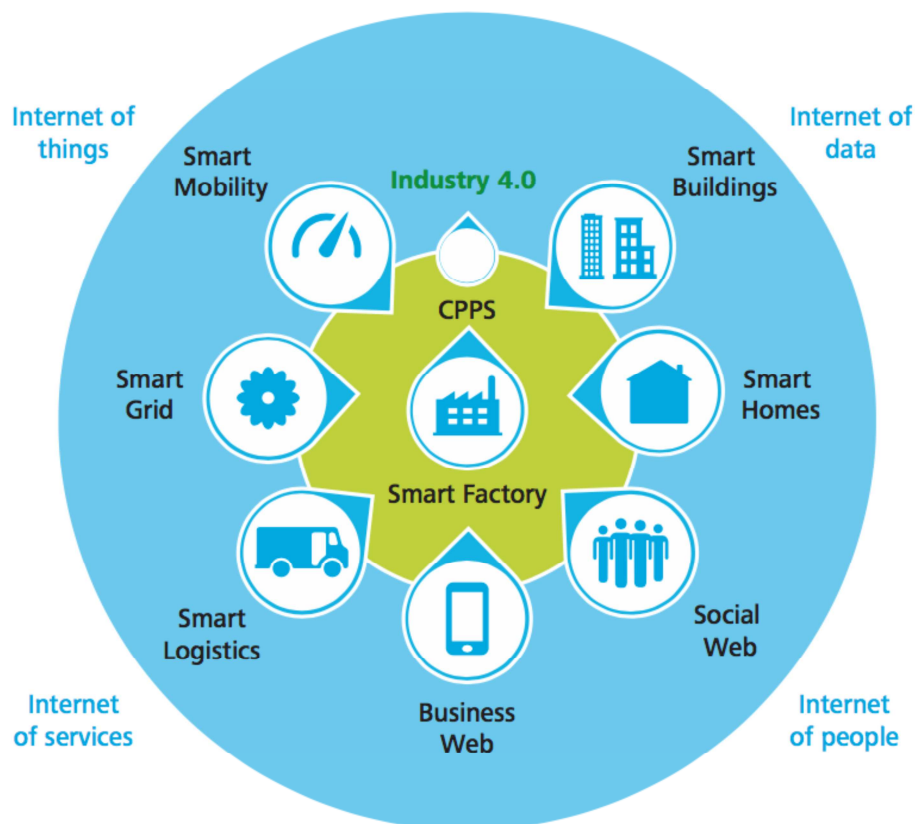
Big Data and Cloud Computing

With the use of big data and cloud computing, the information retrieved through these networks can be used to model, virtualize and simulate products and manufacturing processes. These models are called digital twins, or device shadows. A digital twin is a computerized companion of a physical asset that enables real time monitoring, diagnostics and prognostics of the asset.

Improved tools

The cyber-physical systems of Industry 4.0 have the primary aim of assisting humans in their everyday jobs. They include physical assistance exoskeletons, context-adaptive assistance systems for fault diagnosis, location-based maintenance and planning assistance systems, mobile, personalized, situation-adaptive tutoring systems etc. The key features of such systems are non-intrusiveness, context-adaptiveness, personalized, location-based and mobility.

In order for mankind to be prepared for the rapid approach of '4.0 scenarios' the biggest being Industry 4.0, the digitalisation of education is paramount. This is known as 'Learning 4.0'. It is an era of alignment between man and machine. People will start communicating with machines instead of just operating them, creating a beautiful hybrid of the Internet of people (IoP), Internet of Data (IoD), Internet of Services (IoS) and the Internet of things (IoT).



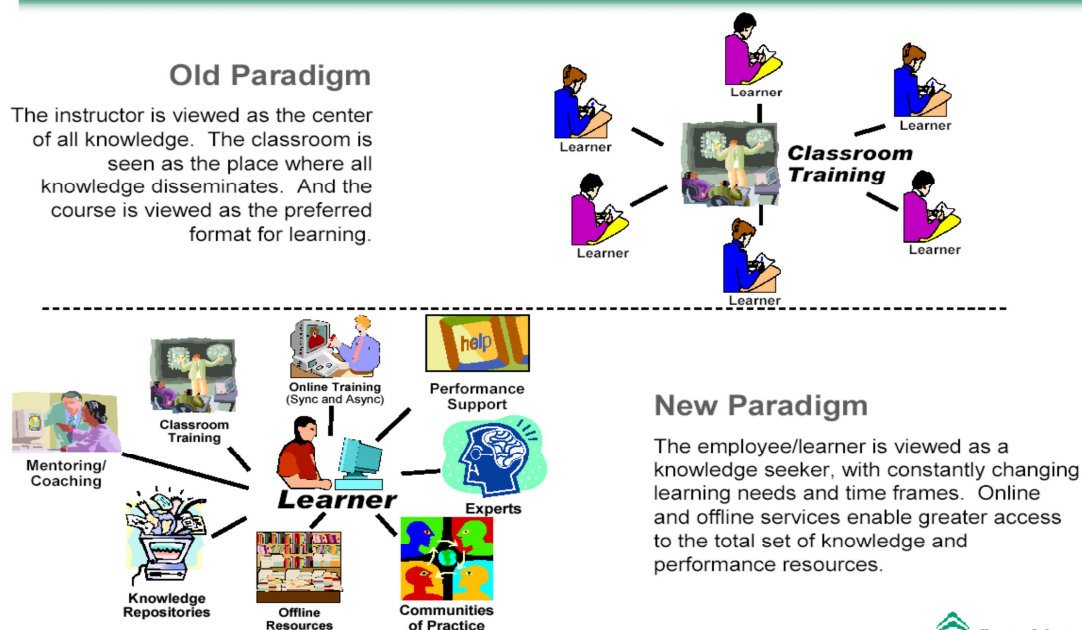
The Industry 4.0 environment

According to the World Economic Forum, "65% of children entering primary school today will ultimately end up working in completely new job types that don't yet exist." There are many drivers influencing this change; the immense globalisation of teams, artificial intelligence, and new media. Our current method of learning will no longer be effective. Considering the speed of innovation happening in the tech space and ever-changing nature of the industry, education has to keep up its pace to keep people informed, up skilled and employed. Learning has to be deconstructed and reconstructed in order to be the most flexible it has ever been, luckily for us technology is on our side. In this situation, we need to shift to more interactive, immersive and collaborative components that can adapt to our personal learning needs- this is where man and machine become symbiotic. According to Peter Fisk, there are two trends namely Personalised Learning and Diversity of Learning coming out of this evolution i.e. Learning 4.0. We need to shift to more interactive, immersive and collaborative components that can adapt to our personal learning needs. In the second trend there is a shift from the theoretical content out of the classroom, with a focus on more practical training, either face-to-face or through interactive solutions. There are already multiple methods in which to prepare the workforce for a workplace that will continuously be disrupted by new technology, by imitating real world processes virtual learning environments (VLEs) are not new, but with the advancement of new media such as Virtual Reality (VR) and Augmented Reality (AR), and now the combination of the two 'Mixed Reality' practical training will become a more viable and cost-effective option. The appealing part of Learning 4.0 is that an situation can be recreated and learners can be immersed in the scenario instead of learning hypothetically. That is students can learn real-world skills and gain 'field' experience, preparing them well in advance for the corporate world.



E-Learning Critical Success Factor 3

Learning/Performance Architecture



Challenges of Learning 4.0

Learning 4.0 refers to case based (example-oriented), task- oriented or exercise-oriented learning, which activates learners and helps them to make "diagnostic" decisions. Now we will discuss about some of the challenges of Learning 4.0.

1.Anywhere anytime.(Diverse time and place).

Learners can learn anything from anywhere at any time. e-learning tools facilitate opportunities for remote, self-paced learning. Classrooms will be flipped, which means the theoretical part is learned outside the classroom, whereas the practical part shall be taught face to face, interactively.

2. Student Paced Learning (Personalized learning)

Students will learn with study tools that adapt to the capabilities of a student. This means above average students shall be challenged with harder tasks and questions when a certain level is achieved. Students who experience difficulties with a subject will get the opportunity to practice more until they reach the required level. Students will be positively reinforced during their individual learning processes. This can result in to positive learning experiences and will diminish the amount of students losing confidence about their academic abilities. Furthermore, teachers will be able to see clearly which students need help in which areas.

3. Free Choice (Flexible delivery)

Students can select different paths according to their cognitive capacity to achieve the same destination or aim. Also, they can modify their learning process and even they can select different devices, programmes and techniques based on their own preferences. Blended learning, flipped classroom and BYOD (Bring your Own Device) form important terminology within this change.

4. Project based

As careers are adapting to the future freelance economy, students of today will adapt to project based learning and working. This means they have to learn how to apply their skills in shorter terms to a variety of situations. Students should already get acquainted with project based learning in high school. This is when organizational, collaborative and time management skills can be taught as basics that every student can use in their further academic careers.

5. Field experience

Because technology can facilitate more efficiency in certain domains, curricula will make room for skills that solely require human knowledge and face-to-face interaction. Thus, experience in 'the field' will be emphasized within courses. Schools will provide more opportunities for students to obtain real world skills that are representative to their jobs. This means curricula will create more room for students to fulfil internships, mentoring projects and collaboration projects.

6. Data Interpretation

Though Mathematics is considered one of three literacies, it is without a doubt that the manual part of this literacy will become irrelevant in the near future. computers will soon take care of every statistical analysis, and describe and analyse data and predict future trends. Therefore, the human interpretation of these data will become a much more important part of the future curricula. Applying the theoretical knowledge to numbers, and using human reasoning to infer logic and trends from these data will become a fundamental new aspect of this literacy.

7. Examinations (Evaluated not Examined)

The nature and mode exam will change completely. As courseware platforms will assess students capabilities at each step, measuring their competencies through Question and Answer might become irrelevant, or might not suffice.

8. Student ownership

Students will become more and more involved in forming their curricula. Maintaining a curriculum that is contemporary, up-to-date and useful is only realistic when professionals as well as 'youngsters' are involved. Critical input from students on the content and durability of their courses is a must for an all-embracing study programme.

9. Mentoring will become more important

In 20 years, students will incorporate so much independence in to their learning process, that mentoring will become fundamental to student success. Teachers will form a central point in the jungle of information that our students will be paving their way through.

We all understand that the knowledge that formed the basis of progress in the 19th and 20th centuries is insufficient in the modern world(21st century). So, the above discussed trends are exciting, provocative and potentially far reaching challenges.

The actual educational profile of a typical Industry 4.0 individual has not yet been developed. These individual would most possibly be graduates from a STEM (Science, Technology, Engineering, and Mathematics) background but in addition to strong domain-specific competencies they will also be required to excel in general competencies, such as managerial skills, understanding of the specific industries and the interrelatedness of different industries across value chains, supply chains, and processes. There will also be a higher demand for excellent communication skills to promote team work and customer relations. All these new competency requirements advocate the development of entirely new qualifications that comply with the interdisciplinary nature of the work. This means that new learning content and didactic methods need to be established and included into professional education and lifelong learning. To support the continuous education of the individuals, the development of new standards for assessing formal and informal learning is critical. Although the current developments are inducing job growth, if the concurrent high skills instability is not dealt with in time, industries will be led to massive recruitment challenges and talent shortage, already happening now and expanding rapidly over the next five years .

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Sustainability at American Universities

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Abstract

Higher education institutions have their own unique ecosystem created by their campuses. They contain an interconnected network of facilities and operations that directly affect the communities and environments in which they exist. As such, there has been an increasing number of American universities that recognize their responsibility to incorporate sustainability into their systems. The primary goal of this paper will be to examine the best practices of American universities with established sustainability programs and give examples of operations with sustainable practices.

Keywords: universities, higher education, environment, innovation and science, alternative energy, renewable energy

Main Conference Topic: Sustainability, Environment and Risk Management

Introduction

Higher education institutions have their own unique ecosystem created by their campuses. They contain an interconnected network of facilities and operations that directly affect the communities and environments in which they exist. As such, there has been an increasing number of American universities that recognize their responsibility to incorporate sustainability into their systems. The primary goal of this paper will be to examine the best practices of American universities with established sustainability programs and give examples of operations with sustainable practices.

There are a number of institutions that feature publications about established sustainability programs at higher education facilities. As green technologies are continuously changing, these sustainability programs evolve over time. As such, these publications are updated and released annually, and are not a one-time fixed assessment. The Association of Advancement of Sustainability in Higher Education, for example, issues institutional sustainability ratings that are valid for a period of three years and they publish a Sustainability Campus Index annually. The Princeton Review also offers annual Top 50 Green Colleges List and profiles with continuous updates on 399 Green Colleges. This paper will discuss successful programs highlighted by the Association of Advancement of Sustainability in Higher Education's Sustainable Campus Index 2018 and The Princeton Review's Top 50 Green Colleges List for 2018.

The Association for the Advancement of Sustainability in Higher Education releases a Sustainable Campus Index every year to highlight the highest scoring campuses for their achievements in sustainable practices. They use a sustainability tracking, assessment and rating system to identify the top performing institutions, called STARS. This is a subscription service offered by the AASHE that has two options: a free basic reporting tool that includes the option to share data publicly to earn recognition as a STARS reporter; and the full access option that includes data sharing and benchmarking opportunities, automated

scoring, support to ensure data accuracy, and feature in the Sustainable Campus Index with ability to earn a STARS Bronze, Silver, Gold or Platinum Rating. These tools are available to any institution globally and they offer discounted access for least developed countries. Membership and fee information can be found at stars.aashe.org/pages/participate/register-stars.html.

The Princeton Review invites around 2,000 colleges to participate in their Top 50 Colleges and Top 399 Green Colleges Lists annually. The colleges are asked to complete a survey for school administrators that was produced by a panel of experts in higher education green practices. The responses to these administrative surveys are used to assess a green rating. This green rating is combined with a score gathered from student opinions which are also assessed through written surveys. They consider whether students have a quality of life on campus that is both healthy and sustainable, how well a school is preparing students for employment in a green economy, and how environmentally responsible a school's policies are. The Princeton Review consults with the AASHE, EcoAmerica and Sierra magazine to streamline the reporting process for institutions that choose to participate in higher education sustainability assessment. More information on their green rating policies can be found at princetonreview.com/college-rankings/green-guide/methodology.

Best Practices

Universities are an excellent resource to educate future leaders about methods to create a more sustainable society. Curriculum designed to educate students about how to navigate the path to a sustainable future is taught through sustainability courses, degree programs and other learning opportunities. The College of the Atlantic in Bar Harbor, Maine, tops The Princeton Review's Top 50 Green Colleges list at number one. The College of the Atlantic ("COA") has extensive campus facilities that integrate sustainability studies into experiential learning resources for students. COA students have researched, sited and installed solar panels and a wind turbine on campus in addition to its own organic farm twelve miles from campus (The Princeton Review, 2018). The school has also started the Thoreau Environmental Leaders Initiative on campus that schedules on-campus speakers, workshops and events in efforts to cultivate student and community advocates for renewable energy and climate change issues; students also participate in the United Nations Framework Convention on Climate Change Conference of the Parties and other international environmental meetings (AASHE, 2018).

Princeton University in New Jersey offers more than 250 courses that have incorporated sustainability into their curriculum; in 2014, 20% of graduating seniors had engaged in academic or research efforts in sustainability; and more than 60% of classes have a sustainability component (The Princeton Review, 2018). Their faculty plant physiologist Dr. Paul Gauthier leads a Vertical Farming Project. Students research hydroponic and artificial lighting growing systems to study the viability of space saving methods to understand ways to feed our rapidly growing world population (AASHE, 2018).

Higher education institutions have extensive facilities that can have significant impact on the local air quality. A campus's emission levels can directly affect student participation rates. Every 100 parts per million increase in CO₂ was associated to roughly

one-half day per year reduction in school attendance (Gailhre, Semple, Miller, Fielding, Turner, 2014). Certain campuses have taken impressive action to improve local air quality and reduce their air pollutant emissions. Virginia Commonwealth University leads The Urban Forestry Initiative which is a community-based research project that was designed to meet the community identified need of increased urban tree canopy cover (AASHE, 2018). Students will plant dozens of trees in the neighborhood of Carver which will offset the carbon footprint of the Virginia Commonwealth University as the trees grow, making VCU the first university in the nation to claim carbon offset credits for new trees under a peer reviewed program developed at Duke University (Kane, 2018).

Yale University is using internal carbon fees to test the effectiveness and feasibility of carbon pricing on Yale's campus. On July 1, 2017 a fee of \$40.00 per Metric Ton of Carbon Dioxide Equivalent will be charged to the administrative unit responsible for each of its 250 campus buildings; the project aims to inform energy policy, climate change mitigation and environmental economics through research and sharing its challenges and benefits (Yale, 2018). Depending on the results of this project, this could be an excellent strategy model to reduce carbon emissions on every campus by making the departments individually responsible for their buildings' emission levels.

Buildings are the most tangible measurement of energy consumption and the largest source of emissions for higher education institutions. New technologies have enabled architectural design methods for improving campus sustainable practices in their facilities. Colorado College in Colorado Springs, Colorado, recently finished their net-zero Tutt Library. The library is heated and cooled by a continuous loop geothermal system, including rooftop and offsite solar array, green rooftop garden and 130-kilowatt combined heat and power system; the \$45 million project makes it the largest academic library to achieve net-zero construction (AASHE, 2018).

Further research into net-zero building design is being tested by students building tiny housing projects at Temple University in Philadelphia, Pennsylvania. Students designed and constructed 175 square foot net-zero structures featuring high performance thermal envelop construction, vegetated roof, rainwater harvesting, off-grid photovoltaic system, thermal energy collection system and a composting toilet (AASHE, 2018). These constructions demonstrate many methods of sustainable urban development for students and the surrounding community.

Higher education institutions represent a considerable portion of a community's purchasing power and have the ability to create demand for cleaner renewable sources of energy. Hampshire College in Amherst, Massachusetts, gets 100% of its electricity from on-site solar arrays through a combination of 19 acres of ground-mounted photovoltaic arrays, rooftop photovoltaic arrays and increased conservation and efficiency measures (AASHE, 2018). In addition to the utility savings, students conduct research in the solar-array fields educating them in the technical implementation of solar powered systems.

Implementation

As the examples outlined above, there are exciting and effective sustainable operation solutions for higher education institutes to benefit from that bring value to their

communities, increase local visibility, and improve their reputation with students. An institution considering implementing sustainable initiatives into their operations will find a huge amount of guidance on implementation and support. In 2017, Smith College published a report on their Study Group on Climate Change (“SGCC”). The SGCC’s Report sets forth an excellent model for transitioning to sustainable operations with recommendations in five aspects: academic, campus programming, campus operations, investments and institutional change.

Numerous sources of funding for green building are available at the national, state and local levels for higher education institutions in America. For example, the U.S. Department of Energy Office of Energy Efficiency & Renewable Energy provides funding opportunities for research, development and deployment in the fields of energy efficiency and renewable energy. Funding opportunity announcements are made at <https://www.energy.gov/eere/funding/find-funding-opportunity-announcements-0>. There are many other sources for funding assistance with alternative and renewable energy initiative.

Conclusion

As discussed in this paper, American Universities have seen much success in their sustainable campus initiatives. Their students and local communities benefit from the projects which provide experiential learning tools for an increasingly green economy. Every higher education institution has unique needs and opportunities for sustainable growth. It would be ideal for every institution to approach their future growth with this sustainable perspective. This paper sets forth several resources for reference for higher education institutions to transition to sustainable operations.

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Numerical investigations on chill down along packed spherical bed regenerator for sustainable utilization of energy

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Abstract

Efficiencies of cryogenic systems are very low when compared with systems operating at higher temperatures. Efforts are required to improve the operating efficiency of cryogenic systems and thereby reduce the input power requirements. A large amount of power is lost along cryogenic systems due to chilldown process. The present work aims to improve the chill down characteristics along a spherical bed regenerator. The effect of porosity in a spherical bed generator is studied. Numerical simulations were conducted on a stainless steel spherical bed regenerator having porosities 0.4 and 0.5. The flow rate and other boundary conditions were kept constant for both the geometries. The CFD model was validated with the experiment data. Appreciable improvement in chilldown was found with decrease in porosity.

Keywords: Cryogenics, regenerator, chilldown, CFD

Main Conference Topic: Energy

Introduction

The efficiency of regenerative cryocoolers, pulse tube refrigerators etc. depends to a large extent on the performance of the cryogenic regenerative heat exchanger. A regenerative heat exchanger is a sort of heat exchanger where heat from the hot fluid is intermittently stored in a thermal storage medium before it is transferred to the cold fluid ^[1]. These heat exchangers are made up of materials with high volumetric heat capacity and low thermal conductivity. Compact heat exchangers are characterized by a high heat transfer surface area per unit volume of the exchanger. Improved performance of compact cryogenic regenerative heat exchanger necessitates very good heat transfer between the fluid and the matrix simultaneously with a low pressure drop of the flow ^[2]. However, to improve the heat transfer one normally has to pay with higher pressure drop ^[3]. A further parameter, which influences the thermal efficiency, is the longitudinal thermal conduction in the matrix and in the gas, which should be as small as possible. A complete three dimensional modeling and analysis of the matrix is essential for getting a deeper understanding of the principles behind the fluid flow and heat transfer in a regenerative heat exchanger. The present work involves

the numerical analysis of fluid flow and heat transfer characteristics of a compact regenerative heat exchanger for cryogenic applications. Studies were conducted with a stainless steel spherical bed regenerator with two different matrix porosities (i) porosity of 0.4 (ii) porosity of 0.5. The change in porosities was obtained by changing the diameter of spherical balls.

The widely used commercial CFD-package Ansys FLUENT is used as tool for the analysis. The CFD calculations are done to evaluate the chill down along the spherical bed regenerator and also to study the effect of porosity on chilldown.

Modeling and analysis

The regenerator considered for the present analysis is a spherical bed regenerator having l/d ratio of 4.43 and a wall thickness of 1.2mm. Stainless steel balls were used as regenerator matrix. Two different cases were simulated with porosities 0.4 and 0.5. The porosities are varied by changing the diameter of spherical balls so that d/D ratio was kept 0.1947 and 0.2805. Where d is the diameter of ball and D is the inner diameter of regenerator wall. Figure 1 shows the schematic diagram of experiment setup used ^[5]. The cryogen used for analysis is liquid nitrogen. Liquid nitrogen at 77K is allowed to pass through the regenerator. Initially regenerator is at ambient temperature. Figure 2 indicates the actual regenerator with porosity 0.4 and ratio of diameter 0.1947. The experiment results are discussed in our previous work ^[5]. In the present analysis mass flow rate of 3.33kg/s alone is considered for evaluating the CFD model.

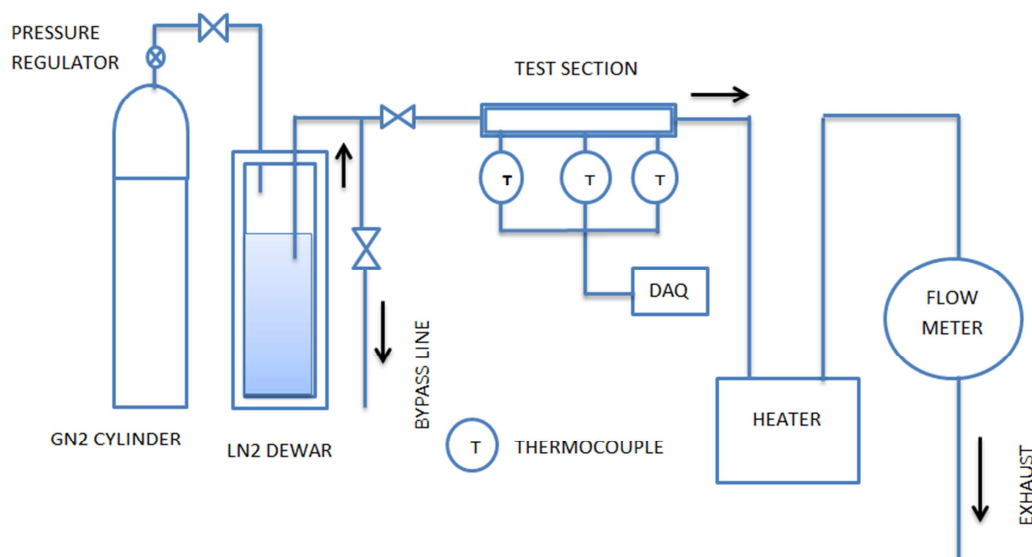


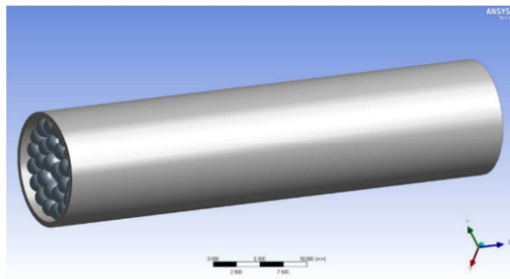
Fig. 1 Schematic diagram of experiment setup



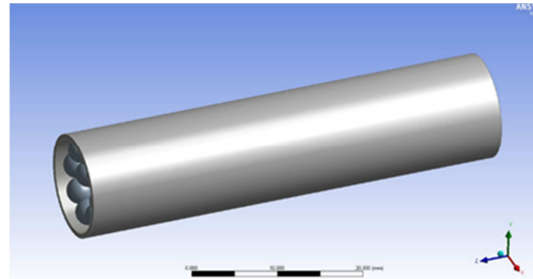
Fig. 2 Actual regenerator with porosity 0.4

3D Modeling

The regenerators with porosity values of 0.4 and 0.5 were modelled in ANSYS design modeller.



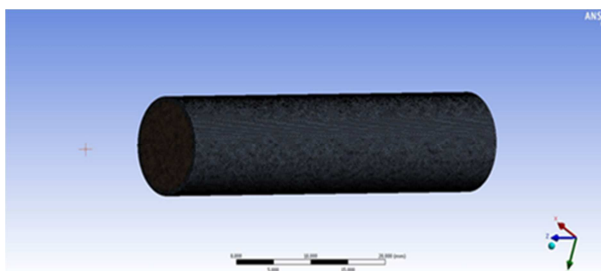
(b) Porosity 0.4



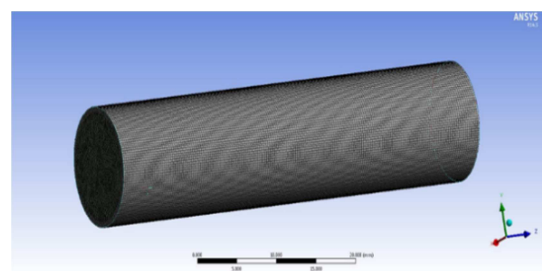
(b) Porosity 0.5

Fig. 3 Modelled spherical bed regenerator

Meshing of the geometry is created by using Ansys Mesh software. Tetrahedral meshes were used in meshing. Orthogonal quality of above 0.82 was maintained in both the cases.



(a) Porosity 0.4



(b) Porosity 0.5

Fig. 4 Meshed geometry

Boundary Conditions

Mass flow inlet is given as the inlet boundary condition and fluid temperature of 77K is assumed at the inlet. Saturated liquid nitrogen is chosen as working fluid. The outlet boundary condition is taken as the pressure outlet and it is assumed to be the ambient atmospheric pressure condition. The wall heat flux is taken as zero in the assumption that the regenerator is perfectly insulated. The turbulent intensity and hydraulic diameters provided are 5% and 0.0113m respectively.

The flow is assumed to be unsteady incompressible, so pressure based solver is used for the numerical analysis. The SIMPLE (SIMPLE-Consistent) algorithm is used as the solution method. This algorithm is essentially a guess-and-correct procedure for the calculation of pressure on the staggered grid arrangement. To initiate the SIMPLE calculation process a pressure field is guessed and the discretized momentum equations are solved using the guessed pressure field to yield the velocity components. The correct pressure is obtained by adding a pressure correction factor to the guessed pressure field. To avoid the divergence problem a suitable under relaxation factor is considered during the iterative process.

Analysis

The analysis part is carried by using ANSYS 14.5. Multiphase mixture model is used for the analysis. Two phase of nitrogen such as liquid and gaseous is also defined and the liquid nitrogen and gaseous nitrogen properties at the saturation temperature is given as the input conditions. Pressure based numerical solver is selected and the flow is considered to be turbulent and unsteady. Viscous model used here is K-epsilon model. All the walls are considered as stationary. The problem is defined as an unsteady problem. Hybrid initialization is used for the initialisation. Temperature of 300K is patched to both solid and fluid domain. The volume fraction of gaseous nitrogen is patched to 1 that is the simulation is started by assuming the interior of the valve is initially filled with gaseous nitrogen. The analysis is done at a time step of 1 second.

Governing equations

The governing equations of the fluid flow are the mathematical statements of the laws of conservation of mass, momentum (Newton's Second law) and energy (First law of Thermodynamics). For the analysis of fluid flow, the fluid is regarded as a continuum.

Results and analysis

The simulation of the flow of liquid nitrogen through the regenerator bed greatly facilitated the representation of temperature, pressure and phase distribution along the regenerator bed. The temperature at position 3 along regenerator was continuously noted with surface monitors and results were compared with experimental data. Figure 5 represents the chilldown along the regenerator with porosity 0.4. Here there is a rapid decrease in temperature till 41s and chilldown occurred at 178s. Also figure 6 represents the temperature time profile for porosity 0.5 where the rapid drop in temperature was observed till 53s and chilldown was obtained at 218s. For comparison with experiment results chilldown temperature was assumed to be at 110K. In the experiment nitrile rubber was used as

insulator and the minimum temperature obtained was around 110K. This may be due to the heat in leak to the regenerator during experiment.

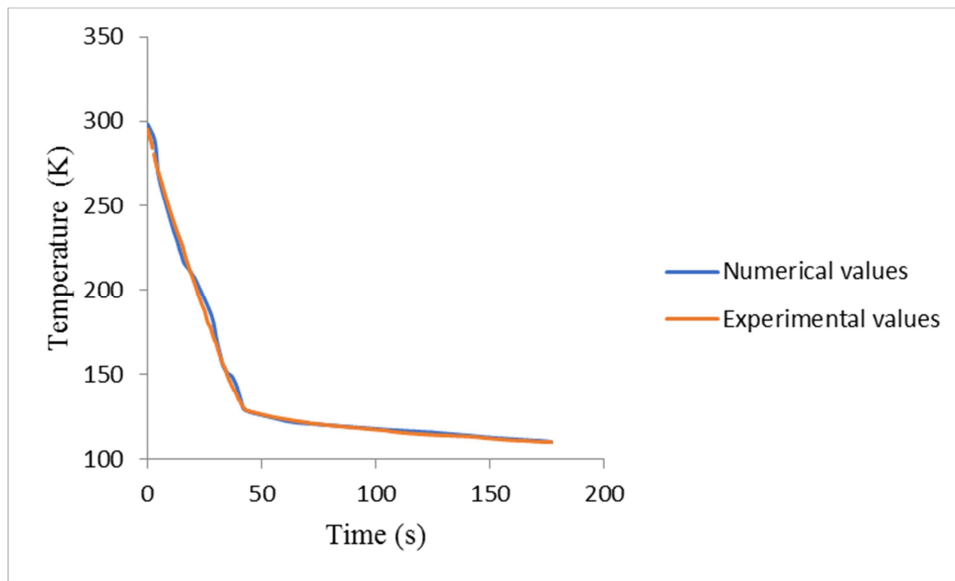


Fig. 5 Comparison of temperature vs time for porosity 0.4

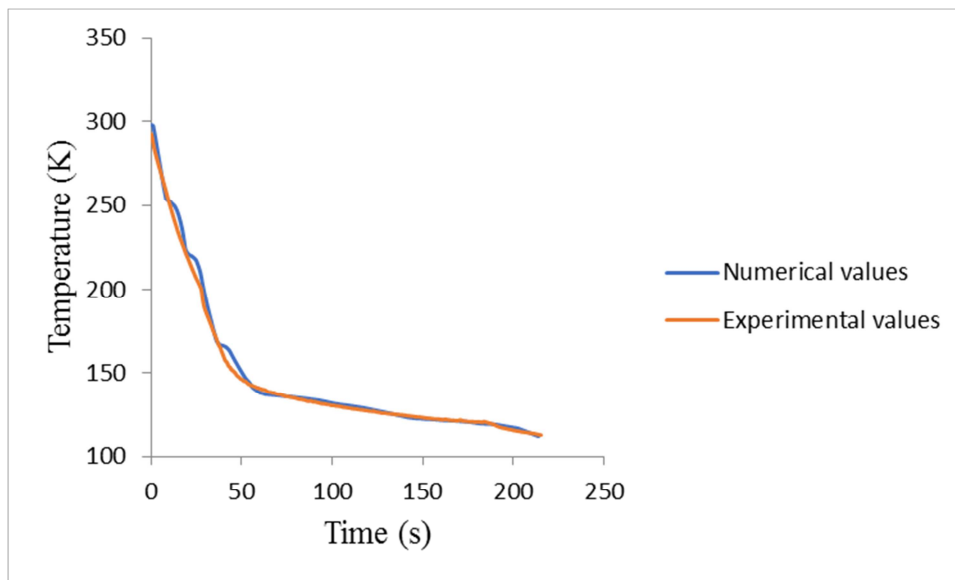
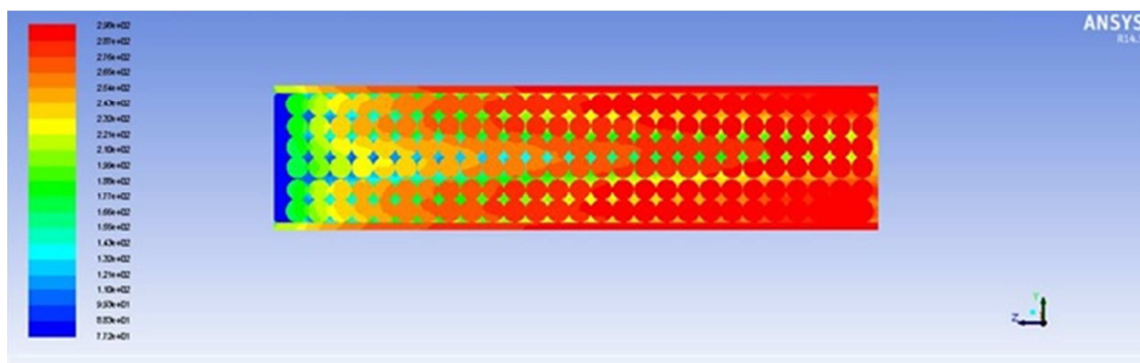
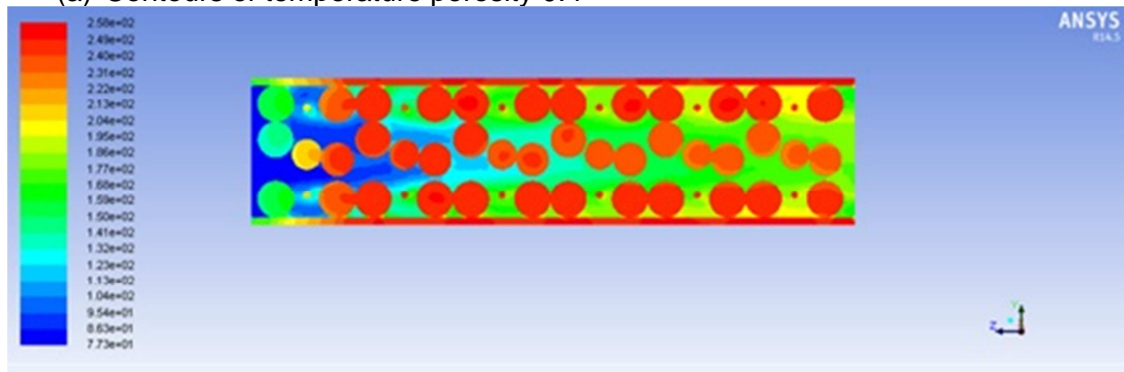


Fig. 6 Comparison of temperature vs time for porosity 0.5

The temperature, pressure and phase contours from the CFD analysis are presented below.



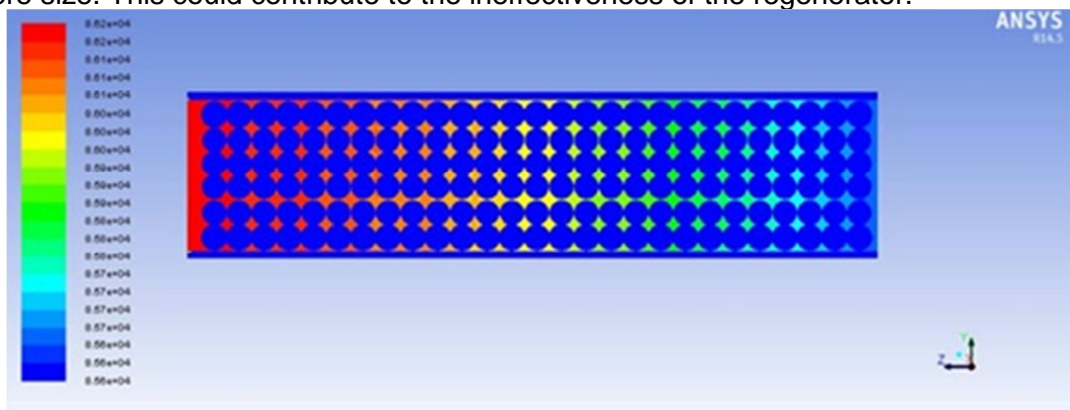
(a) Contours of temperature porosity 0.4



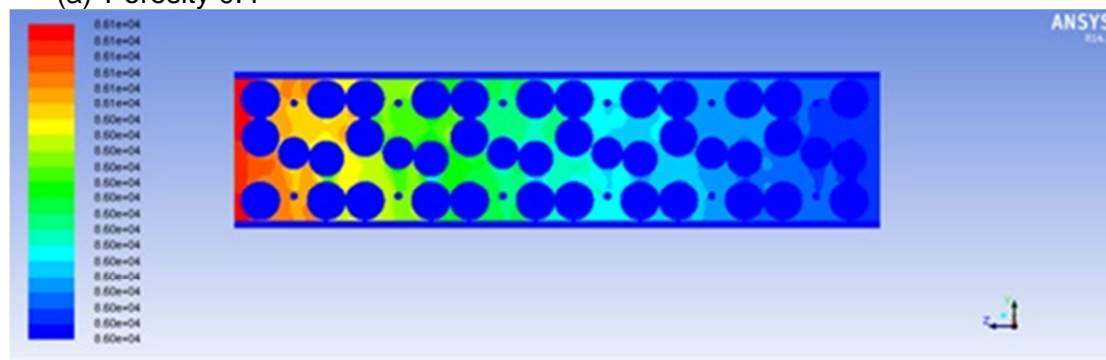
(b) Contours of temperature porosity 0.5

Fig. 7 Sectional view of Regenerator (Temperature contour at 10s)

Figure 7 gives a representation of temperature distribution along the regenerator bed. It was noted that sphere packed bed with lower porosity values has low temperature gradient across the regenerator bed as noted in experiments. Temperature gradient exists within spheres along the regenerator bed. Chill down of sphere occur in stages. Materials have different specific heat capacities at different temperatures. The specific heat capacity and thermal conductivity decreases with drop in temperature. Packed spherical bed is the thermal mass for storage of heat energy. With increase in diameter, the ratio of thermal depth to diameter decreases. This is may be the reason for slower chilldown for higher sphere size. This could contribute to the ineffectiveness of the regenerator.



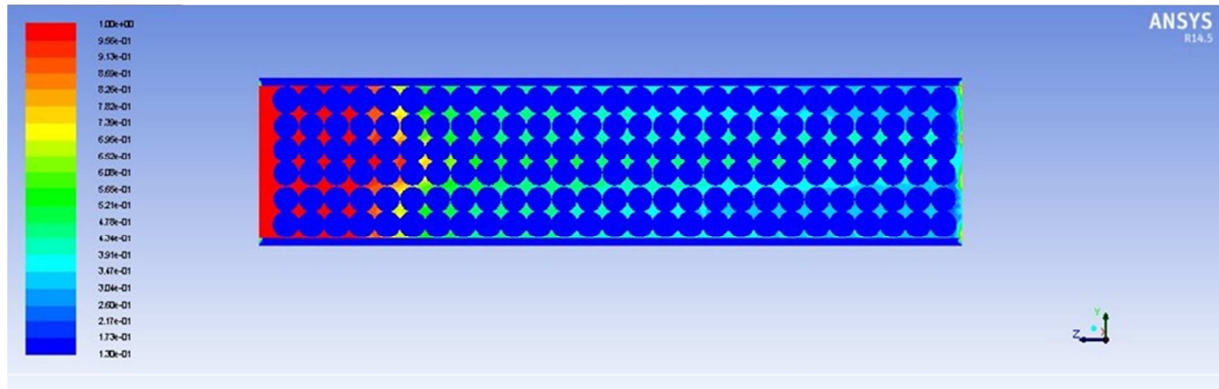
(a) Porosity 0.4



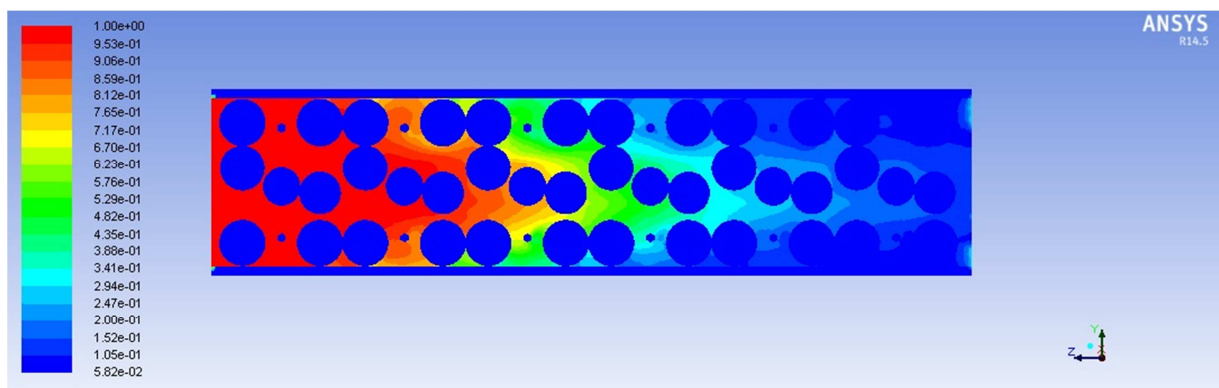
(b) Porosity 0.5

Fig. 8 Sectional view of Regenerator (Static pressure contour at 10s)

As we mentioned earlier, though lowering of porosity values could enhance the heat transfer characteristics it earns penalties in the form of pressure drop. This is best expressed in the Figure 8. Low porosity regenerator beds are showing a drastic pressure drop along the regenerator length compared to regenerator with higher porosities.



(a) Porosity 0.4



(b) Porosity 0.5

Fig. 9 Sectional view of Regenerator (Volume fraction of liquid at 10s)

The flow of working fluid along the regenerator bed is depicted in Figure 9. During initial conditions since the whole matrix is at ambient conditions, while the working fluid enters the regenerator bed it will absorb the latent heat and undergo phase change. This phenomenon of phase change has severe influence on the cold blow phase of the regenerator operation. Also the change in phase of fluid leads to reduction in the thermal capacity of the working fluid. This in turn affects the thermal performance of the.

Conclusion

Computational fluid dynamic analysis was conducted to investigate the temperature distribution and flow along a cryogenic regenerator. The CFD model is validated with experiment data. The effect of porosity on heat transfer phenomenon within the regenerator bed is clearly explained. The chilldown time is found decreasing with decrease in porosity and this is due to the fact that with the increase in diameter of the ball matrix, the ratio of

thermal depth to diameter decreases. The higher sphere size showed greater temperature gradient along the regenerator. This could contribute to the ineffectiveness of the regenerator. The increase in porosity from 0.4 to 0.5 has increased the chilldown time by 22% which ultimately leads to increase in unutilized energy. Low porosity regenerators exhibits better thermal characteristics but pressure drop is higher. An ideal heat exchanger should have better heat transfer characteristics and lower pressure drop.

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Fertilizer application and microbial diversity of soil – Comparison of microbial health of organic farm and conventional farm

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Abstract

Improving crop productivity is a century-old agrarian goal. High energy prices, globalization and climate change are changing the landscape for seeking solutions. The problem is no longer simply to produce more food, but also to do so in environmentally and socially sustainable ways. The relationship between plants and their surroundings is a complex. Plants and microbes have evolved intimate relationships that enable them to coexist. Soils are highly diverse allowing for habitation by equally diverse communities of microorganisms. Plants interact with a variety of Plant Growth Promoting Rhizobacteria (PGPRs) that are capable of increasing photosynthetic capacity, conferring drought and salt tolerance, increase disease suppression, plant growth and improving the effectiveness of the plant's own iron acquisition mechanisms. These discoveries may offer potential for PGPR applications to improve agricultural production and sustainability. Agricultural practices should consider maximizing the coadaptation between plants and microbes in an effort to promote soil microbial diversity. Although, this may reduce short-term productivity and will maximize long-term yields while minimizing resource use. Structure of the soil microbiome is influenced by agricultural management practices. Farm management practices fall into two general categories, organic or conventional; although, specific management objectives and/or styles exist within these categories. Organic farming is based on the minimal use of off-farm inputs and on management practices that restore, maintain, and enhance ecological harmony" (Gold 1995). Whereas organic farming uses no synthetic fertilizers or added inputs to increase productivity, conventional farming does just the opposite; often using synthetic, chemical fertilizers, and pesticides to benefit crop protection and productivity. Conventional agriculture may target plant pathogens through the use of pesticides/fungicides, with a potential side effect of reducing soil microbial community diversity and evenness. Whereas, organic agriculture may seek to control plant pathogens through competition and/ or antagonism by utilizing treatments that promote a more diverse and even microbial community such as the addition of varying types of organic matter.

Key words: Organic farming, soil microorganisms, soil productivity, sustainable agriculture

Introduction

Agriculture remains the key sector for the economic development for most developing countries. It is critically important for ensuring food security, alleviating poverty and conserving the vital natural resources that the world's present and future generations will be entirely dependent upon for their survival and well-being. Soil erosion, mountain

desertification, environmental degradation, declining of soil fertility, depletion of natural resources, etc. are the agriculture mediated major environmental problems. Along with these problems there is widespread problem of unbalanced fertilizer use. In general, too much N fertilizer is being applied and too little phosphorus, potassium and micronutrients. It means that large amount P_2O_5 and K_2O are being removed in the straw and grain at harvest which results in increasing imbalance in the soil nutrient content.

Sustainable development is at present recognized as a significant goal by all. In order to achieve sustainable development, the world requires, at the outset, sustainable agricultural practices, as all our progress, well-being and health ultimately depend on our ability to produce healthy food without damaging the precious natural environment. Humans are now globally confronted with the challenges of depletion of resources as well as problems of pollution and the different issues concerning waste management. Though the green revolution agriculture with high input of energy and chemical fertilizers and the use of high yielding varieties have enabled us to face the challenges of self-reliance in the production of food grains, productivity improvement achieved so far has been accompanied by pollution and an exponential increase in the consumption of non-renewable forms of energy. Sustainable agriculture is therefore an alternative farming of low energy costs and lower fertilizer inputs (Abbott and Robson, 1982) causing no pollution of soil, air and water. The major strategy is of integrated nutrient supply by using judicious combination of chemical fertilizers, organic manures and biofertilizers for a low external input sustainable productive system.

Today, the burgeoning population pressure has forced many countries to use chemicals and fertilizers to increase the farm productivity for meeting their ever-increasing food requirements. The prolonged and over usage of chemicals has, however, resulted in human and soil health hazards along with environmental pollution. Farmers in the developed countries are, therefore, being encouraged to convert their existing farms into organic farm. Organic farming is a production which avoids, or largely excludes, the use of synthetic fertilizers, pesticides, growth regulators, and livestock feed additives. The objectives of environmental, social, and economic sustainability are the basics of organic farming (Stockdale et al, 2011). The key characteristics include protecting the long-term fertility of soils by maintaining organic matter levels, fostering soil biological activity, careful mechanical intervention, nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, effective recycling of organic materials including crop residues and livestock wastes and weed, and diseases and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring, and resistant varieties. A great emphasis is placed to maintain the soil fertility by returning all the wastes to it chiefly through compost to minimize the gap between NPK addition and removal from the soil (Chhonkar, 2012).

Materials and methods

Collection of soil samples

Soil samples were collected from organic and traditional vegetable farms cultivating *Momordica charantia* after 15, 30, 45 and 60 days of fertilizer application from Athirampuzha, Kottayam, Kerala using standard protocols (Son et al., 2006).

Microbiological characterization of soil

Soil microbial count- number of soil bacteria, fungi and actinomycetes - were recorded. Soil samples were homogenized and serially diluted. Aliquot of suitable dilutions were plated on complex agar media. After incubation number of microbial colonies were enumerated and recorded.

Soil enzyme activities

Dehydrogenase and phosphatase enzyme activity of soil was determined to evaluate the soil health. Dehydrogenase activity in soil was determined by adopting the methodology of Casida et al, 1964. The soil samples were incubated with triphenyl tetrazolium chloride and optical density of the filtrate after incubation was recorded to calculate the concentration of triphenyl formazon (TPF) present in the extract. Phosphatase activity in the soil was determined using p- nitrophenol as substrate.

Results

Results of the comparison of bacterial count of organic and conventional farm

Bacterial count showed a positive correlation status with days of fertilizer application in organic farm as well as in conventional farm. Maximum bacterial count was obtained for the sample from organic farm on 60th days with a mean value of $191.66 \pm 2.23 \times 10^5$ CFU/ml and that of conventional farm was 116.66 ± 2.23 CFU/ml for the sample on 60th day (**Figure 1**).

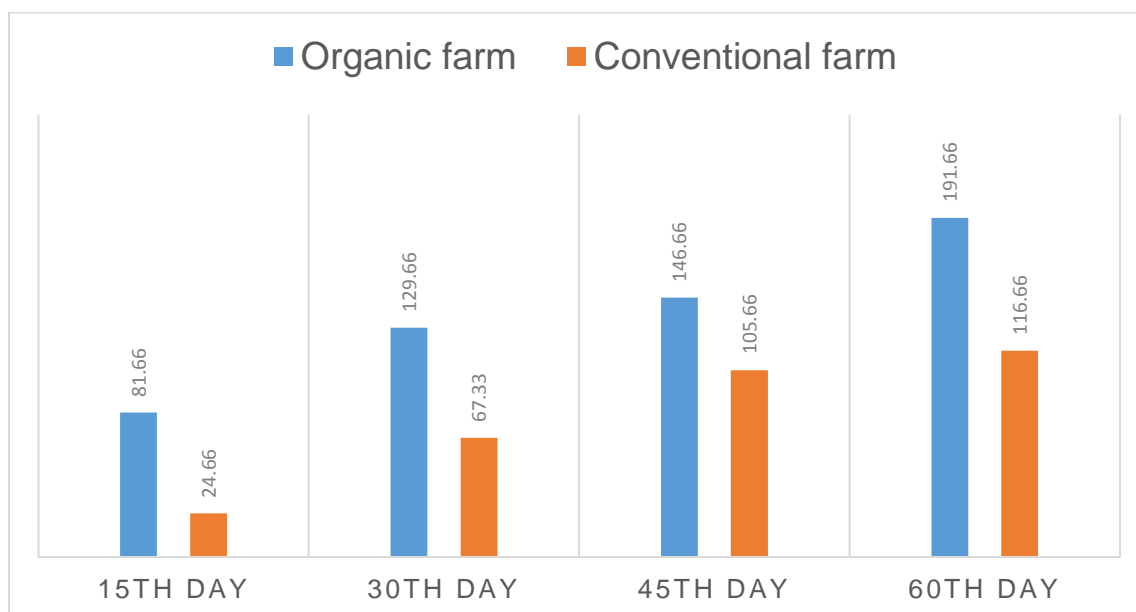


Figure 1. Comparison of bacterial count of soil samples from organic farm and conventional farm

Results of the comparison of fungal count of organic and conventional farm

Fungal count showed positive correlation with time for samples from organic farm and conventional farms. Least fungal count was obtained for 15th day soil sample from conventional farm with a value of $21.33 \pm 4.16 \times 10^2$ CFU/ ml were as maximum count was observed in 60th day soil sample from organic farm ($80.66 \pm 16.50 \times 10^2$ CFU/ ml). Results of the study are given in figure 2.

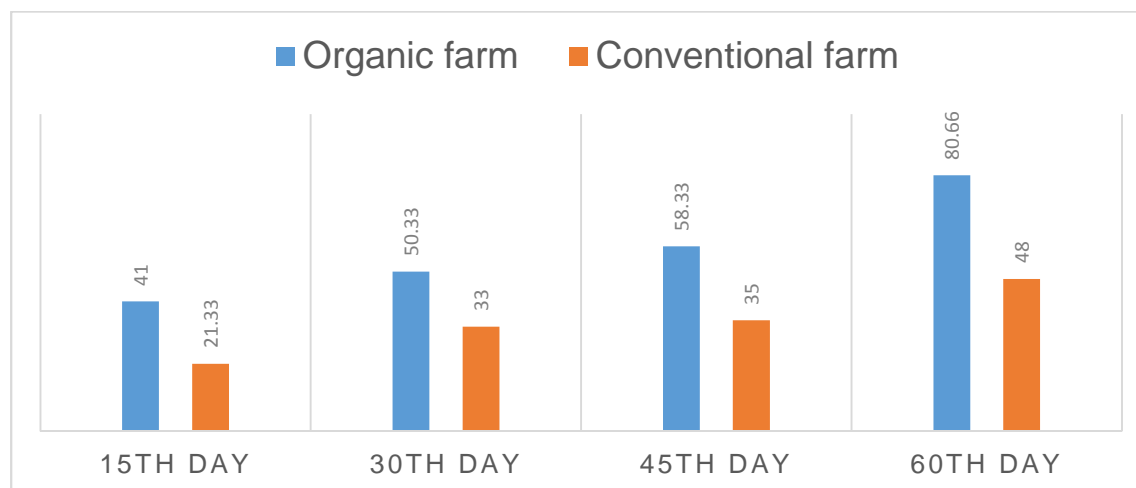


Figure 2. Comparison of fungal count of soil samples from organic farm and conventional farm

Results of the comparison of actinomycetes count of organic and conventional farm

Highest count of actinomyceres were obtained for the sample 60th day soil sample from organic farm ($58.33 \pm 2.51 \times 10^2$ CFU/ ml) whereas the minimum actinomycete ($12.33 \pm 1.52 \times 10^2$ CFU/ ml) count was recorded from 15th day soil sample from conventional farm (Figure 3).

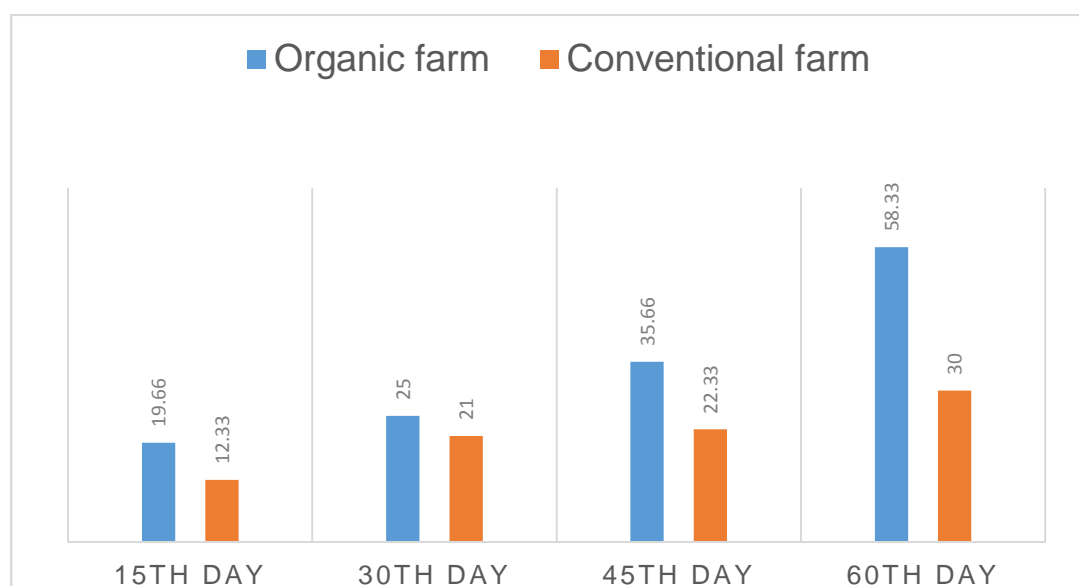


Figure 3. Comparison of actinomycetes of soil samples from organic farm and conventional farm

Results of the comparison of nitrogen fixing bacterial count of organic and conventional farm

Least number of nitrogen fixing bacteria were recorded in the 15th soil sample from conventional farm ($47 \pm 4.35 \times 10^5$ CFU/ ml) were as maximum count was observed in 60th day soil sample from organic farm ($124.33 \pm 11.014 \times 10^5$ CFU/ ml)

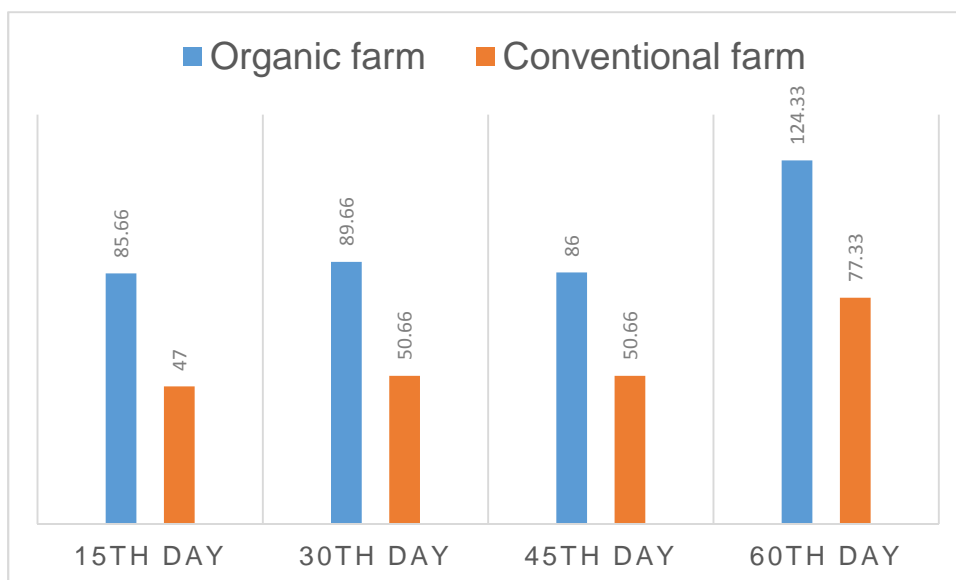


Figure 4. Comparison of nitrogen fixing bacterial count of soil samples from organic farm and conventional farm

Results of the comparison of phosphate solubilizing bacterial count of organic and conventional farm

PSB count showed a positive correlation status with days of fertilizer application in both set of samples. Maximum PSB count was obtained for the sample of organic farm (60th day sample) with a mean value of $89.66 \pm 1.52 \times 10^5$ CFU/ ml and that of conventional farm was 13.33 ± 1.52 CFU/ml.

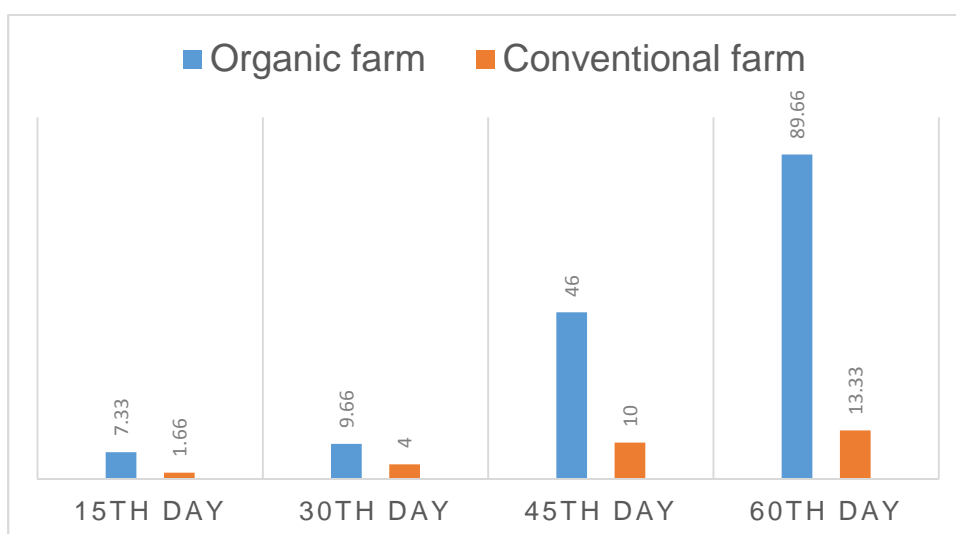


Figure 5. Comparison of phosphate solubilizing bacterial count of soil samples from organic farm and conventional farm

Soil enzyme activity

Dehydrogenase activity showed peaks at 30th day sample from organic farm and 45th day sample from conventional farm. The enzyme activity was significantly higher for soil samples organic farm in comparison with respective samples of conventional farm. Phosphatase activity showed a positive correlation status with days of fertilizer application in both set of samples. Maximum Phosphatase enzyme activity was obtained for the 60th day soil sample from organic farm (**Table 1**)

Table 1: Result of soil enzyme activity of organic and conventional farm

No. of days	Dehydrogenase activity		Phosphatase activity	
	Organic farm	Chemical farm	Organic farm	Chemical farm
15	0.016	0.004	0.169	0.145
30	0.034	0.004	0.383	0.014
45	0.0174	0.010	3.458	0.274
60	0.011	0.003	8.274	0.966

Discussion

Soil microbes are capable of both directly and indirectly influencing the productivity, diversity, and composition of plant communities (Lau and Lennon 2011). As a result, some characterizations now focus on aspects of community structure that influence plant function. Increasing soil microbial species richness was shown to be a predictor of plant health and productivity (Schnitzer *et al.* 2011). Chemical signals emitted by soil microorganisms are received and recognized by plants and then addressed through the release of chemical compounds in the form of root exudates. Secretion of these compounds varies between different plant species, ecotypes (Micallef *et al.* 2009), and even distinct roots within a plant (Uren 2007). The diverse compounds released by plants as root exudates create a unique environment in the rhizosphere and include sugars, amino acids, flavonoids, aliphatic acids, proteins, and fatty acids (Badri *et al.* 2009b). All these different compounds are able to attract and initiate both symbiotic and pathogenic interactions within the rhizosphere (Bais *et al.* 2006).

Along with increasing plant productivity, the soil microbiome also provides an important role in disease-suppressive soils. The ability of a soil to suppress disease is of key importance in measuring soil productivity (Janvier *et al.* 2007). There are many PGPRs that aid in disease suppression via the release of antimicrobial or antifungal compounds that deter plant pathogens (Garbeva *et al.* 2004; Weller *et al.* 2002). To achieve healthy and productive plants, soil quality is of great importance. Soil quality has been defined as the “capacity of a soil to function within ecosystem boundaries to sustain plant–animal

productivity, maintain or enhance water and air quality, and support human health habitation” (Karlen *et al.* 1997). This definition has been further refined to take into account the dynamic nature of soil as a living system to “sustain biological productivity” (Doran and Safley 1997). The soil microbiome can be used as an indicator of soil quality due to its sensitivity to small changes in the environment resulting from environmental stresses or natural perturbations (Sharma *et al.* 2010).

Bacterial count showed a positive correlation status with days of fertilizer application in organic farm as well as in conventional farm. Every sample, representative of a particular day (OF/CF), showed maximum bacterial count in samples from organic farm. The sample OF 15 showed a bacterial count of 81.66 ± 3.79 CFU/ ml. The value increased to 191.66 ± 2.23 CFU/ ml in OF 60. The sample CF 15 showed a bacterial count of 24.66 ± 1.53 CFU/ ml. This value also increased to 116.66 ± 2.24 CFU/ ml in CF 60. Bacterial count of OF 15 is significantly higher than that of OF 30, OF45 and OF60. On the other hand bacterial count of CF 15 is not significantly varied from that of CF 30, CF 45 and CF60. Even though the chemical farm also shows increase in bacterial count the rate of increase is not much significant. But the rate of bacterial count increase in organic farm is significantly higher (P value >0.05). Due to this reason we can say that organic farming practices can sustain the bacterial population in them for a long time which is essential for sustainable agricultural.

The rest of the microbial count status (Fungus, Actinomycetes, N fixing microorganism and PSB) also obey this common rule in this current study. The result of Microbial analysis of soil of current study is similar to that of Schloss and Handelsman 2006.

Dehydrogenase activity showed non linearity with time with peaks at sample OF 30 and CF 45 for organic farm sample and conventional farm samples respectively. But in case of Phosphatase assay, it showed a positive correlation status with days of fertilizer application in both set of samples. Maximum Phosphatase enzyme activity was obtained for the sample OF 60. Non linearity of dehydrogenase enzyme and Linearity of Phosphatase enzyme in agricultural fields generated in current study shows similarity with Faoro *et al.* 2010. By comparing the data and results of the the study, it is clear that all soil microbial health was better in soil samples collected from organic farm. The enzyme activity of soil sample of organic farm also showed considerable increase on comparison with that of soil sample from conventional farming practice. The microbial profiling also suggests that soil from organic farm have the ability to sustain required microbial count in it. So by these results it is clear that organic farming practice is best for sustainable agriculture than conventional farming practices.

Conclusion

Green revolution supported successful food grain production by applying chemical fertilizers. But in due course of time the repeated application of chemical fertilizer deteriorated soil health. Another negative impact of green revolution was environmental pollution caused by the agricultural runoff to water bodies. The conventional agricultural practices involving agrochemicals adversely affected soil microbial diversity and that in turn ruined soil health. It is high time to develop appropriate agricultural practices to provide a

sustainable agricultural productivity. Organic farming is based on the minimal use of off-farm inputs and on management practices that restore, maintain, and enhance ecological harmony. It ensures soil health and sustainable agricultural productivity. By understanding and practicing those principles that combine to create more diverse and even soil microbial communities, fertility and disease resistance can be inherently restored in depleted, disease-stricken soil environments.

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The Impact of “Going Green” for Small Businesses

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Abstract

This paper attempts a literature review of articles that state the purposes of companies choosing sustainability as a brand image. While it is well known that large companies like IKEA, Nike and Patagonia have succeeded in developing eco-friendly initiatives with positive results, there is not much information available on results of eco-friendly initiatives of small businesses. This study will focus on small scale companies that have chosen “green” as a competitive advantage and will attempt to explore what areas has their eco-friendly initiatives impacted their business. Media, papers and an exploratory interview model will be used to arrive at results.

Keywords: Small business, eco-friendly, competitive advantage

Main Conference Topic: Economy, Entrepreneurship, and Tourism

1. Introduction

Small businesses are the backbone the U.S. economy and make up the supply chain of some of the biggest companies. Small businesses make up 90% of all business according to the World Bank. Small business contribute roughly around 45% of the total employment and up to 33% of total GDP in the economy (2015). With that being said, if small businesses take part in sustainability efforts, they can have huge role in the future of sustainable globalization.

Before we understand the impact of going green, we first need to understand the actual meaning of what going green means. Going green is when a company makes a concentrated effort to reduce its negative environmental impact by implementing sustainable strategies within the organization.

MIT Sloan Management Group and Boston Consulting Group found that two-thirds of business owners thought being conscious of the environmental impact of their business was crucial but the study also found that about only 10% thought they themselves were actually doing something about it. Schumpeter from The Economist mentions “Many company sustainability plans are normally very modest.” Many companies’ sustainability plans focus more on cutting wastes, saving energy and streamline logistics which is great but those

initiatives are more efficiency policies rather than sustainability policies (Schumpeter 2014). Schumpeter mentions “Company ought to want to save energy and cut waste anyway, regardless of the impact of the environment.” It turns out that many of these small changes don’t do much to the environment or social equity.

2. THEORY

It’s no question that we’ve been seeing an increase of awareness towards the negative environmental effects business is having on our planet. Eco-friendly supporters are growing rapidly every month. Although many small businesses become eco-friendly due to their morals they’ve engraved into the company, others take that eco-friendly initiative to have a competitive advantage in their industry and possibly capitalize on the growing eco-friendly market. When a business takes that step, there’s no doubt that decision has an impact on the environment but does it significantly impact the business? If so, in what areas?

Many small businesses are not willing to implement impactful sustainable strategies because of their current budget. Many believe that it takes a lot of capital to move forward and become a sustainable business, but sustainable business practices is the social responsibility of business and no matter what kind of budget a business is willing to invest, it’s not as costly as they make it seem. Now more than ever, businesses should be working towards being sustainable because the opportunity cost of not doing so outweighs the short term problems.

3. METHODS AND FINDINGS

We analyze literature to explore the scope of what small businesses are doing to go green and in what areas of business are they seeing the biggest impact. Newspaper articles and company website information on green initiatives are also included. We also conducted a survey to find specific sustainability strategies that small business were implementing. We found that business is impacted in four major areas:

3.1 EDUCATION

We conducted a survey about the basic strategies that small businesses are applying to their business model. The survey covered questions such as how long they’ve been implementing green strategies, how large is the company is, and what outcomes have they seen from their sustainability strategies. The survey reached several businesses throughout the country. Although we were able to find some general information about these businesses, it seems as though many businesses aren’t implementing strategies that are as impactful as others. Part of the survey was to describe what kind of strategies they are implementing and many responded with answers relating to cutting down on electricity and water usage in the office and enforcing recycling. I was hoping to find in what areas sustainability strategies impact the most for these businesses but they had very general eco-friendly strategies for their business. Although it wasn’t what I expected, it still proves that small sustainable strategies can result to cost reductions in many areas.

Sustainable entrepreneurship has become one of the most popular areas of entrepreneurship but yet it seems as though it’s still overlooked by the general public. In

2004 there were 23 schools in the U.S. that had established centers for social and/or sustainable entrepreneurship. Since then, there has been an increase for courses, workshops, and events related to sustainability in universities throughout the United States (2012). In addition, there are a growing number of college majors and minors in the field. The increase of awareness allows students to stay educated on the importance of businesses implementing sustainable strategies. In return, businesses begin to have young followers supporting their brands which increases brand awareness and creates a competitive advantage.

3.2 PROFITABILITY

There are many areas that sustainability positively impacts a business in the long term. The most attractive results of sustainability is the rise of brand awareness and profits. According to Forbes, “..certified companies reduce operating cost by 6.8% per year and are able to reach on average a million more consumers with communicating sustainability in the correct way” (David Semerad, 2017). Specifically, corporations that are actively managing and planning for climate change secure an 18% higher return on investment than companies that aren't – and 67% higher than companies who refuse to disclose their emissions (2014). Many global consumers only want to do business with companies that are eco-friendly which in return, increases market share for those companies. Although these two areas are, most of the time, the most attractive, there are other areas that get impacted.

3.3 BRAND AWARENESS / COMPETITIVE ADVANTAGE

The area of sustainability in business have sparked the interest of many scholars and other professionals. Alessandro Zardini and Silvia Cantele from the Department of Business Administration, University of Verona conducted a study on the competitive advantage of sustainability efforts in firms in Italy. They surveyed 348 Italian manufacturing small and medium-sized enterprises and found that the social, economic and formal practices dimensions of sustainability positively affect competitive advantage, mediated by corporate reputation, customer satisfaction and organizational commitment (2018).

We found that the social, economic and formal practices of sustainability positively affect competitive advantage, influenced by corporate reputation, customer satisfaction and organisational commitment towards their community. We also found this specific competitive advantage to directly and positively contribute to the financial performance of the firm.

3.4 COST REDUCTION

Many businesses initially start to implement green initiatives to reduce costs. Many common strategies for cost reduction are recycling water to offer additional cost savings by reducing the amount of fresh ground water needed, energy efficient lighting and solar panels (2016). Going green comes with many advantages, including tax credits, less clutter around the office, and more time to do the most important tasks. All these factors at the end reduce costs for a business (Klukarni, 2016).

CONCLUSION

Although it was known that sustainability efforts in a company does in fact improve performance, it was never clear in what areas of a business get impacted the most. After exploring the current state of sustainable business and the effect of sustainable strategies has on young companies, there are several areas that a business gets impacted. Three of the biggest areas that sustainability directly impacts small businesses are brand awareness, profitability, and reduction of costs.

Sustainability and the drive to “go green and conserve” enables an organization to attract new employees, shareholders and customers who share these same values. This can improve the public’s view of the business and their products, and be a positive impact to their bottom line over time (2011). The impact of sustainability on projects and processes can also be positive in both the short- and long-term.

We also found that many small businesses still need to be educated on the importance of sustainability and create an analysis of the areas of their company that can truly be impacted by sustainable efforts. Small businesses have a huge role in sustainable globalization and we’re at a point where we can’t afford not implementing sustainable practices to protect our future.

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Urban Sustainability and Airport Development: A Case Study of the Ekurhuleni Aerotropolis

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Abstract

The Aerotropolis concept has become the 21st century's urban-development paradigm and it is a major driver of urban form and economic activity. The Aerotropolis concept makes the development of land in and around the airports for non-aeronautical dedications inevitable, resulting in planning challenges that influence the land uses at the airport so the progressions relate with the local and national planning techniques. On the relationship amongst Airports and Land Use, Planning models of Airport-drove improvement are getting to be fleeting trends hailed by the defenders as key to the future of Cities. Aerotropolis provides an opportunity for cities to develop and to compete in the global economy. The paper focused on assessing the urban sustainability of the Ekurhuleni Aerotropolis development through a multi-criteria framework informed by the building blocks of a city and pillars of sustainable development (social, economic, environmental and institutions) through reviewing and evaluating existing literature on Aerotropolis, and the Ekurhuleni Aerotropolis Master Plan, and the Ekurhuleni Integrated Development Plan as secondary data. The result of the study indicates that the Ekurhuleni Aerotropolis Project corresponds with the vision of the city which is to improve economic development as well as community quality of life while preserving the environment. However it was discovered that, despite policy and planning efforts, Aerotropolis developments occur over fairly long term periods due to multiple challenges such as land ownership and the community readiness. The implications for the redevelopment of (OR) Tambo International Airport as an Aerotropolis city are noted in terms of increase in job creation. The planning of airports and surrounding areas should be informed by the integration of spatial, economic, and transportation planning at various scales.

Keywords: Aerotropolis, Land use development, Sustainability, Economic development

Main Conference Topic: Sustainability, Environment and Risk Management

Introduction

Urban Sustainability is the possibility that a city can function well without excessive reliance on the surrounding wide open and still have the capacity to develop itself with renewable sources of energy. Sustainable development is defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (United Nations General Assembly, 1987, p. 43). The overall goal of sustainable development is the long-term stability of the economy and environment, this can only be achievable through the integration and acknowledgement of economic, environmental, and social concerns throughout the decision making process. Economic development, land use development, infrastructure development, and governance (Institutions) are four fundamental interfaces of urban sustainability and airport development.

According to Hooper et al. (2000) airports must have alternate sources of revenue and not only rely on landing planes to generate profits. This makes the development of land in and around the airports for non-aeronautical dedications is inevitable. This results in planning challenges that influence the land uses at the airport so that the changes relate with the local and regional planning strategies. To leverage the economic benefits of the Oliver Reginald (OR) Tambo International Airport, in Kempton Park, Ekurhuleni, Gauteng, South Africa the Ekurhuleni Metropolitan Municipality took a strategic decision to pursue the Aerotropolis concept. To drive economic growth and expansion the City developed the Aerotropolis Master Plan which details 21 catalytic projects to be delivered within the next 25 years. Of these projects, five are firmly identified within the OR Tambo International Airport and its activities. The master plan details key economic clusters that have been targeted, including advanced manufacturing, cargo logistics and e-commerce hubs, retail, aviation, cold storage, training colleges, research and development hubs, information and communications technology, a medical city and tourism (Liedtke, 2018). According to Liedtke (2018) the value proposition of this decision will be one that enhances economic growth, reduces business costs, encourages skills development, further integrates the public transport network, integrated spatial planning and improves logistics networks and handling Facilities such as cargo storage and multi-model transport options at domestic airports, provide best value in line with global value chain trends, especially for cargo movements that have manifested in the past few years. The Airports Company South Africa (ACSA) trusts that focused applications of the Aerotropolis concept in South Africa will attract business and make residential air terminals an ideal connection in the value chain (Liedtke, 2018).

An essential objective in developing the conceptual framework within airport cities development is to influence management and governance practices that advance a sustainable approach to airport development. Sustainability, despite the fact that it can be easily manipulated by those in power, is useful in helping with foundation of benchmarks and pointers to push ahead the regulating and development of Aerotropolis.

Related work

Aerotropolis is a relatively new concept; therefore the literature about Aerotropolis remains in a specific, specialised position within a more exceptional stockpile of technical

investigations into airport issues given the increasing interdependence of aviation, urban and environmental issues since the 1960s. Since the Aerotropolis concept is broad, with many characteristics, including the airport and surrounding regions, and the complex and conflicting interests of stakeholders it is difficult to summarize the key criteria of Aerotropolis. This literature review summarizes key empirical studies of Aerotropolis.

Airports have evolved from their status as transport technology to being overly involved within a suite of infrastructural, economic, management and legal issues. This is evidence that there is a distinct advancement over time. This developing complexity of issues is captured summarily in the growing intricacy of airport design and management manuals. A comprehensive management oriented literature addressed new issues of economic deregulation and entrepreneurial approaches to airport management and policy. More recently, issues with sustainability and security have become inevitable considerations (Stevens, 2012). Promoted by Professor John Kasarda the Aerotropolis concept has been a highly publicised regional economic planning concept for the last 15 years, Kasarda who is the head of the Centre for Air Commerce at the University of North Carolina together with Greg Lindsay, an economic journalist, published 'The Aerotropolis: The Way We'll Live Next' in 2011. The two authors successfully run around the globe advertising the concept as a business venture to keen airport authorities, politicians and businessman. Sustainable growth according to economists is "a rate of growth which can be maintained without creating other significant economic problems, especially for future generations" (Economics Online 2014). To the advantages of such growth belong higher GDP per capita, higher employment rate, more public and merit goods, environmentally friendly development, new green technologies, low-carbon economy, and bigger share of renewables in energy consumption (European Commission 2012).

Airports are the fifth wave of urban development evolving from the history of transport induced urban growth (Kasarda, 2001). Kasarda argues that in the 21st century spatial concentrations of commercial activities were generated in major gateway airports which lead to new aviation linked urban form namely: the Aerotropolis. He believes that Major cities developed around seaports and canals at first, and then in the 18th and 19th centuries railways opened up new lands, this was then followed by the development of highways and freeways in the 20th century. Present day airports are altogether different from traditional airports, and the present issues encompassing airport development and extension should be characterized by an understanding of the complex roles associated with airports. As a result of corporate and economic transformation, the role and meaning of major urban airports worldwide have changed over the past decade.

Aerotropolis has been recognised as the identification of the airport as a focus for logistics, and as a function of transport-based urban development (Kasarda 1991a). According to Kasarda (2001) airports are the fifth wave of urban development progressing from the history of transport induced urban growth. Major cities settled around seaports and canals for hundreds of years. Railways in the 18th and 19th centuries opened up new lands, followed by the development of highways and freeways in the 20th century. Kasarda, in the 21st century states that major gateway airports are producing spatial concentrations of

commercial activities that are leading to a new aviation linked urban form: the Aerotropolis. Kasarda (2001) further states that the growth of cities has also impacted on airports, their scale and operations. Companies can maintain zero inventories: take customer orders, fly in raw materials, gather them and fly them out again, at the one airport location (Kasarda 1991b). Stevens (2012) describes Aerotropolis as an urban form, centred on multimodal logistics, with the main focus being on aviation, where low weight / high value goods can be moved speedily and proficiently. It can therefore be concluded that this paradigm presents restrictions for tangible implementation where the notions of sustainability and equity in local access are substantial (Stevens, 2012).

Ekurhuleni Aerotropolis is an urban development concept whereby the region's layout, infrastructure and economy contain an airport at its core. In principle, an Aerotropolis bears a resemblance to a traditional metropolis with the difference being that the central city area and commuter links to a variety of suburban developments. Due to the growing volumes of passengers and cargo, airports are continuously expanding their scale and improving their infrastructure, not only as air transportation links but also in term of bringing free trade zones, logistics centres, and shopping centres and hotels clustered around the airport regions (Wang, et al. 2013). The Aerotropolis concept has become an airport development strategy trend for stimulating new investment, creating employment, and generating new business opportunities with the steadily increasing air transport demand and the development of airport-related industries. (Kim, 2011), argues that in addition to free trade zones, logistics and retail centres, shopping malls, and hotels, offices, tourism, university and residential areas also fit well with Aerotropolis development due to the convenient air connectivity and developed infrastructure. This industrial / aviation complex is envisioned as an actual metropolis, where the airport and surrounding hotels, retail, distribution centres, light industrial parks, and even some residential zones all serve as a central business district. Also it is imagined as a 'centre' with outstanding highway transport links, 'aeroplanes', to the regional vicinity to ensure the unrestricted flow of goods, services and people (Kasarda 2001). According to Kasarda (2000) the 'Aerotropolis' as a freight and logistics model is based in the notion of 'survival of the fastest. Nichol (2007) adds that advertising programs, the development of health clinics and drug stores, industry and business parks in front of the airport, shopping malls, supermarkets, entertainment centres on landside or on airside, recreational facilities like golf courses, swimming pools and bike riding and running trails or exploration of mineral commodities or producing of renewable energy are further possibilities to generate non-aeronautical revenues (Nichol, 2007). Such development around airports has become to be known as an Airport City or Aerotropolis.

Primarily, the concept of Aerotropolis was embraced in the US before evolving in Europe and more so in quickly evolving countries of the Gulf and Asia Pacific. Kasarda (2010) stated that there are 38 operational and developing Aerotropolis in North America, 20 in Europe and 14 in the Asia Pacific. A common trend is the development of non-aviation related commercial and retail areas. For instance, the global airport retail market has grown 78% between 2001 and 2006 (Wang, et al. 2013). According to Thompson (2007) the Heathrow Airport in London has 46.000 m² of retail space, the size of a regional mall. In the

USA Pittsburgh International Airport was one of the first airports that expanded its retail area, with the opening of the 'Air Mall' in 1992 (Kramer and (Kramer Aerotek Inc.), 2010). In 2006, South Korea's Incheon International Airport had US\$900 million in retail revenues and plans to increase it to US\$3 billion by 2015. In comparison, Dubai International Airport made US\$712 million in 2006 (Kasarda, 2008e) and generated US\$1.6 billion in 2012 (Shroff, 2013). El Paso International Airport, located in Texas close to the Mexican border, has, for example, two industrial parks, a foreign trade zone, a golf club, an Air Cargo Centre, and seven hotels on airport land. Revenues are generated up to 40% from aeronautical activities and 60% from non-aeronautical revenues. Oakland International Airport and the new Berlin-Brandenburg International Airport produce renewable energies on airport land (Kramer and (Kramer Aerotek Inc.), 2010). Well-known examples of Airport Cities or Aerotropolis include, among many others, Dubai, Singapore and Frankfurt (Kasarda, 2011a). According to Kasarda (2013) Africa has seven Airport Cities and developing 'Aerotropoli', four in Nigeria and one in Egypt at Cairo International Airport (CIA) of which two are found in South Africa, where both Ekurhuleni's Oliver Tambo International Airport (ORTIA) and EThekweni's King Shaka International Airport (KSIA) have aligned their Metropolitan Spatial Development Frameworks with the Aerotropolis concept in the past five years. It was first established by Guy Lundy (2012), a top South African futurist, that there is scope to apply the Aerotropolis to Cape Town International Airport (CTIA) which is located within 20 minutes from the Cape Town harbour and CBD. This can therefore be considered an economic advantage since greater trade is taking place with countries in the South and East (Lundy, 2013). CTIA has 8.9 million mean annual passengers and air cargo volumes of 30 000-40 000 tons per annum which makes it the second largest airport in South Africa (ACSA, 2014) (Hanly, 2014).

Airport City is the cementing economic hub linked with a concentrically expanding mixture of grouped uses such as warehousing, commercial real estate, office complexes, residential housing as well as time efficient logistics, distribution centres, manufacturing and industries along radial activity corridors. According to Stevens (2012) the study of airports as urban and planning phenomena has demonstrably progressed in concert with the technological changes which have shaped the airline and airport industries for over a century. This reciprocity of impacts has intensified in the last thirty years as air travel has expanded and has been amplified through forces of privatisation, corporatisation and globalisation (Graham, 2003). Market forces, corporate strategies and government policies have given rise to new types of airports far more complex and interactive in their metropolitan settings than the isolated landing fields of the past (Conway, 1993). Income from aviation-related proceeds for airports has become more uncertain due to deregulation and denationalisation in recent decades. New business models, such as an Airport City or Aerotropolis, have been developed as a result. New knowledge is necessary such as how to attract companies since these models include much more than the management of air traffic infrastructure, and go as far as to embrace regional development (Wiedemann, 2014).

Based on Pujinda (2007) airports enhance the economic shift from main cities towards the urban periphery in metropolitan areas, the surroundings of the airport are one of

the most consistently growing parts of the metropolises. As airports have to find further income sources, new, creative, non-aeronautical areas are developing. Government funding plays an important role in providing multimodal transportation and sufficient land, and strategic infrastructure and national policy services to the private sector. Further, it attracts business investment to the Aerotropolis from the private sector, thereby generating employment and economic growth, and establishing public private partnerships, which creates a synergistic effect. 17).

Kasarda (2010) emphasises that, "the development of urban areas has additionally affected on airports, their scale and activities". Airports have transformed into multifunctional transport and commercial hubs we know today as global international airport cities (Kasarda, 2010). The Aerotropolis concept is still in its earliest stages of evolution, this has resulted in challenges with regards to designing and implementing Aerotropolis development in a manner that brings greatest returns to the airport, its users, business and the larger community it serves (Kasarda, 2008e, 55). The engagement of airports in retail, real estate and urban and economic planning activities has resulted in the formation of an Airport City. Kasarda et al. (2011) describes airport city as where commercial development takes place both inside and outside the airport terminal, and Aerotropolis which he describes as, where the airport and the Airport City comprise the core of a highly commercial area of retail, residential, leisure and office complexes. The City of Ekurhuleni referred to as the heart of the South African economy is an important part of the Gauteng province as it houses 1 of the 100 busiest airports in the world which is the OR Tambo International Airport. By 2055 the airport is estimated to house over a half a million tons of cargo traffic per year, handles over 50% of all airline travellers to South Africa 18 million passengers a year in its current form largest airport in Africa.

The Ekurhuleni Aerotropolis project comprises of the OR Tambo International Airport and the proposed Gauteng Industrial Development Zone (GIDZ). The Gauteng Industrial Development Zone is a purpose-built industrial estate linked to OR Tambo International Airport, the GIDZ promotes fixed direct investments in value-added and export-oriented manufacturing industries. The strategic intent of the GIDZ is to contribute to economic development by exploiting the Zone's competitive location to attract local and international investment in the manufacturing industry. Its aim is to be a leading Industrial Development Zone (IDZ) facilitating and promoting inclusive and competitive economic growth and development.

The Ekurhuleni Aerotropolis will create numerous new investment opportunities for a wide range of investors, as well as stimulate the region by generating an environment conducive to growing existing development and investment. The aim of the Ekurhuleni Aerotropolis is to be Gauteng and South Africa's viable and compelling place in which to live, invest, and build a business. To achieve this, the city will capitalise on the area's strengths, including generation and development of merchandise, agribusinesses, food production, aerospace manufacturing, tourism and the most unique resource which is the people (Aerotropolis Brochure, 2015). The OR Tambo international airport is becoming a major business centre, strengthened by numerous privatisation strategies. In the process, the

airports have moved from 'public good' transport trade hubs to profit oriented business ventures where aeronautics income is presently just a piece of the air terminal 'business'. From a more extensive metropolitan point of view they are rising as imperative sub-local action focuses with developing of infrastructure, environmental impacts, land use development, transportation and more importantly economic development.

Research methodology

This study investigates the status quo of the Ekurhuleni Aerotropolis project to evaluate the project state of sustainability in an urban context based on the four main characteristics of sustainable development which are economic, social, environmental and lastly governance or institutions, through mixed methods research approach applying both qualitative and quantitative research methods. The method used for the purpose of the research relied heavily on aid of experts in the public institutions involved in the operation of the Ekurhuleni Aerotropolis and managing bodies directly responsible for the development of the Airport and its urban area. For this purpose the grounded theory was used as a research method with its advantage of gathering rich data from the experienced specialists. The analysis allows justifying the most important findings and verifying them by using adequate literature review such as presentations, journal articles on Aerotropolis, The Ekurhuleni Aerotropolis Master, and the Ekurhuleni IDP. Therefore, this is an analysis from the perspective of the existing literature.

Study area

The Ekurhuleni Metropolitan Municipality (EMM) is located in the East Rand region in Gauteng Province in South Africa. The metro is one of the eight metropolitan municipalities of South Africa. The metro is a Category A municipality covering an extensive area from Germiston in the west to Springs and Nigel in the east. The metro was established in the year 2000 when Kyalami Metropolitan and the Eastern Gauteng Services Council was amalgamated (IDP COE, 2017/18). Ekurhuleni agglomerated a set of relatively small and fragmented nine towns: Alberton, Benoni, Boksburg, Brakpan, Edenvale, Germiston and Kempton Park, Nigel and Springs (Machaka 2004). Of these, Kempton Park, Benoni and Springs are the largest. The City has no identifiable city centre and suffers from a diffuse and problematic civic identity gravely challenged by the relics of the former East Rand identity. Figure 1 below shows the geographical location of the City. Germiston is the Administrative Capital town of the City of Ekurhuleni. According to Census 2011, the city of Ekurhuleni has a total population of 3 178470 people (StatsSA). According to the 2016 Community Survey, the City of Ekurhuleni has an estimated population of 3 3791042, up 200634 more people from the Census 2011. It is one of the most densely populated areas in the province, and the country with over 6% of the population of South Africa. One of the main objects of local government is to promote local economic development. The metro has a larger and more diverse economy than that of many small countries in Africa. It accounts for nearly a quarter of Gauteng's economy, which in turn contributes over a third of the national Gross Domestic Product.

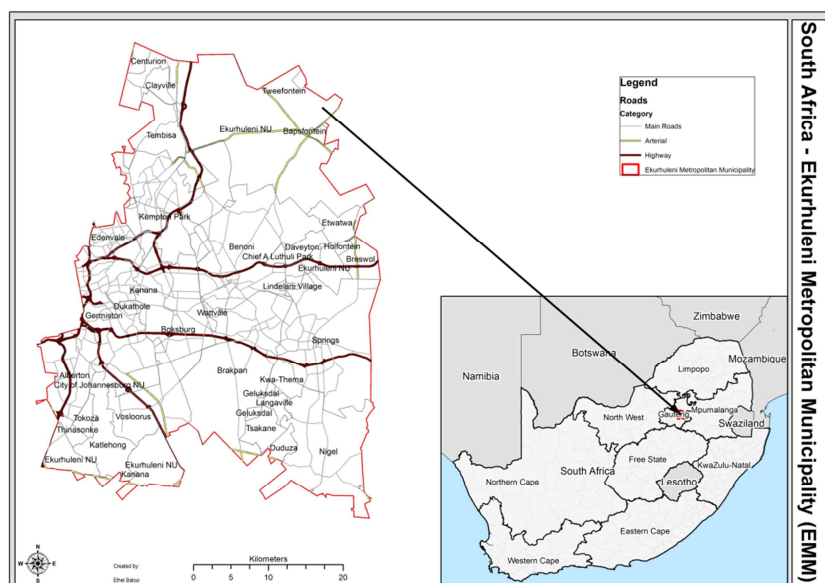


Figure 1: Ekurhuleni Metropolitan Municipality

The metro is often referred to as Africa's Workshop because many of the factories for production of goods and commodities are located in Ekurhuleni. Ekurhuleni's contribution to the national economy has increased from 8.2% in 1995 to 8.8% in 2016, overtaking eThekweni as the fourth largest city in the process (SACN, 2016). Four sectors dominate the structure of the City of Ekurhuleni's economy, namely: manufacturing, finance and business services, community services and general government and to a lesser extent the trade and hospitality sector (IDP COT, 2017/18). The Main Economic Sectors in the metro are; Manufacturing (23%), finance and business services (22%), community services (19%), trade (15%), transport (11%), construction (5%), electricity (3%), mining (2%). The metro is regarded as the transportation hub of the South Africa because of the metro's road network, airports, rail lines, telephones, electricity grids and telecommunications found in Ekurhuleni rivals that of Europe and America. It is home to OR Tambo International Airport; South Africa's largest railway hub; a number of South Africa's modern freeways and expressways; the Maputo Corridor Development; direct rail, road and air links connecting Ekurhuleni to Durban; the Blue IQ projects, with linkages to the City Deep Container terminal; the planned Gautrain rapid rail link to Johannesburg and Pretoria; and the OR Tambo International Airport Industrial Development Zone (IDZ). The City's total area is 1 975km².

Research findings and discussion

A 5 year Implementation Plan was developed by the Ekurhuleni Aerotropolis Master Plan team, the team is conscious of the need to translate creative vision into clear strategy implementation and goals, the team has begun to identify early programmes and initiatives that will capture the imagination of investors and stimulate further development through a series of projects and programmes of strategic significance within existing provincial and municipal plans. The projects were selected based on their macro level importance to the overall vision of the Ekurhuleni Aerotropolis and their relevance to the Master Plan work streams.

Planning for Aerotropolis development requires streamlining and coordination of spatial planning and land use management mechanisms as well as alignment with related master plans, such as Integrated Rapid Public Transport Network (IRPTN), Airports Company of South Africa (ACSA), and Sanral. Aerotropolis also requires the coordination and mobilisation of air and bulk cargo movements, development of the Aerotropolis value proposition and mobilising of stakeholders (Public and private). The Aerotropolis project in Ekurhuleni is expected to be implemented over a period of up to 30 years. The Provincial and National government of South Africa are fully backing and supporting the project as well as other strategic partnerships in place with ACSA, Denel, Technology Localisation Implementation Unit (TLIU) and the CSIR and companies already committed and invested in the project include DHL Supply Chain, GAAP Architects and Urban Designers and Aurecon (Nkhumeleni, 2017).

It is important to consider ways of looking at the development and impact of airports within their urban and regional context to lay the foundation for considering different conceptualisations of the Aerotropolis. The concept of Aerotropolis is underlined by notions of sustainability which seeks to capture the many issues which are generated by the modern airport within a robust framework to aid description, understanding and research applications.

Every one of the four major interface zones in Aerotropolis is largely dependent on the functioning and management of the Ekurhuleni Aerotropolis Project. These considerations influence and impact on the sustainability of the entire urban cluster around the airport. The interface areas provide a framework for the integration of best practice sustainability principles that can be organised into four criteria: economic efficiency, environment protection, community (social wellbeing) and Governance. These criteria all surface in various combinations in sustainability studies. Integrated within this framework, they better capture the multivalent nature of the interfaces and the possibilities for grounding them in specific goals and outputs in ways which might be operationalised by decision support system modelling (Wijnen et al., 2008).

- Economic Efficiency - is conceptualized as a strategically-focused advancement of financial action that keeps up and upgrades a city's global competitive advantage in high value-adding growth and core industrial sectors and their support industries.
- Environment - embraces the maintenance and enhancement of physical environmental systems in ways that permit productive use for existing and future generations.
- Community - means resilient social and physical environments that maintain and create interactive and cooperative behaviours that enhance individuals' senses of worth, place, community and well-being. Security means resources and ongoing capacity to identify assess and respond to possible emergency, crisis, and disaster

events with significant potential to disrupt social, economic and bio-physical processes in the region.

- Institutions/Governance - security is very crucial in airport due to their given nature of national importance and international connections. The main function of security at the airside interface is the prevention of unlawful activities. Here, the focus shifts regionally to the important nodes and networks of critical infrastructure servicing and linked to the airport, which are also potential targets for crime and terrorism (Wheeler, 2005).

Economic Development

Airports have significant economic impacts in cities they located at. Graham, (2003) states that It is more and more important for all stakeholders to understand the economic impacts an airport may provide as generators of direct, indirect and induced economic activity, and as catalysts in supporting wider business and tourism activity (Graham, 2003). Urban cities with major airports play key roles as points of exchange in the worldwide economy. With an extensive extent of Airline travellers going for business, 'a cosy relationship exists between business action on the ground and carrier organizes in the skies' (Debbage and Delk 2001, p.159). This has activated potential land use changes in favour of hotels and convention centres on airport land and within the region, attracting international, national and local consumers. The need to accommodate on-airport and regional commercial development driven by aviation and air transport demand is incontrovertible. In dispute is the development, and economic justification, of on-airport retail and commercial outlets which rely on the regional population for support (Brisbane workshop, 2008).

It is vital to recognize the developing impact of interminability impacts, which might be characterized as the financial development from catalytic impacts that wind up self-sustaining in an air terminal city (Button and Taylor, 2000). The acknowledgment and encouragement of these impacts are vital to models of airplane terminals as urban action focuses, and specifically, when they are connected to framework venture as n catalyst for higher and specialist economic development (Button and Taylor, 2000). The financial interface perceives air terminal and provincial potential alongside other economic anchors, for example, colleges, universities, hospitals, national parks, arts and cultural centres which give the intelligent person, cultural, natural and civic assets of the region (Adams, 2003; Maurrasse, 2007).

The City of Ekurhuleni has 460 000 job seekers, a noteworthy number of whom are educated and employable within their youth. An underlying principle of the Ekurhuleni Aerotropolis is to create a programme of permanent and sustainable jobs. To leverage economic benefits Aerotropolis in Ekurhuleni will nature and provide commercial development and linkages in line with the city's assets through appropriate strategic cooperation. Based on the proposed catalytic projects the Aerotropolis project has an envisaged socio-economic impact effect on Gauteng GDP of 8, 1 billion ZAR per annum (0.67% annual contribution to the Gauteng GDP) (Making Gauteng a GCR Aerotropolis, (2013). The Estimated Gauteng GDP is based on 2013 prices. When considering the

economic development of the Aerotropolis project in Ekurhuleni, there is a need to understand the optimal relationship between airports related investment into infrastructure, office space, commercial and retail facilities, and the surrounding region's present and potential economic prosperity. All stakeholders need to support, recognise and understand the importance of cooperative airport and regional economic development to foster equity and resilience. Through the recognition of the interdependencies of the interfaces we may be better able to determine economic activity and land uses which add more value being located at or near the airport than elsewhere.

Infrastructure

Aerotropolis has a massive duty in city infrastructure and its success depends largely upon investors. Implementing the project is not only up to the city as the airport exists; now there needs to be a single resolution on the contribution to be made by all relevant stakeholders. For effective delivery of the infrastructure network a clear understanding of land use activity patterns within the surrounding metropolitan area is required. The effective activity of airplane terminals relies on quality land-based provincial access

The effective operation of airplane terminals relies on quality land-based provincial access (Brisbane workshop, 2008). Airports are dependent on different utility systems including; power, water, sanitation and ICT for its day to day operation and at the same time is an integral part of a city, regional as well as national transport infrastructure networks. In cities all kinds of infrastructure networks determine how a city functions and how it is well-defined technically, socially and politically. Upgrading of power, water and sanitation infrastructure is underway in the target development areas, while innovative funding schemes are being developed to facilitate this for the Aerotropolis project. It is important to note that airports do not operate in isolation and a change in one aspect is always reflected through another (Graham and Marvin, 2001). When airport related networks expand in size and interactive complexity, they become more vulnerable to catastrophic failure which can be often triggered by small and seemingly insignificant disturbances (Lagadec, 2004). Dramatic impact on access to the airport for air passengers due to heavy traffic congestion on key Kempton Park roads are observed on access to the airport for air passengers. Transport connections are increasingly congested with retail and commercial traffic within major commercial strategies of airports which have the potential to risk airport access. Airports require the assurance of continuity in supply chains and generic capacities to withstand disturbance yet remain functional (Ferreira et al., 2006). Evaluation of transport linkages around major airports allows for greater understanding of network wide impacts.

Transport

According to (Nkhumeleni, 2017) airports have become a vital component of the transport infrastructure of smart cities and have proven to be progressively powerful in shaping urban form and structure. The OR Tambo International Airport is located in northeast Johannesburg on the R24 Airport Freeway, which can be accessed by the R24 (South Africa) and the R21 highway which makes it easily accessible. The R24 intersects with the R21 near the airport and with the O. R. Tambo Airport Highway. This highway goes

through the airport terminals. A modern road network system reaches every part of the municipality and connects all the major towns, offering conveniences and a seamless travel experience. Roads are well maintained and more that capable of handling the city increasing commercial traffic in and around the airport. A transit terminal was built in 2006 between the domestic and international terminals. It houses the Gautrain station linking the airport to Sandton, a major business district and a primary tourist area, and, from there, the rest of the Gautrain system connecting Johannesburg and Pretoria. With regards to Transport the Ekurhuleni Aerotropolis is aimed at traffic congestion reduction with 100 km of road improvements, the upgrading of 30 intersections around the airport, implementing a coordinated province-wide integrated bus (Bus Rapid Transit) system and integrate seamless air cargo logistics to improve import and export movements.

New and upgraded transport linkages around OR Tambo international airport through Aerotropolis will allow the movement of people and goods to be faster, increasing the airport's catchment. Increased capacity, in turn, may have significant socio-environmental impacts such as on the availability and value of land. Consideration of airport and regional needs requires broad strategic options where the interrelationships between transportation networks and land use activities are modelled through the use of a transportation demand approach used iteratively with appropriate economic development, land use and governance inputs (Brisbane workshop, 2008). Changes in the intensity of land use and infrastructure may occur very quickly as a consequence of external shocks (such as rising fuel costs), although the planning and the provision of both occur over long time horizons. The extended planning time frame for infrastructure provision and large investment costs pose considerable challenges for coordination strategies.

With a robust national highway system around OR Tambo and a proximity to a growing worldwide network of airlines and air cargo freighters the city is aiming to capitalise on the opportunities created and to identify the best positioned portions of land for development. An integrated approach to land use planning for the Aerotropolis will trigger economic development and provide focus for the establishment of innovative and entrepreneurial approaches to cooperative governance. Currently the interface divides two separate urban planning systems which are on-airport and regional land use planning strategies. To minimise and mitigate the negative externalities associated with the operation of an airport the use of both on-airport and regional land use planning strategies should be well documented in a city (Graham, 2003). Very crucial to the discussion of airport and regional planning is compatible and coordinated land use. However, its effective integration is exceedingly difficult to establish.

ICT and logistics systems

The project aims to implement seamless air cargo logistics systems that will convey goods through customs and on to their destination without interruption or delay. With regards to Wireless network (Microwave) 293 sites are currently connected and a plan for expansion and upgrade / replacement has been developed. With regards to Fibre Network 164 sites connected (+/- 400km) and 900 km additional is still required. For Wi-Fi 40 sites have been

connected, through Aerotropolis the City planned Full internal rollout planned (213 –Aug 2015, 325 end 2016 and Free Wi-Fi to public for increased economic growth (213 -2015, 325 end 2016).

Environmental Impact

From an Aerotropolis perspective the issue of environmental impact of airports is significant in consideration of intended expansions and specifically from an on-airport commercial urban destination. In both regards the impacts of airport development go well beyond the physical boundaries of the airport. It is imperative that the airport planning and the regional urban planning are better coordinated and mutually supportive. Freestone (2009) states that “airports are not just nodes in the global network of flows; they are sites of major environmental impact that highlight the tension between international connectivity and local liveability” (Freestone 2009). The changing role of the OR Tambo international airport will require careful and cooperative management when considering the array of associated environmental externalities. Individually and collaboratively airports and municipal governments will have to consider the trade-offs between increased expansion, to provide a non-aeronautical revenue stream and regionally, to accommodate urban infill development.

The success of non-aeronautical expansion on the airport, as a retail and commercial destination and key employment centre, is reliant upon the support and patronage of the region. It is therefore important that the true environmental costs of on-airport development be revealed, along with the strategies the airport operators expect to use to mitigate those impacts. The environmental and social costs, in terms of noise (construction), emissions (vehicular), resource use and infrastructure congestion, may be measured through the use of monitoring data at the airport. Where economic, social and environmental factors are included in all consultations and evaluations of airport and regional land use planning, the greater airport Aerotropolis can strive for continuous improvement in environmental performance.

Institutions / Governance

New models of cooperative governance need to be clearly articulated to establish the optimal capacities and trajectories of airport and regional investment over time (Canberra workshop, 2008).

Governance covers all aspects of airport operations that are the result of decision-making by both the airport operator (private) and administering authorities (public) including airport ownership; the commercialisation and privatisation of airports; consultative procedures and conflicts; airport and air transport security; legislation and policy; institutional arrangements and public private partnerships. A larger context is required to understand the role of governance and how institutional arrangements need to be fashioned to support the airport metropolis within the region. Carney and Mew (2003 p.221) recognise that although governments want airport operators to bring commercial and strategic orientation to airport management, they ‘often create regulatory and governance structures that inhibit such an approach’. Increasingly important is the need for the legislative logic of privatisation to align

with governance models to bring efficiency and equity into capital expenditure. That is, the operational, project and strategic management structure and capabilities of the airport operator should match similar intents of administering legislation and the goals of all stakeholders (Adelaide workshop, 2008).

The changing governance structures impacting airport ownership and operations are dynamic and have changed considerably in the past decade worldwide. Oum et al., (2006) provide a comprehensive evaluation of how various ownership forms and institutional structures affect the performance of 116 major airports worldwide. This analysis highlights the sensitivity of airport efficiency and profitability to governance arrangements.

Traditional planning and administration of airports is being challenged where market mechanisms provide public goods. The role of the public has similarly evolved with these market-based reforms from that of participant to consumer (Blanchard et al., 1998). The interface evaluation of governance issues acknowledges that stakeholder relationships have been recast in the wake of the commercialisation and privatisation of public infrastructure. There has been a fundamental change in the determination of decision-making which many stakeholders (public, private and community) do not fully recognise or appreciate (Canberra workshop, 2008). The emergence of consortiums of diverse interests as global airport operators presents challenges for the management of national assets – especially at the regional and local levels (Brisbane workshop, 2008).

Local and state governments may consider airport commercial development to conflict with their strategic intentions, while airport operators may be alarmed at incompatible regional land use trends (May and Hill, 2006). Neither stakeholder is able to formally endorse, influence or veto the land use planning decisions of the other. Airport master planning processes and local government land use planning processes should overlap and recognise that the value of each is increased within a consistent and cooperative framework (Stevens, 2006).

Issues of governance are fundamental in considering the changing role of OR Tambo International Airport, and in particular understanding and addressing present and future economic development, land use and infrastructure conflicts between the airport and the city. Effective governance and shared decision-making through consistent frameworks has the potential to ensure appropriate administration and delivery of those aspects and values of the changing airport that are universally shared and interdependent. The consensual mitigation of negative impacts and promotion of positive opportunity is only possible through improved governance and stakeholder relationships (Canberra workshop, 2008).

Recommendations

Major airports are problematic enough given their uneasy admixture of regional and national economic benefits and localisation of environmental costs. A better means of understanding and interpreting the perceived, potential, and actual opportunities and impacts of Aerotropolis is required. The OR Tambo International airports has shifted from 'public good' transport interchange nodes to profit oriented commercial ventures where aviation

revenue is now only a part of the airport 'business'. As a result of such changes a range of issues and impacts now pose considerable challenges for both the airport and the surrounding urban and regional environment. A new set of interdependent factors needs to be recognised, including:

- Understanding the catchments and catalysts for industrial, commercial and residential development within airport regions.
- Compatibility of land uses through policy and plans recognising the motivation of all stakeholders and the needs of the broader community.
- Regional direct, indirect and catalytic economic impacts and dependence.
- Recognising and understanding expectations of immediacy and equity in the delivery of goods, services and people.
- Managing the strategic, financial, compliance, economic and operational risks associated with airport and regional relationships.
- Understanding the impacts and trade-offs of increasingly shared decision making through public and private sector partnerships.

Aerotropolis offers some relevance to this new turn towards entrepreneurial urban activity and residential areas within airport cities. To plan for and support sustainable Aerotropolis development the City of Ekurhuleni can adopt the following strategies:

- Develop a comprehensive plan that provides for organized land use, environmental protection, and multi-modal mobility.
- Formulate economic forecasts that are realistic as the basis for development and expansion.
- Inform relevant stakeholders about impacts of new development upon the existing environment especially citizens around the airport.
- The city should incorporate aviation into urban and community visions.
- Attract and retain investment.
- An open dialogue and partnership between airport and wider community.
- Be consistent in relevant plan objectives.
- Build greener buildings around the airport providing ground power.
- Generate electricity through solar installations.
- Develop more ground transport plans such as the Gautrain to improve linkages with off-airport transport systems.

Conclusions

As airports have enlarged their historical function the list of impacts and relationships beyond airport boundaries has grown more complex. Airports are increasingly recognised as key assets for cities and regions as economic generators and catalysts of investment, in

addition to being critical components of efficient city infrastructure. The entrepreneurial idea of the modern OR Tambo International airport goes beyond facilitating the movement of aircraft towards seizing a variety of commercial and industrial opportunities at the hub of a wider land use zone of airport-related development. However, the commercial development of airport property faces particular and numerous 'obstacles' to development such as aeronautical requirements, adjoining land use, legal and regulatory requirements, environmental constraints, corporate and shareholder dictates, financial circumstances, infrastructure and service provision, land suitability, corporate social responsibility, project management and community and government consultation.

The road to reality for the Ekurhuleni Aerotropolis has begun with the planning of well-focused decision-making structures for the identification and mitigation of potential obstacles to progress. Aligned to the Ekurhuleni Aerotropolis Master Plan principles, which form the foundation of the vision of the Ekurhuleni Aerotropolis and the criteria for its success, is the requirement for a governance structure and institutional arrangement, explicitly described in the principle of 'Collaborate'.

Cooperative land use interface planning will assist airport master planning to evolve from isolated statements of on-airport development to visions which interconnect with broader statements of local, city, regional and national planning intent. Similarly, state and local land use planning can react to the opportunity that such a model of airport governance presents. For example, urban and regional planners may begin to recast the notion of compatibility and conceptualise air noise contours as not just limiting residential development, but providing a strategic opportunity for other types of compatible (noise tolerant) development benefitting from a near-airport location. This might facilitate the planning of industrial and commercial corridors associated with the airport (Brisbane workshop, 2008). The balance of the four dimensions of sustainability constitutes counterweights by which estimates of the socio-economic value of airport development can be most accurately assessed (Whitelegg, 2005).

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Treatment of wastewater contaminated with organic dyes from textile and mining industries

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Abstract

The use of potentially carcinogenic organic dyes are employed for dyeing in agate processing, mining, leather and textile industry as well around the world. Organic dyes like Rhodamine B and others create environmental and health risks to the public, if waste water treatment effluents are not treated properly. Current dye removal techniques include Advanced Oxidation Processes (AOP), photodegradation, and solar degradation. Some of these methods are more or less effective for the elimination of dyes. However, organic dyes are often not completely oxidized and many of the partially degraded compounds, including organochlorides, can be found in the treated effluent. In addition, the comparatively high costs of wastewater treatment (e.g. AOP) must be taken into account in a highly competitive market.

Project results suggest, that cost-efficient bioremediation methods may offer an interesting perspective to take on a significant role as an alternative that could also prove interesting for other organic pollutants, that are becoming are a growing issue in wastewater. The current study is investigating some of those options including enzymatic pretreatment, montmorillonite, activated charcoal and algal biomass filtration.

Keywords: organic dyes, organic compounds, waste water treatment, bioremediation

Main Conference Topic: Sustainability, Environment and Risk Management

Introduction and Related Work

At present, Brazil is known as one of the main suppliers of world agate production in the international market for gems and accepted worldwide for its product diversity (CPRM, 2014 [4]). In Rio Grande do Sul (Southern Brazil), the production of mineral agate and amethyst products (Fig. 1) is the highlight. However, these raw-state gemstones have low commercial significance. During processing, the agate stones are dyed to make handcrafted products, significantly increasing their overall value (Sampaio and Tubino, 1999 [13]).



Figure 1. Soledade and Salto do Jacuí – Regions of Agate and Amethyst Production in Rio Grande do Sul (Southern Brazil).

In the region of Rio Grande do Sul state, a large number of agate-producing companies in the sector (Fig. 1) are concentrating with > 180 micro and small companies active in the precious stone and jewelry sector (Hartmann and Silva, 2010 [9]). According to Leite (2018) [18] several illegal companies are running without any environmental inspection, and discharge the colored wastewater without any kind of treatment, especially, during raining nights.

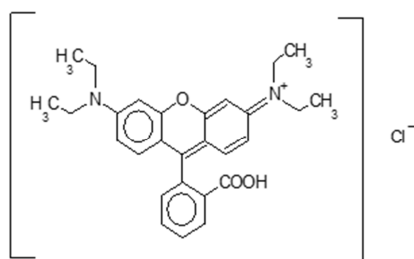


Figure 2. Rhodamine B. ($C_{28}H_{31}ClN_2O_3$; Dye Index: 45170; Wave length: 554 nm, Molmass: 479.02).



Figure 3. Agate Production: Product Processing (left: cutting, right: dyeing)

The required agate dyeing process with organic dyes is carried out in containers (Fig. 3) in which the geodes are placed in an alcoholic dye solution (about 20 g of dye per liter of ethyl alcohol). The main dye is rhodamine B (Figure 2), which is also one of the most

problematic dyes for wastewater treatment. After 8 days, the geodes are removed from the solution and rinsed with tap water. This rinse water contains high residual amounts of dyes and intensive coloration, as well as surfactants and residual amounts of oil from the cutting and washing processes. Daily, a 30-50 m³ wastewater is produced containing high levels of dye (20 to 200 mg/L), metal, oil and surfactant residuals derived from the other dyeing processes (Carissimi, 2000 [3], Barros et al., 2006 [2]).

According to Barros et al. (2006, [2]), the process of wastewater treatment most commonly used is typically the chemical oxidation with sodium hypochlorite (NaOCl) for regional companies, it has the advantage of simple and inexpensive process management and does not require post-treatment of solid waste. A disadvantage is the production of chlorinated by-products in low concentrations, which carry the potential health risk of carcinoma development for the general public. According to the authors, the mechanism of color removal is essentially the destruction of chromophore groups and a complete molecule degradation occurs only partially.

Alternative treatment techniques for dye removal are the Advanced Oxidation Processes (AOP) based on the generation of hydroxyl radicals. According to Barros et al. (2006, [2]), Machado and Stulp (2011, [10]), Schneider et al. (2000, [16]) and Pizzolato et al. (2002, [12]) these showed some removal efficiency for the dyes used in the dyeing of agate products. However, the results of the studies also showed the emergence of different, often unknown by-products, and the high costs of wastewater treatment by AOPs are a serious disadvantage.

Barros et al. (2006, [2]) investigated the efficiency of iron salt-catalyzed oxidation of organic substrates with hydrogen peroxide in an acidic medium (Fenton reaction) to reduce the color substances used. Different dosages of Fenton reagents (H₂O₂ and FeSO₄) showed that 2 ml/L H₂O₂ (32-36.5%) and 0.16 g/L FeSO₄ are sufficient to completely decolorize the wastewater, remove particulate matter, and reduce the content of organic matter and to increase the surface tension, but the mass spectrometric analysis of the compounds of the effluent after treatment by the Fenton process showed residual compounds such as xylene, linear and branched hydrocarbons, phenolic compounds and nitrogenated phenol.

Machado and Stulp (2011, [10]) conducted studies on the photochemical degradation of toxic compounds in the waste water of the agate-producing industry by UV radiation using a mercury lamp (400 W) and H₂O₂ as the oxidant. Photodegradation resulted in a 99.9% color reduction and reduction of 54.9% of the total organic carbon in the synthetic wastewater investigated.

Results of Schneider et al. (2000, [16]) showed that the bright green and crystal violet dyes are also sensitive to solar degradation, while rhodamine b showed greater resilience to natural degradation. In the same study, the oxidizing agent sodium hypochlorite proved to be effective in the degradation of dyes. Even low concentrations of 0.7 ml/L NaOCl (2%) caused a complete disappearance of effluent staining after a few minutes at pH 7 in the treatment of real wastewater, but residual organic contamination remained due to an apparently only partial oxidation of the effluent examined components.

Pizzolato et al. (2002, [12]) characterized the investigated wastewater with an intensive coloration ($\lambda_{\text{max}} \approx 550\text{nm}$), low surface tension and a high content of organic ingredients. Color removal can be achieved in these studies using 1.3 ml/L of NaClO at pH 7.0 in a few minutes. However, the organic dyes are not completely oxidized by NaClO and many only partially degraded compounds, including organochlorides, have been detected in the treated effluent.

However, the lack of large scale technical solutions for the wastewater treatment encouraged some industries, affiliated to an Association named APPE SOL, to outsource the treatment to Hidroquímica, that is a company located in Guaporé-RS, around 100 km far from Soledade. This company collects, transports, and treats an average of 10-13 m³/month of the colored effluent. The subsequent effluent treatment by Hidroquímica is not known in any detail. According to company statements it is mixed with other industrial effluents and treated by a combination of chemical oxidation, electrocoagulation, and adsorption (Hidroquímica, 2018 [19], Fepam, 2018[20]).

Sorption (biosorption and adsorption) treatments could provide a cost effective and local alternative to organic dye removal. After Gokhale et al. (2009, [7]) algae sorption can offer a biotechnologically innovative and cost-effective method to remove contaminants from contaminated aqueous solutions.

Microalgae have previously been used to remove dyes. Daneshva et al. (2007, [5]) investigated the use of green algae (*Cosmarium* species) as a biomaterial for the cost-effective biological treatment of triphenylmethane dye (malachite green). Abd-El-Kareem and Taha (2012, [1]) demonstrated the ability of *Chlorella vulgaris* Beijerinck and *Dunaliella salina* Teodoresco (*Chlorophyceae*) to decolourise malachite green and methylene blue in aqueous solutions. The results of these studies are encouraging to further investigate the ability of algal species to bio-purify dye-contaminated effluents. Mona et al. (2011, [11]) found potential of a hydrogen-producing cyanobacteria strain (*Nostoclinckia*) to decolorize the triphenylmethane dye crystal violet, the maximum efficiency of decolorization by immobilized biomass to decolorize the dye was 72% under the test conditions. Rosa et al. (2018) [21] evaluated the employment of dried *Chlorella pyrenoidosa* for the removal of Rhodamine B and the maximum biosorption capacity calculated as 63.14 mg g⁻¹ at a temperature of 25 °C.

The use of microalgae for the treatment of dye-contaminated effluents from the gemstone processing industry thus appears to be a good alternative, as Brazil itself has a warm climate suitable for the production of microalgae biomass under cost-effective conditions. Some algae species are cosmopolitan and easy to cultivate and find due to their immense proliferation in eutrophicated waters such as dams and lakes (Sander and Ahrens, 2010, [14]).

Materials and Methods

Rhodamine B standard curves were established from 10-500 µg/L (R6626 Sigma-Aldrich) in aqueous solution measured in triplicates per point (Figure 1), measured

photometrically at 554 nm (UV/VIS DR2800, Hach Lange) after centrifugation (Labofuge 400R, Heraeus) at 4500 rpm for 5 min (20°C).

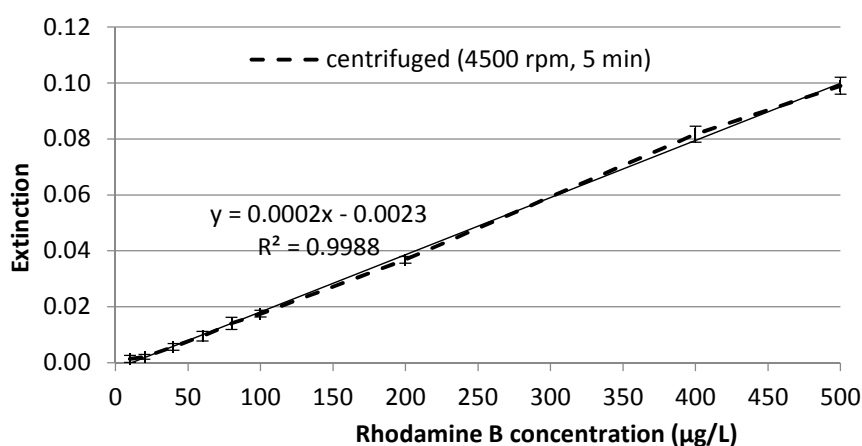


Figure 1. Rhodamine B standard curve after sample pretreatment with centrifugation (3500 rpm, 5 min).

Tests for rhodamine B absorption performance were executed for either a powdered algal biomass treatment group (*Chlorella vulgaris*, BioChlorella, Nurafit GbR, 0.01, 0.1, 1, 10 g/100 mL), a montmorillonite treatment group (MMT: K24 Mineral-M Montmorillonit Clay Mineral, 0.01, 0.1, 1, 10 g/100 mL), or an activated carbon granulate treatment group (0.01, 0.1, 1, 10 g/100 mL) in aqueous solution (100 mL). In addition, a preliminary enzyme treatment (Laccase F 5000 Units/g, ASA Special Enzymes GmbH, concentration 0.1g/100 mL) was set up as single test. Treatments were performed in Erlenmeyer flasks after shaking at 150 rpm for 60 min (20°C) in case of biomass and montmorillonite treatment groups and 24 and 48 hours at 120 rpm in case of enzyme treatment (20°C). Rhodamine B concentrations in each group (n=4/point, except enzyme test) investigated were 10 and 500 mg/L as reportedly found in wastewater discharge after agate dye treatment, the enzyme treatment was carried out at 10 mg/L rhodamine B aqueous solution only. Rhodamine B concentrations were measured photometrically (triplicates) at 554 nm after centrifugation (4500 rpm for 10 min at 20°C) of the samples.

Data were analyzed using descriptive statistics and regression analysis.

Results

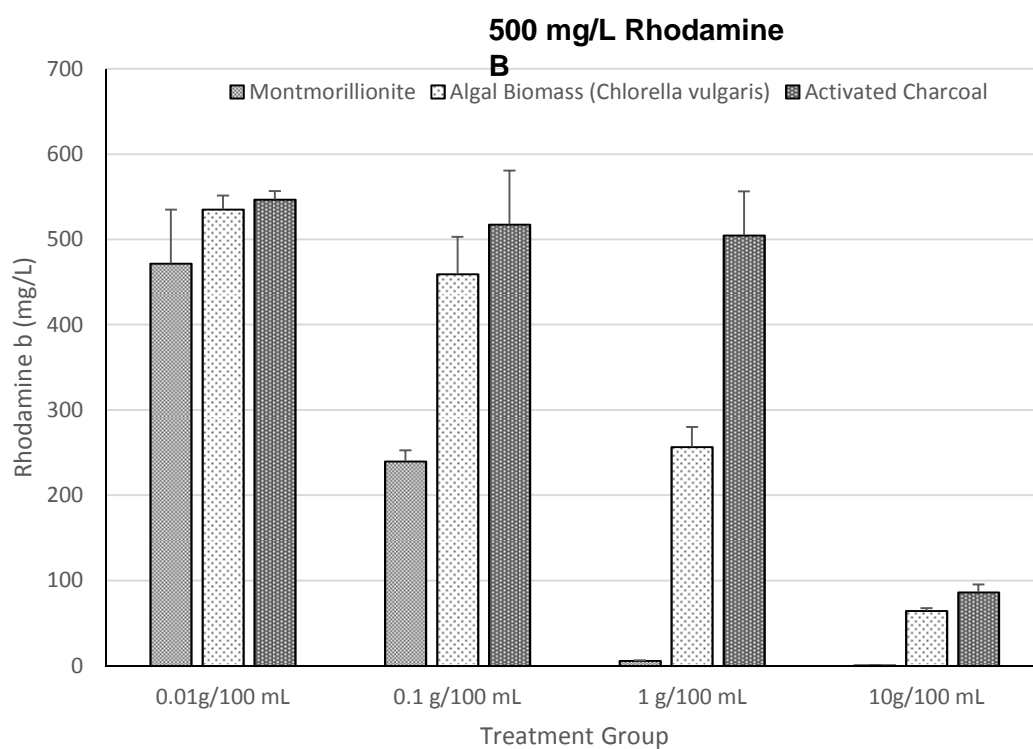
Tests for rhodamine B absorption performance were executed for either a powdered algal biomass treatment group, a montmorillonite treatment group, an activated carbon treatment group or enzyme treatment (Laccase F). For each treatment rhodamine B was added as aqueous solution in concentrations of 10 and 500 mg/L to represent concentrations frequently present in wastewater discharge after agate dye treatment. Figure 2 and Table 1 display rhodamine B absorption performance of the different treatment groups tested.

For the 500 mg/L rhodamine B solution, the montmorillonite material performed most efficiently when compared to either algal biomass or activated charcoal. The algal biomass

material showed over 50% efficiency at concentrations of 1 g/100 mL and the activated charcoal only started to show a notable decrease at concentrations of 10 mg/100 mL. At a concentration of 10 g/L, the montmorillonite treatment showed a higher efficiency (99.8%) than either algal biomass (88%) or activated charcoal (85.8%).

For the lower concentration of 10 mg/L rhodamine B, activated charcoal reached >50% efficiency at 0.1 mg/100 ml while montmorillonite showed 83% efficiency and algal biomass showed no change. Algal biomass reached 79.5% efficiency only at a concentration of 1 g/100 mL. Each treatment performed well when used at a concentration of 10 g/100 mL (97%, 97%, and 99% efficiency).

Figure 2. Rhodamine B absorption performance ($\bar{x} \pm SEM$, $n=4/\text{point}$, at 500 mg/L (upper panel) and 10 mg/L (lower panel) mg/L rhodamine B in aqueous solution): Montmorillonite (light grey bars), algal biomass (white bars) and activated charcoal (dark grey bars) were treated using solutions of 0.01, 0.1, 1 and 10 g/100 ml, incubated for 60 min. at 20°C and stirred 120 rpm.



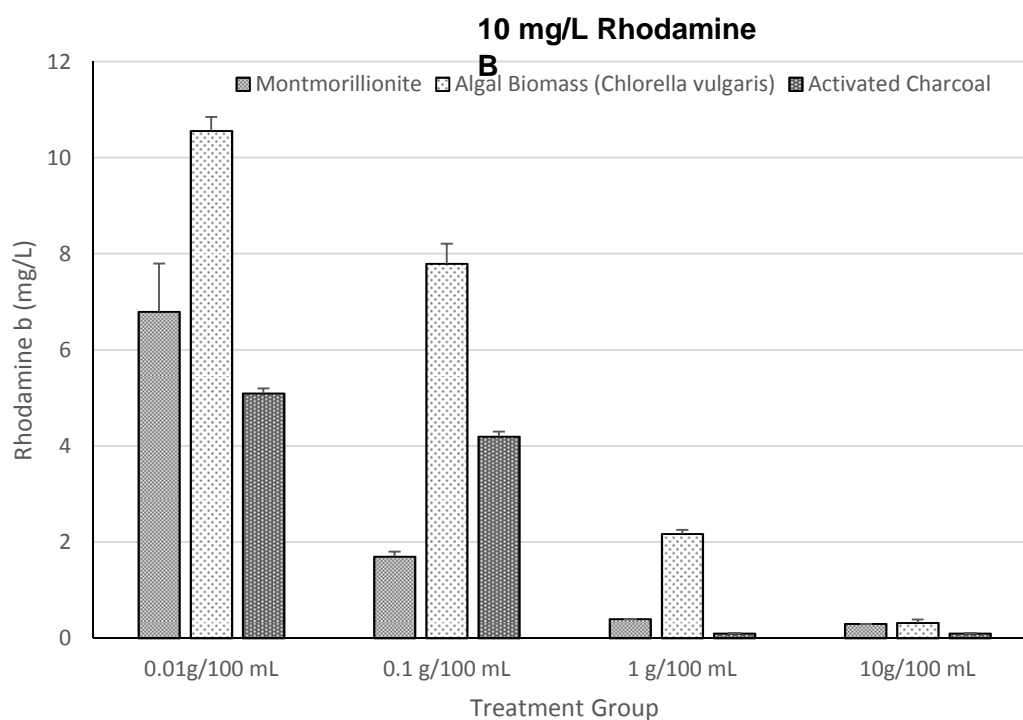


Table 1. Percent efficiency of montmorillonite, algal biomass, and activated charcoal treatment groups in solutions of 0.01, 0.1, 1 and 10 g/100 mL, incubated for 60 min. at 20°C and stirred 120 rpm, for 10 and 500 mg/L rhodamine B in aqueous solution (mean values, n=4).

	% Efficiency					
	Rhodamine B at 500mg/L			Rhodamine B at 10 mg/L		
	Montmori llonite	Algal Biomass (<i>Chlorella vulgaris</i>)	Activated Charcoal	Montmori llonite	Algal Biomass (<i>Chlorella vulgaris</i>)	Activated Charcoal
0.01g/100 mL	5.6	0.0	0.0	32.0	0.3	49.0
0.1 g/100 mL	52.0	14.2	5.4	83.0	26.4	58.0
1 g/100 mL	98.8	52.0	7.8	96.0	79.5	99.0
10g/100 mL	99.8	88.0	85.8	97.0	97.0	99.0

Preliminary results (Table 2) for the attempted enzyme treatment show, that Laccase F can reach an 80% reduction in rhodamine B concentration considering an initial concentration of 10 mg/L rhodamine B, however, some degradation products may still be present in treated solution.

Table 2. Decolorization of rhodamine B (displayed as absorbance value at 554 nm) by Laccase for 100 mL aqueous solution of rhodamine B at a concentration of 10 mg/L (20 µM) in 500 mL shake flasks stirred at 120 rpm for oxygenation at 20°C for 24 and 48 hrs.

	0 hrs	24 hrs	48 hrs
Control	1.5	1.5	1.5
Laccase F 5 U/mL	1.5	0.69	0.33 (80% reduction)

Conclusion

Current dye removal techniques include Advanced Oxidation Processes (AOP), photodegradation or solar degradation. These methods are somewhat effective for the elimination of dyes. However, organic dyes are sometimes not completely oxidized and many of the partially degraded compounds, including organochlorides, can be found in the treated effluent.

Results presented here show that treatment using montmorillonite or algae biomass is very effective alternative. Activated charcoal can also be effective for treatment of lower concentrations of rhodamine b. These treatments appear to address the residue issue that results from the current dye removal techniques.

Enzyme pretreatment may help to further diminish rhodamine B concentrations within effluent, as the preliminary results suggest.

Desorption options such as Ethanol, HCl or CH₃COOH stripping and a possibly associated loss of filter absorption performance are to still to be investigated for frequent reuse of filter material to aim at maximum cosright efficiency of the process.

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Impact of Festival Celebrations on Sustainable Development of Coimbatore City

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Abstract

In India, various festivals like Holi, Ganesh Chaturthi, Durga Puja, and Diwali generate water, air, and noise pollution and affects the different environmental attributes (air, water, land, ecology, sound, human aspect, economy, and resources). Diwali is one of the largest festivals for Hindu religion which falls in the month of October-November every year. The festival of 'Diwali' is proving to be an environmental risk due to the firecrackers especially in the evening hours, constituting a significant source of aerosols, black carbons(BC), organic and trace gases. This leads to the degradation of air quality, suffocating smoke, ear tearing noise, never ending garbage and everlasting pollution. Exposed individuals may be at risk following inhalation of the produces pollutants. According to WHO around 7 million people died in 2012. During diwali time it goes up to 30 percent, and people have 20 percent of higher risk of death from lung cancer. Also animals such as dogs and cats also suffer with higher noise produced during fire crackers. The air pollution level for Coimbatore city during the festival day is 60.46 parts per million (PPM) compared to the normal level of 40-50 PPM and the noise pollution level increase to 16 percent, that is 61.7 to 71.09 (Nivedha Selvan Nov 8,2018). The present study reveals the impact of festival especially Diwali on sustainable development of city Coimbatore. The study suggests the need for serious strategies to control the use of firecrackers during the festival of light (Diwali) in Coimbatore to protect the environment and safeguard human health.

KEYWORDS: - Festivals, Air, Water, and Noise Pollution, Diwali celebrations, fire crackers, Sustainable development.

Introduction

India is a country with rich cultural and religious heritage. It is a secular country with full of diversity in the religions, languages, cultures, and castes, it is always crowded with the people involved in the fairs and festivals celebration. There are a lot of cultural and traditional festivals celebrated by the people of India all over the world. Diwali, Shivaratri, Holi and Ganesh Chaturthi, Christmas and Ramzan are some of such festivals. Diwali is a festival of light celebrated with great enthusiasm all over India and comes usually in the month of October and November. It is a five-day Hindu festival also known as the festival of lights. It is a special occasion where people wear new clothes, light up lamps and candles inside and outside their homes and participate in family prayers. Diwali is one the biggest shopping seasons in India where people buy new clothes for themselves and their families as well as gifts, appliances, kitchen utensils, sweets, dry fruits, and even expensive items, thus there is huge traffic in markets and in residential areas. Diwali celebrated every year

with the bursting of crackers as the most prominent activity. Fireworks contains chemicals such as arsenic, sulphur, manganese, sodium oxalate, aluminium and iron dust powder, potassium perchlorate, strontium nitrate, barium nitrate, and charcoal. Burning of these fireworks releases pollutants like sulphur dioxide (SO₂), Carbon dioxide (CO₂), Carbon monoxide (CO), suspended particles, and several metals such as aluminium, manganese, and cadmium. These led to serious health problems, noise pollution, air pollution (degradation of fire quality), serious of accidents and lethal injuries. On Diwali the pollution rate just goes up to 30 percent which is estimated that every hour of firework display the compound called strontium increases by 120 times (large amount of it causes damages to bones and can cause blood clotting disorders) in the air. The level of magnesium increases to 22 times, barium by 12 times, potassium by 11 times and copper by 6 times. Also, the heavy metals in fire cracks are toxic to the human body. This in turn result in climate change and global warming. Because of 60000 tons of carbon emissions, the average lifetime of the 5000 trees are reducing in one day.(UN Food and Agricultural Organisation (FAO)) The bursting of fireworks also causes noise pollution up to the level of 140 decibels (noise at 85 decibels or above can damage hearing). Diwali is a nightmare for dogs and other animals because of the unbearable noise level. The real problem comes after the day. The roads are filled with bits of paper and plastic. Approximately 4,000 additional metric tonnes of garbage is released in Delhi alone, and twice the amount in Mumbai. In Bangalore, garbage collection is raised to a certain level, that is 800 to 1000 tons, when it is compared to Chennai it is 50 tons more than that of Bangalore. There is another important fact related to the production of firecrackers that is more than 80 million children are employed in the firework industry in the world and 80% of firework production in India is from Sivakasi. Asthma and TB are prevalent among 90 percent of them who are involved in gunpowder filling and are directly in contact with the chemical ingredients of crackers. So buying fireworks indirectly contributes to child labour.

Related Literature

In his study (Smith et al. (1975) presents the first direct evidence that fireworks created air pollution in Honolulu can alter pulmonary function in susceptible people. They also speculated that the 26% decrease in maximal midexpiratory flow rate (FEV 25-75%) in susceptible people was the result of an SO₂-KCl aerosol interaction. According to (Shetye et al. (1981) had estimated that noise level in crowded location in Mumbai was almost double that of residential standards adopted by most countries (45dB during day and 35dB at night).Some authors (Tripathy and Patnaik (1994) reported various impact of noise stress on human health for e.g. hearing impairment like temporary/permanent loss of hearing, trinities, physiological impacts like cardiovascular constriction, gastro intestinal modification, respiratory modification, skin resistance alteration, headache, muscular tension, neurological disorder, paling of skin; task interference like reduced work efficiency, increased proneness accidents and lastly personal behaviour like annoyance, anxiety, fatigue and fear.

In his study (Liu et al., 1997) these firecrackers when burnt can release various gaseous and particulate air pollutants and toxic metals to significant quantity and degrades the air quality as a whole. In California, USA a study following the Fourth of July holiday reveals significant

increase in the levels of ambient air magnesium, aluminium, potassium lead, barium, strontium, and copper. The study also reports the original chemical composition and particle size of typical firework mixtures. (Perry, 1999; Dutcher et al., 1999) Nevertheless, some authors) concluded that fireworks unlikely pose a significant public health hazard, as they are relatively rare, detonate at altitudes well above the ground and generally burn outdoors, where the emitted pollutants can be dispersed in a large volume of air. According to (De (2000) 65dB noise level at a distance of one meter affects human heart while 125dB gives the sensation of pain in the ear and 150dB might kill a human being. (Hirai et al. (2000) found that inhalation of smoke from firework causes cough, fever, and dyspnoea and leads to acute eosinophilic pneumonia.

(Ravichandran et al. (2000), measured noise levels at selected place of Pudukkottai, Tamilnadu, found that vehicular traffic and pressure hours are the main cause of noise pollution in the city. (Attri et al. (2001) observed formation of ground level ozone due to burning of colour emitting sparklers in Delhi (India) during Diwali festival. It is found by (Attri et al. (2001) that burning of coloured fireworks could generate ozone, a strong and harmful oxidizing agent at the ground level. (Bull et al., 2001) Burning of fireworks releases pollutants, like sulphur dioxide, carbon dioxide, carbon monoxide, suspended particles, and several metals like aluminium, manganese and cadmium, etc., which are associated with serious health hazards. Fireworks often result in serious accidents and lethal injuries. (Miedema and Oudshoorn (2001) presented a model of the distribution of noise annoyance with the mean varying as a function of the noise exposure. Various workers have studied effects of noise pollution on human health. According to (Santra (2001) high frequencies or ultrasonic sound above the normal audible range can affect the semicircular canals of the inner ear and cause nausea or dizziness. (Kulshrestha et al. (2004) reported that the high level of different trace elements in ambient air of Hyderabad (India) was due to fireworks during this festival. As per (Drewnick et al. (2006), Measurement of water-soluble ions is important for determining compositions of atmospheric aerosols. An attempt was made to determine ionic chemical composition of atmospheric PM₁₀ and PM_{2.5} with the view to assess the impact of burning of crackers during Diwali festival celebrations in Nagpur, India. In the study of (Ravindra et al., 2003; Wang et al., 2007). Fireworks contain chemicals such as potassium nitrates, potassium chlorate, potassium per chlorate, charcoal, sulphur, manganese, sodium oxalate, aluminium and iron dust powder, strontium nitrate, and barium nitrate, etc. (Kwasny et al. (2009) observed less impact on human lung deposition from fireworks versus average downtown traffic as the fireworks particles fingerprint past 100 nm range. (Thakur et al. (2010) estimated the probable health impact of the short-lived deterioration of the ambient air quality by PM through Monte Carlo's simulation in terms of increase in relative risk of mortality and morbidity in exposed individuals and found it to be extremely high. In the study of (Do et al. (2012), the cytotoxicity response data for the size-fractionated airborne particulate matter collected from the pre- and post-fireworks display periods was evaluated in Yanshui, Taiwan. The samples collected in the pre-fireworks display period were found to be less toxic than those in the post-fireworks display period. Moreover, the levels of the elements collected in the sub-micrometer size range were less than half of those in the

micrometer size range in the post-fireworks display period, but the viability was 65.7% for the former compared with 73.3% for the latter.

Research gap

The study is mainly focusing on the environmental impacts of Diwali celebrations and the need for sustainable development. The study which is taken into consideration is the premises and areas included in the Coimbatore City. Tamil Nadu is the place where Diwali is celebrated very vibrantly especially in Chennai and Coimbatore. The most affected city is Chennai and now Coimbatore is also in that track. Due to the immense use of firecrackers in the Diwali Celebrations, it leads to poor air quality which again leads to air pollution, noise pollution and it affects the health very seriously. It also affects the environment as well as the flora and fauna. It is the area where a lot of studies required and need of sustainable measures to be adopted for celebrations could be stated.

Objectives

- Understand the cultural and mythical evolution of Diwali festival.
- Study the impact of Diwali celebrations on environment
- Understand the need to combine the celebrations with sustainable planning.
- Suggest effective measures for festival celebrations and environment conservation of the city.

Need for the study

India is a land of fairs and festivals. Different fairs are celebrated by different religion or state in India. Diwali is one celebration which celebrated throughout India in comparison with others. So, this study focuses on to understand the impacts of firecracker emissions during Diwali day in Coimbatore City. Diwali was traditionally celebrated with earthen diyas and distribution of sweets to friends and family. But today it involves bursting of firecrackers, suffocating smoke, ear tearing noises, never-ending garbage and everlasting pollution. It alters the balance of environment and it affects the flora and fauna of the locality. As in the twenty first century when the whole globe is alarmed at global warming and fossil fuel dearth the researchers have taken up festival celebrations impact of the city to understand the potential damage caused by the same in the city.

Diwali Celebrations:

Diwali also known as the festival of lights, celebrated every autumn in northern India and every spring in the southern hemisphere. Diwali festival symbolizes the “Victory of light over darkness, good over evil and knowledge over ignorance”. During the celebration of temples, homes and official buildings were lighted with lamps. The Diwali celebrations last for five days. During the Diwali days, the celebrants were cleaning, renovating and decorating their houses and workplaces. The people adorned with new clothes, decorate home with diyas (light lamps and candles), and offer pujas to Lakshmi, the goddess of prosperity and wealth, light fireworks, partake in family gatherings, where mithai (sweet) and gifts are shared. The five-day festival Diwali celebrated after eighteen days of the Dussehra festival. During the

first day, the celebrants clean their homes and make rangoli on the floor. On the very next day Choti Diwali for the north Indian people but in south India, it is the proper day of Diwali celebration. Western, central, eastern and northern Indian communities celebrate Diwali on the third day, which is the darkest night of the month. In some parts of India, the day after Diwali is celebrated with the Govardhan Puja and Diwali Padva, which is dedicated to the relationship between wife and husband. On the last day of Diwali, Bhai Pooja is done in certain parts of India. While some other Hindu and Sikh craftsmen communities celebrate this day as Vishwakarma Pooja by doing maintenance work in their workspaces and offering prayers.

Tamil Nadu is a land of temples thus temples and festivals go together. Festivals are not only religious occasions but also cultural and commercial landmarks. Tamil Nadu has perhaps the largest number of religious festivals celebrations every year. Most of the temple festivals take place during September-October and in the post-harvest month of March – June. In Tamil Nadu, Navaratri is followed, in late October or early November, by Diwali (The festival of lights). There are two mythologies related to the celebration of Diwali. The one most important myth is it is celebrated to mark the destruction of the demon Narakasura by Lord Krishna, As Lord Krishna killed Narakasura on the Chaturdashi day (the fourteenth lunar day) it is also known as Narakachaturdasi. It held on the final day of the Hindu calendar (compare New Year's Eve).

The following day, marking the beginning of a new year is called Annakut. Chaturdashinight compelled them to use many lamps on the occasion, and subsequently, the illumination became a part of this celebration. Another myth related to the celebration of Diwali is to celebrate the return of Rama, the king of Ayodhya, his wife Sita and brother Lakshmana to Koshala after a war in which he killed the demon Ravana. So from this, it is understood that Diwali is a festival symbolizing the destruction of evil forces.

In South India, Narakachaturdashii is the main day of celebration with lot of firecrackers at dawn while in North India the main celebration is on Amavasya evening with Lakshmi Pooja is followed by lighting of oil lamps in and around the house and bursting of crackers with greatest enthusiasm. Diwali is celebrated in different parts of India in different ways;

Table 1: Diwali Celebrations in Different Parts of India

Diwali celebrations in different parts of India		
Zones	States	Myth and way of celebration
North India	Himachal Pradesh, Uttarakhand, Rajasthan, Srinagar, Delhi and Punjab	Home coming of Lord Rama Lord Ganesha and Goddess Lakshmi also worshipped here. They celebrate with fireworks, lights, and, sweets and Diwali Mela
South India	Andhra Pradesh, Karnataka, and Tamil Nadu	Andhrites and Tamilians worship Lord Krishna and his wife Satyambha's victory over the demonic King Narkasura. Kannadigas take oil bath and build forts from cow dung in their homes, fireworks, lights and sweets.
East India	West Bengal, Bihar, Jharkhand, Assam, and Odisha	Diwali mainly is the night of ancestors, and earthen oil lamps are lit on poles to guide the souls of the departed loved ones to heaven in Odisha. The people of West Bengal and Assam worship goddess Kali on the night of Diwali and offer prayers to their ancestors. The people of Bihar and Jharkhand perform Lakshmi Pooja in the evening and women make rangolis on the verandah of their homes and temples. For witnessing Diwali in India, visit any of these places.
West India	Gujarat and Maharashtra	Rangoli is an important part of their Diwali decoration. While Gujaratis draw footprints of goddess Laxmi on the threshold of the house, light their homes with candles, rice lights, and diyas on the night of Diwali, Maharashtrians perform Lakshmi Pooja in their homes and organize a feast known as "Faral" for families and friends, where sweets like karanji, laddoo and snacks like chakli are served.

Effects of Diwali on Environment

India is a secular country where all religions are accepted wholeheartedly. The different communities celebrate different kinds of rituals and festivals. Each festival has its own significance marked by various practices such as fasting, abstinence, etc. The festivals are the occasion to celebrate with great enthusiasm but nowadays all the festival celebrations are ending up with negative impacts on the environment. The festivals like Diwali celebration especially affect the environment drastically. Due to the large scale of bursting firecrackers during this festival, it releases harmful gases and toxic substances into the atmosphere, loud noises from loudspeakers and firecrackers, dry waste causing health problems for children, patients, and senior citizens. They also cause Burns, deafness, Nausea and mental impairment. Many people die in explosions in factories which manufactures firecrackers.

Diwali is called as a festival of Lights but nowadays instead of darkness to light, the celebration goes in such a way that it moves from light to darkness. Usually, the festival falls between October- November of Georgian calendars. It has been celebrated from ancient days based on Ramayana and Mahabharata mythologies. Many people celebrate Diwali with lights, candles, and firecrackers. The bursting of firecrackers has a serious effect on the environment.

Air Pollution

On this auspicious occasion unknowingly harmful gases and toxic substances released to the environment by bursting fireworks such as Barium, Cadmium, Sodium, Mercury, Nitrate, and Nitrite. These are called Air pollutants. Also Respirable Suspended Particulate Material (RSPM) level goes high as small particles emitted by bursting of fireworks and also need of electricity goes high in this period. Diwali, every year leads to an alarming rise in the level of Respirable Suspended Particulate Material in the air, due to the bursting of firecrackers. RSPM are such particles which cause serious of health issues like bronchitis and asthma.

Noise Pollution

As per the study of the World Health Organisation (WHO) asserts that noise pollution is not only a nuisance to the environment but it also affects considerable threat to health. With the emergence of urbanization and industrialization people in the metros and cities had to face the problem of noise pollution in everyday living, and any kind of public celebration aggravate these issues. In the residential areas, the Supreme Court limits the noise levels to 55 decibels in the day and 45 decibels at night. The local authorities, as well as the citizens, are responsible to maintain these noise levels to permissible limits. These are violated during the festival season. Level of noise level can go beyond 125 dB which is as loud as Military jet aircraft take-off, whereas government limits Noise level at 55dB in daytime and 45dB at night for the residential area. These types of noises are very harmful to new-born babies.

Dry Waste

The interest of being celebrating Diwali people forgot the after effects of firecrackers like the dry wastes which affect the environment hardly and create non-bio degradable wastes like plastics, papers, and firework covers. It create soil pollution and serious of waste dumping in the metro cities.

Health effects of Fireworks

The kids are more interested in celebrating the Diwali, so most of the kids are dealt with these firecrackers and due to this poisonous nature, the children are falling ill. These poisonous gases causes fever, skin irritation, vomiting, effects on firework on lungs, insomnia, heart diseases, asthma and bronchitis. These also result in accidents like burning and cutting due to the mishandling of fireworks. It has been observed that the mortality and morbidity rate increased in the Diwali period because of Suspended particulate Material, and Respirable Suspended Particulate material (Debsarkar A. et.al) and other harmful gases released in the environment. The loud noise of fireworks causes Temporary deafness,

permanent Eardrum rupture, trauma, and hypertension. These fireworks made by people and children (work for 12 hours) are exposed to poisonous metals like lead, mercury, Nitrate and Nitrite. Because of this health issues most of the children die in early in early ages.

The various pollutants generally produced during festival celebrations are discussed below;

1). Sulphur Dioxide

Sulphur dioxide is one of the components of acid rain, and since some of the firecrackers also contain this compound, its release into the environment can prove to be fatal for the environment and human beings. It is soluble and dissolves in the larger airways of the respiratory system. Higher concentrations of sulphur dioxide can restrict the breathing process. It can also cause eye irritation, asthma and heart failure.

2).Nitrogen Dioxide

Long-term Nitrogen dioxide exposure may decrease lung functionality and increase the risk of respiratory diseases' symptoms. People with asthma and children in general are considered to be more vulnerable to nitrogen dioxide's exposure

3). Carbon Monoxide

CO is a toxic gas that causes harm by binding with haemoglobin in our blood (220 times more strongly than oxygen). The tied-up haemoglobin, thus, cannot serve its normal function to transport oxygen in the blood. Due to this, various parts of the body suffer oxygen deprivation.

4). Carbon Dioxide

Carbon dioxide is the major source of organic carbon in the biosphere. The carbon dioxide does not affect the human being directly but it affects the level of CO₂ in the atmosphere leads to global warming.

Criticism Related to firecrackers

In recent years there has been some criticism about the celebration of Diwali in India. The noise from crackers seriously affects the animals because they are more sensitive to sense of hearing than humans. Pets like dogs and cats face serious tensions during the Diwali days. The NGOs like people for animals voluntarily give awareness to the public about these issues. Also the smog produced from the bursting of crackers will be there for the next day of Diwali celebration will be harmful to inhale and affect the drivers with reduced visibility during driving. Diwali can often be treated by some as an opportunity to show off their status or purchasing power. These kind of competitive attitude encourages the use of ever larger noisier crackers.

Recently there have been several governmental and legal efforts to combat the menace. The Supreme Court of India, observing that the "right to peaceful sleep is a fundamental right of the citizens", has banned crackers between the hours of 10 pm and 6 am during the Dasara and Diwali festivals. While strict enforcement of this ban is not yet in place, the effect has nevertheless been very positive. The Central Pollution Control Board has banned fire-

crackers with a decibel level of more than 125 at a distance of 4 meters from the bursting point. There have also been state-level efforts to ban the very loud "1000-walas" and "hydrogen bombs" fireworks.

The non-governmental organisations are taking initiative to give awareness to school children about the negative impacts of firecrackers. This is because the children are the more influential person makes the parents to buy crackers and they are enthusiastic persons to light the crackers. The continuous effort taken by the NGO's lead to a noticeable reduction of noise during Diwali.

There is also the issue of child labour in the fireworks industry whose main centre in India is Sivakasi in Tamil Nadu. Children as young as three or four (the average is 10-14) work in very difficult conditions and about a third of them are in debt bondage. There is some public awareness of this problem, but the longstanding issue of child labour in India is larger than the context of Diwali alone. It could be stated below by the pollution index scale of Delhi and Coimbatore. In this analysis even though Delhi is higher state of Pollution Coimbatore is not less.

Table 2: Comparison of pollution index Delhi and Coimbatore (during diwali)

Index	Delhi	Coimbatore
Pollution Index:	91.79	64.12
Pollution Exp Scale:	167.02	110.84

Source:(https://www.numbeo.com/pollution/compare_cities.jsp?country1=India&city1=Delhi&country2=India&city2=Coimbatore)

Table 3: Air pollution data from world health organization

Air pollution data from World Health Organization		
	Delhi	Coimbatore
	229	68
PM _{2.5}	122	36
PM ₁₀ Pollution Level:	Extremely High	High

Source:(https://www.numbeo.com/pollution/compare_cities.jsp?country1=India&city1=Delhi&country2=India&city2=Coimbatore)

Table 4: Air pollution data from world health organization

	Delhi	Coimbatore
Air Pollution	Very High 88.48	Moderate 52.53
Drinking Water Pollution and Inaccessibility	High 64.33	Moderate 42.77
Dissatisfaction with Garbage Disposal	High 76.79	High 66.87
Dirty and Untidy	High 73.51	Moderate 58.13
Noise and Light Pollution	High 65.51	Moderate 53.92
Water Pollution	High 77.95	High 66.35
Dissatisfaction to Spend Time in the City	High 79.19	Moderate 52.33
Dissatisfaction with Green and Parks in the City	Moderate 52.89	High 60.26

Source: (https://www.numbeo.com/pollution/compare_cities.jsp?country1=India&city1=Delhi&country2=India&city2=Coimbatore)

Twenty of 26 air quality monitoring stations across the country recorded “severe” air quality at midnight on Wednesday night, a level of pollution that India officially rates as its worst possible, and describes as one that “affects even healthy people, and seriously impacts those with existing diseases”. In Delhi, particulate matter levels surpassed the worst that Beijing has experienced, the above mentioned tables itself indicates the comparison between the pollution rate of Delhi and Coimbatore during Diwali time. Even though when compared to Delhi, Coimbatore is less but the graph only shows slight variations.

The impact of Diwali festival on environment in Coimbatore

On Diwali day this year, the city saw pollution levels going up, specially suspended particulate matter and noise pollution. According to an official of Tamil Nadu Pollution Control Board, the ambient air quality and noise pollution levels were monitored at three locations: Kavundampalayam, Peelamedu, and Gandhipuram on October 12 and October 18. The Respirable Suspended Particulate Matter level (micrograms per cubic metre) was in the range of 34 to 57 on October 12 and it shot up to the range of 65 - 172 on October 18. It was 121 last year. This is mainly because of the bursting of crackers. The level is particularly high in Kavundampalayam. Noise pollution was monitored at two places: Kavundampalayam and Collectorate. On October 12, the average decibel level was 61.7 at Kavundampalayam and it went up to 71.9 on Deepavali day. At the Collectorate, it went up and came down from 69.2 to 65.9. This is because, the bursting of crackers is more in residential areas compared to commercial centres in the city, the official added. On October 12 and 18, the ambient air

quality was monitored for 24 hours each day and for three parameters (Sulphur Dioxide, Nitrogen Dioxide, and RSPM) and noise pollution from 6 p.m. to midnight. Areas around Kavundampalayam had high levels of air pollution as a result of the bursting of Diwali crackers, according to the report of the Tamil Nadu Pollution Control Board (TNCB) laboratory.

The board had conducted two surveys to monitor the pollution levels. One was the ambient air quality survey and the other was the noise test for 24 hours a week before Diwali and on the festival day. The ambient air quality survey was conducted at PSG CAS, District Collectorate, and Kavundampalayam. Particulate materials, mainly tiny dust, and gaseous pollutants like sulphur oxides and nitrous oxides were found in the atmosphere. According to the report, the air pollution levels during the pre-Diwali survey were 34 micrograms per cubic meter in PSG CAS, 36 at the District Collectorate and 57 in Kavundampalayam. The Diwali survey saw the levels rise to 68, 65 and 172, respectively. Noise pollution was monitored at the District Collectorate and Kavundampalayam and the values were found to have gone up with Kavundampalayam being on the higher side. A laboratory official told The Covai Post that the air pollution level during Diwali around Kavundampalayam was higher owing to the presence of several residential areas. Air pollution up to 80 microorganisms per cubic meter is safe. However, better awareness had resulted in people bursting fewer crackers, especially at night time, he said. The board conducts ambient air quality monitoring twice a week as part of National Ambient Air Quality Monitoring Programme in places like SIDCO, District Collectorate and Venkatapuram in the city. The reports are submitted to the Central Pollution Control Board (as per news was given in Daily hunt newspaper 2017). As per the report has given Nivedha Selvan on Nov 8, 2018, The Supreme court's direction restricting the usage of firecrackers had helped a little to reduce air pollution in the city. The overall air pollution in the city has gone up than previous year on Diwali day but marginally. On Tuesday, Coimbatore city has recorded the air pollution level of 60.46 parts per million (PPM) (as per the data are given in the website of smart city mission). The recorded pollution level in the previous year was 60.19 PPM. The pollution level was gone up in 13 places this year. Under the smart city mission project, the city corporation had placed 30 sensors in different places including Saibaba colony, R S Puram, Race Course, Ukkadam and Singanallur to analyse and study the air pollution rate on daily basis. On the contrary, the air pollution rate on a normal day was 40 to 50 PPM on an average but on the festival day, it goes up to 60 to 75 PPM. While Sudarapuram has recorded the highest rate of air pollution following Town Hall and Sungam, Puliyakulam followed by Ondipudur and Selvapuram record lowest air pollution on Tuesday of Diwali celebrations. As per the environmentalist Mac Mohan "the half of the citizens did not follow the stipulated time and the Government doesn't have enough manpower to ensure that the timings were followed in every nook and corner of the district". Stating that regarding the Diwali celebration the Supreme Court's order has come only a few days back of Diwali so that it will take time to yield the fruit.

The government can impose order to control the manufacturing rate and sales rate of firecrackers, but unless they create awareness among the public, nothing would change on

the ground, he added. Since the Supreme Court order has come late by that time, a large number of firecrackers have been manufactured and dispatched and even public also purchased it.

The need for sustainable approach towards Diwali celebration

As Coimbatore is facing a lot of problems during Diwali celebrations, because of the above-mentioned use of firecrackers. It affects the air quality, leads to severe noise pollution and serious health issues for the public as well as the environment include flora and fauna. It affects the balance of other living creatures such as dogs, cats. In this Diaspora, it is very much essential to start using eco- friendly crackers to pave way for a healthier and more sustainable environment.

Suggestions

Simple measures can be taken to ensure that Diwali becomes environment and human-friendly. The government, police, pollution control boards are suggesting many alternative ways to celebrate Diwali which does not pollute the environment. Some suggestions regarding the reduction of pollutions are –

- Choose low-noise fireworks such as sparklers, fountains and ‘zameenchakkars’ instead of ‘atom bombs’ and rapid fire-crackers.
- People should avoid bursting crackers in the building compounds, narrow lanes, balcony, and congested areas. Use open grounds to light fireworks.
- Not to light fireworks near cowsheds, huge trees or stray animals.
- Designed places for the burning of fire-crackers/fireworks may be identified by the local authority so that fire-crackers could be played at the community level and not at individual houses.
- Plan to celebrate cracker free Diwali for sustainable celebrations.
- Restrict firework celebrations only to videos and photographs.

Conclusion

The present study investigates the impacts of Diwali celebrations on the environment of Coimbatore 2018. Display of fireworks with loud explosive, crackers, etc., during Diwali celebration, causes enormous though short-lived air pollution. The concentration of the pollutants is very high on Diwali day compared with the normal day. Diwali is known as the festival of lights so it is stressed to use diyas, candles, and lamps to celebrate Diwali. Also, we need to make it as an occasion to meet people distributes sweets and plant trees etc..... An eco- friendly approach should be adopted to reduce the impact of Diwali on the environment. Spreading the message of civic sense among the people is essential. We the people of India have social responsibility before we are blaming the authorities about their miss function. Today one can easily find sustainable ways of adding to the glory of the festivals and we as ‘law abiding citizens’ should also take initiatives to cooperate with the government.

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Sustainable Food Packaging Trends 2018

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Abstract

The food industry has been affected by the increase in consumer preference for environmental conscious products. Customers are especially concerned with the integrity of the food brands they choose, as food products are consumed by their families and have a direct effect on health. Packaging gives the first impression to a customer when selecting a product, and it has a significant effect on the customer's opinion of the product and its brand. This paper will discuss trends in food packaging that use these criteria as defined by the Sustainable Packaging Coalition.

Keywords: food packaging, environment, innovation and science, packaging trends

Main Conference Topic: Sustainability, Environment and Risk Management

Literature Review

In 1987, the United Nations set forth a global agenda for change, calling for long-term environmental strategy proposals for achieving sustainable development by the year 2000 and beyond. In the World Commission's Report on Environment and Sustainability, Gro Harlem Brundtland discusses the problem in detail. "Scientists bring to our attention urgent but complex problems bearing on our very survival: A warming globe, threats to the Earth's ozone layer, deserts consuming agricultural land..., what is needed now is a new era of economic growth - growth that is forceful and at the same time socially and environmentally sustainable." (UN General Assembly, 1987). In reaction to the publication of this report, executives and managers slowly began integrating sustainable practices into their corporate activities.

As addressed by the United Nations, consumers on a global scale started to pay attention to the environment more than thirty years ago. The green movement became a cultural phenomenon in the United States by the 2000s, as consumers started to select brands with sustainable initiatives as their preference. A company's impact on the environment was brought to the spotlight, and corporations had to adjust their practices to align with the new consumer preference that they be responsible for the environment. Soon, sustainability became business as usual, with most firms increasing sustainability investments. By 2012, 83% of the largest U.S. firms view sustainability as part of their business practices, not just an activity with negative bottom-line impacts (Siemens, 2012). The topic of corporate sustainability development in China's corporations has been of great interest for the last decade both in academia and practice. At present, some understandings through research investigation have been achieved, such as what motivates corporations to

implement environmental protection activities and how to integrate the natural environment into business strategy and activities (Bai, Sarkis, Dou, 2015). For marketers, environmentalism has become a criterion influencing consumer purchase behavior. In North America, 60% to 90% of consumers indicate concerns about the environmental impact of their purchases (Dagnoli, 1991; Klein, 1990).

The food industry has been substantially affected by the increase in consumer preference for environmentally conscious products. Customers are particularly concerned with the integrity of the food brands because food products are consumed by their families and have a direct effect on their health. Packaging gives the first impression to a customer when selecting a product, and it has a significant effect on the customer's opinion of the product and its brand. According to business insiders, product choice decision only takes seven seconds, making judgments based on the quick information. In this case, the packaging is the foremost step to communicate the best of your brand to the customer (Warner, 2017). The environmental consciousness trend has created a higher demand for sustainable packaging. The formal definition of sustainable packaging has been set forth by the Sustainable Packaging Coalition and has several criteria. These criteria include that sustainable packaging optimizes the use of renewable or recycled source materials; is sourced, manufactured, transported and recycled using renewable energy; and is designed to optimize materials and energy (GreenBlue, 2011). This paper will discuss trends in food packaging that use these criterion as defined by the Sustainable Packaging Coalition.

Before discussing the new packaging processes and materials that are being used today, it is important to address how the sustainable trend introduces methods that differ from the traditional packaging trends. There are many ways that the traditional food packaging differs from green packaging. This preliminary discussion about food packaging will include common packaging options, health factors, and environmental issues.

The most common traditional methods of food packaging include glass, aluminum and plastic, and paper. Glass containers are the most traditional and one of the oldest forms of food packaging. Recycled glass accounts for as much as 60% of the raw materials used when producing these containers (Ahmed, J., 2012). Glass is still a very good material for preserving food. Although glass does not have immediate health or environmental effects, its disadvantages are that it is more fragile and non-degradable. Paper is another traditional material for food packaging that has been around for many centuries. Over time, paper packaging has evolved into various forms such as craft paper and parchment paper. Most paper food packaging is treated with chemicals such as slimicides and strengthening agents to produce the durable material (Raheem, D., 2013).

Recycled polyethylene terephthalate is a common element in paper, plastic, and glass food packaging. Health issues arise with this material due to metal content that leads to contamination of the food. The metals involved with the food containers made with post-consumer materials are lead, nickel, cadmium, antimony, and chromium. Possible metal contaminations could lead to kidney damage and skeletal damage with excessive exposure.

However much has changed after the passage of the California Toxics in Packaging Prevention Act of 2006 (Whitt, M., et al., 2013).

The third and arguably the most prevalent food packaging is plastic. Plastic has been used since the nineteenth century. Plastic's low cost to produce and versatility of use are reasons it has taken a dominant position in the food packaging industry. Many types of plastics are used in the industry including polymer, polyolefins, and polycarbonate. Many of the plastics used today come from recycled products and, due to the California Act, must demonstrate contaminant levels have been reduced significantly (Raheem, D., 2013). While California's Rigid Plastic Container Program was enacted in 1991, recent revisions and expansions to the program took place in 2013 that make the laws more enforceable. Companies can be subject to fines up to \$100,000.00 per year for violating the RPPC as well as public disclosure of the violation (Lingle, R. 2018).

Overall, the greatest difference between traditional packaging and green packaging is the effects the food package and its manufacturing process has on the environment. This exemplifies several of the criteria set forth by the Sustainable Packaging Coalition. Sustainable food packaging finds solutions that provide a clean and efficient material which does not leave a negative impact on the environment.

In addition to consumer pressure, legislatures worldwide are increasingly concerned about packaging issues. Their main purpose is to encourage efficient use of resources. This trend is particularly evident in Europe. In the Netherlands, for example, the country imposes a tax on packaging producers based on the average CO₂ emissions of packaging materials - 0.36 - 0.57 Euro per kilogram of aluminum, and 0.06 Euro per kilogram of cardboard (DataBlog, 2016).

There has been a recent change in global affairs that will have an impact on the recycled content packaging industry. In July 2017, China's Green Fence and National Sword Initiatives announced that China would no longer be receiving any post-consumer recovered plastics or mixed paper. China imports 53% of the world's waste, most of which comes from the U.S. This ban was implemented very recently to take effect on December 31, 2017, therefore it is still unclear how great the effect will be on recyclers that relied on China in the past. Packaging Digest says "The most critical and impactful step companies can take in light of the China ban is to commit to using post-consumer resin (PCR) wherever possible," (Edington, 2017). Because China was a significant player in the recycling process of post-consumer resin, there will be a disruption in the existing process. This will affect cost and how companies use PCR in their green packaging efforts. This will affect the food packaging industry especially the beverage bottling operations.

2018 Trends in Sustainable Food Packaging

In China, with the increase in people's awareness of environmental protection, recycled paper food packaging has become increasingly popular. According to statistics, paper packaging currently accounts for about 40% of China's packaging materials, and this proportion may further increase (BASF, 2018).

Nova Chemicals of Canada has newly developed an oxygen-repellent packaging film that is easy to recycle. Food companies will not need to choose between high-performance barrier packaging and recyclability in the future. The packaging structure design extends Nova Chemicals' recyclable film design, which includes moisture sensitive applications such as dry foods, blends, frozen foods, and confectionery. Both packaging film solutions are certified and have received the "In-store drop-off" packaging label "How2Recycle", which is designed to help consumers understand the recycling of plastic packaging.

Similarly, the United States has many examples of green packaging in food. Researchers recently presented a new packaging film option at the American Chemical Society that is made from milk proteins with powerful oxygen blockers that prevent food spoilage, in addition to being totally edible. This protein-based material provides a solution to the common petroleum-based packaging which is not sustainable. According to Laetitia Bonnaillie, co-leader of that study, the researchers are testing applications for single-serve, edible food wrappers; to which nutritious additives such as vitamins, probiotics and nutraceuticals could be included in the future (American Chemical Society, 2016).

For its bulk line of five Organic Acres brand dried fruit and nut blends, Tropical Foods, Charlotte, NC, has launched a corn-based plastic container that brand manager Chad Hartman says, "is a logical fit with the organic product." The square container with resalable lid is made from polylactic acid and is supplied by Wilkinson Industries. In addition to a primary label, Tropical Foods also adds a sticker on the container lid that promotes the "corn-based package".

Lamb Weston, the leading supplier of potatoes in America, has made a new partnership with Graphic Packaging Intl. Inc. to exclusively use Tite-Pak kraft paper bags to distribute their frozen french fries. This partnership has created the potential to annually divert up to 30-million pounds of used packaging material from landfills to the recycling stream.

Tetra Pak is expanding in the growing on-the-go beverage market. The new packages offer consumers smaller size options with the same re-sealable one-step closure. Global demand for these sizes is anticipated to grow to 72 billion liters by 2019, up 10 percent from current volumes, according to Tetra Pak studies (Kalkowski, J., 2017).

Lifeway Foods has been producing Kefir since 1986. Lifeway switched their Organic Kefir bottles to a more environmentally friendly packaging called green polyethylene, a material that is made of sugarcane, a renewable resource. This will help further reduce greenhouse gas emissions and still provide bottles that are safe, BPA-free, and recyclable. Green polyethylene is a thermoplastic resin, which means their bottles will now use plant-based materials rather than fossil-based. By choosing a greener alternative in packaging and fighting for environmental sustainability, Lifeway is fulfilling a crucial part of their mission and commitment to using only all-natural, hormone and GMO-free ingredients, global philanthropy, responsible sourcing, and renewable energy initiatives (Lifeway Foods Inc., 2017).

The future of food packaging is in the hands of innovation. Manufacturers must now respond to the demands of customers, creating new packaging that is composed of eco-friendly materials while also being more functional than ever before. Active packaging, tamper evident packaging, and intelligent packaging are all interests of customers and need to be developed and mastered to meet demand in the food packaging market.

Active packaging is food packaging that's primary purpose is to "prolong shelf – life or enhance safety or sensory properties, while maintaining the quality of the product" (Ahmed, 2012). While functionality is very important with this type of packaging, it's also important to consider the economic ramifications of using these materials. The new chitosan-based GFSE composite film is a great example of this, as its purpose is to "improve food safety, extend shelf-life and to minimize the use of chemical preservatives" (Tan, Thian, 2016). The antimicrobial and antifungal properties are prominent moving forward, as they are biodegradable, preserve food well, and are environmentally friendly. This is an ideal application of the goals set forth by the Sustainable Packaging Coalition because the use of active packaging utilizes the use of renewable materials to optimize the value of the food product.

The demand for tamper evident food packaging is growing and will continue to grow as third-party food delivery becomes more popular. With the development of Uber Eats, consumers now not only trust restaurant employees to handle their food but also strangers to deliver it. To ensure food safety, companies are now looking toward packaging that is tamper evident, so customers feel confident their food arrives exactly as it should (Loria, 2015). With the importance of being green playing a role in tamper evident food packaging creation, Recycled Polyethylene Terephthalate, rPET, is a strong choice.

Intelligent packaging is another current trend in the food packaging market that is gaining popularity. While extending shelf life, intelligent packaging is also focused on maintaining and monitoring food safety and quality. Oxygen and carbon dioxide indicators can be used to confirm product leakage or verify efficiency.

Conclusion

There are significant innovations being made for sustainable packaging. Many leading companies have found competitive edge by offering sustainable packaging solutions. The use of recycled or renewable materials in the food packaging industry has become business as usual.

The future of food packaging is moving in multiple directions, however, one factor that is consistent across the entire field is environmental consideration. Very high levels of research and development are currently being conducted across the industry, aiming to lead the innovation for active and intelligent sustainable packaging. As opportunities arise for new packaging development, manufacturers need to take advantage of using environmentally friendly material usage.

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Maintaining Kerala's Tourism Destinations with Minimal Disaster Risk: A Geographical Approach (Working Paper)

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Abstract

Inherently vulnerable to economic crises, natural disasters and outbreaks of warfare and epidemics, international tourism has shown remarkable resilience in recovering from the adverse effects of such negative, but short-term, factors. The safety and security in tourism industry has been identified as one of the forces causing changes in the tourism sector in the new millennium (Hall et. al., 2003; Breda and Costa, 2006). In India huge losses occur annually across the country through floods, cyclones, landslides, erosion, drought and occasional earth quakes. Also, no thorough study has been undertaken yet to analyze the present state of safety and security in Kerala's destinations as well as to identify the scope for professional Risk Management.

The main objective of this study is to classify the major risks associated with prominent tourism destinations in the state and to ascertain the measures taken for minimizing them. The main objective of this study is to work out the major risks associated with prominent tourism destinations in the state and ascertain the measures taken for minimizing the risks. The study also aims to find out the gaps as well as to suggest better risk management policy. The universe of the project is the entire state of Kerala. The study will concentrate on the top three major destinations in each district that are prone for any risk categories. The data received through inventory observation will be presented and documented with supportive photographs and suggestions for improvement. Simple statistical tools will be used to analyze the data received through questionnaires and interviews. However, the research is on its final phase the paper does not constitute results and findings but it will give a comprehensive view on topic area and the methodology.

1. INTRODUCTION

"Tourism has a connotation of leisure travel and tends to be synonymous with holidays (vacations). This is also reflected in dictionaries, which commonly refer to tourism as travel for pleasure.... business usage, the language of those who earn their living from serving tourists; most of them see tourism in terms of the products they sell and the markets they serve." (Medlik, 2003, p.vii)

Tourism has a vast impact on the Indian economy and plays a vital role in other aspects of the nation's growth and development, especially in creation of jobs. It also promotes history, culture and tradition of destination. As per the World Travel & Tourism Council tourism generated 14.02 lakh crore (US\$220 billion) or 9.6% of the nation's GDP in 2016 and supported 40.343 million jobs. The *Travel & Tourism Competitiveness Report 2017* ranks India 40th out of 136 countries overall. The report ranks the price competitiveness of India's tourism sector 10th out of 136 countries. India is ranked the 14th best tourist destination for its natural resources and 24th for its cultural resources with many World Heritage sites, both natural and cultural, rich fauna, and strong creative industries in the country. The Travel and Tourism industry of India is ranked 5th in the long term growth (10year) growth and is expected to be the second largest employer in the world by 2019. India has been ranked the "best country for value –for-money" in the Country Brand Index (CBI) survey conducted by Future Brand, a leading global brand consultancy. India made it to the list of "rising stars" or the countries that are likely to become major tourist destinations in the next five years, led by the United Arab Emirate, China and Vietnam.

1.1. Tourism in Kerala

The state of Kerala is one of India's largest developed tourism destinations and has become one of the fastest growing tourism regions in the world. Beaches, warm weather, back waters, hill stations, waterfalls, wild life, Ayurveda, year round festivals and the diverse flora and fauna make Kerala a unique destination for tourists. Foreign Tourist arrival to Kerala during the year 2016 is 10, 38,419. It shows an increase of 6.23% over the previous year's figure of 9, 77,479. Domestic Tourist arrival to Kerala during the year 2016 is 1, 31, 72,535. It shows an increase of 5.67 % over the previous year's figure 1, 24,65,571. Tourism has turned out to be the most important source of foreign exchange for the State Government. Foreign exchange earnings for the year 2016 are Rs.7749.51Crores which recorded an increase of 11.51 % over the previous year. Total Revenue (including direct & indirect) from Tourism during 2016 is Rs.29658.56 Crores, showing an increase of 11.12% over the last year's figure. The State Government, over the years has been giving very high priority to the tourism sector. The state's tourism agenda promotes ecologically sustained tourism, which focuses on the local culture, wilderness adventures, volunteering and personal growth of the local population. Efforts are taken to minimize the adverse effects of tourism on the natural environment, and enhance the cultural integrity of local people. Kerala Tourism is noted for its innovative and market-focused ad campaigns. These campaigns have won the tourism department numerous national and international awards.

1.2. Tourism: Safety and Security

By its very nature, tourism is a global and intensely competitive industry. Although inherently vulnerable to economic crises, natural disasters and outbreaks of warfare and epidemics, international tourism has shown remarkable resilience in recovering from the adverse effects of such negative, but short-term, factors. However, not only does the consumer have to spend relatively large amount of his/her disposable income to buy the tourism product, he also perceives it in a subjective and experiential manner. As a result, tourism is highly

sensitive to perceptions of danger and lack of safety and security. It is in this context that lack of safety and security and incidences of crime represent a more serious threat to travel and tourism than any other negative factor.

Safety and security have always been indispensable condition for travel and tourism. But it is an incontestable fact that safety and security issues gained a much bigger importance in the last two decades in tourism. Changes in the World during the last two decades were enormous. Due to terrorist acts, local wars, natural disasters, epidemics and pandemics, that we were witnesses to, security has significantly decreased. The travel and tourism industry could not avoid the negative impacts and consequences of these events. Moreover, some of these events manifested the vulnerability of tourism both on global and regional levels. Safety and security issues have been treated as important condition of tourism. Safety and security issues in travel and tourism came to the front by the evolution of the mass tourism from the beginning of the 1950s.

Security and safety has become a complex multidimensional notion with a wide range of components belonging to it: political security, public safety, health and sanitation, personal data safety, legal protection of tourists, consumer protection, safety in communication, disaster protection, environmental security, getting authentic information, quality assurance of services etc. Security has undergone a significant change: from a more or less passive factor it is now an active element of tourism, an imperative to act in order to protect tourists and their belongings as well as all the achievements of the industry. Tourism Safety has been identified as an issue of paramount importance to the effective functioning and future of the Tourism Industry. It should however, be recognized, that while Tourism Safety is an impacting issue for the industry/sector, it is neither appropriate nor expedient for the Tourism Industry to build capacity and expertise in most matters pertaining to safety and security. Effective, efficient and sustainable partnerships should be developed with agencies and organizations that have safety and security issues as their core competency and business.

Traditionally, many tourism professionals have avoided addressing issues of tourism security and tourism safety all together. There has been a common feeling among these professionals that visitors will wonder if too much security indicates that they should be afraid and that even speaking about these subjects will frighten customers. Thus, especially in the years prior to 2001, the industry often took the position that the less said about tourism security and safety the better. (Tarlow, 2002; Laws & Prideaux, 2005; Wilks & Page, 2003; Mansfeld and Pizam, 2006; Henderson, 2007; Talow, 2009a).

1.3. Risks associated with Travel and Tourism

The safety and security in tourism industry has been identified as one of the forces causing changes in the tourism sector in the new millennium (Hall et. al., 2003; Breda and Costa, 2006; Freyer and Schroder, 2007; Edgell et. al., 2008; Tarlow, 2009a). Crime, terrorism, food safety, health issues and natural disasters are the main area of concern (Breda and Costa, 2006). When dealing with this subject, three concepts are being used. Most frequently, it is safety and security, but some authors combine the two concepts into a single one, i.e. surety (Tarlow, 2007).

Jacoby and Kaplan (1972) categorized five kinds of risk which were psychological, financial, performance, physical and social risk while Nyskiel (2005) divided risk into only two types; external and internal risk. External risks can be referred to natural disaster, political unrest, terrorism, etc. while the internal risks consist of illness, drug taking, abduction, etc. Roehl and Fesenmaier (1992) pointed out that there were seven travel risks; equipment risk, financial risk, physical risk, psychological risk, satisfaction risk, social risk and time risk. With the adaptation of literature of Sonmez and Graefe (1998); Basala and Klenosky (2001) Dimanche and Leptic (1999), Reisinger and Mavondo (2006) divided risk into thirteen types, which are; crime, cultural risk, equipment risk, financial risk, health risk, physical risk, result risk, political risk, psychological risk, satisfaction risk, social risk, time risk and terrorism risk. While different scholars categorized risks differently, the concept of safety needs in this research was applied from the framework of Raichel et.al (2007), who has divided tourist risk into eight types; site related physical risk, socio-psychological risk, physical harm risk, expectation risk, political difficulties, financial risk, mass risk and self-behavior risk. In general, common risks associated with tourism can be grouped as below –

- a) Loss during travel - loss of passport, baggage, money etc.
- b) On Tour failures – missing of flights and cancelling of sightseeing during tour due to climate related problems and technical problems.
- c) Accidents – can occur during travel, sightseeing or during accommodation etc.
- d) Illness – medical care during tour. (Environmental risks – changes in altitude, humidity, temperature; Infectious diseases – food and water, air, vectors, soil, exposure to blood and body fluids, STDs, Psychological health – anxiety, mood related disorders etc).
- e) Disasters – that include natural (flood, cyclones, earth quakes etc.) and human (violence, terrorism etc.).

1.4. Tourism Risk Management in India and Kerala

India being a vast country with a wide variance in topography and physical features is subject to a variety of natural hazards and disasters. Huge losses occur annually across the country through floods, cyclones, landslides, erosion, drought and occasional earth quakes. The flash floods in Leh and Sikkim last year and the recent devastation that has resulted in Uttarkhand has taken much toll and setback for tourism industry. These are creating a number of accidents and fatalities in many areas. The country is also prone to many diseases and epidemic outbreaks from time to time as the hygiene standards of many states are subsequently pathetic. Increased crime in many states and harassment against tourists, especially foreigners also have increased recently in India that will definitely affect the brand image of India as a tourist friendly nation. And terrorism and internal riots also play its role on one side, which has resulted in a number of tourist mortalities with the Mumbai terrorist attacks of 2008 leaving an everlasting scar on the tourism image of India.

As everyone knows, Kerala has been a pioneer in sustainable tourism development and has very well used modern technologies for firmly affixing its brand image as 'God's own country'. Compared to other Indian states, Kerala is almost peaceful with excellent law and order situations and a stable Government. The state also matches Western countries in social development like literacy, personal hygiene, cleanliness and health standards. But some major fatal accidents have occurred in destinations of Kerala. Kerala's major tourism resources include beaches and backwaters and no doubt accidents have occurred in these sites. The boat accidents in Kumarakom, Thattekkad and Thekkady as well as the recent houseboat accident in Alappuzha all claimed a number of lives. Other than this, a number of tourists have drowned and lost their lives in many beaches, waterfall sites, rivers and dams or reservoirs. This is apart from major road accidents that are occurring in the state. Recently, there has been outbreak of a number of epidemics in the state especially during the monsoon which has claimed many lives. Dengue fever, Chikun guniya, Leptospirosis, H1 NI and the like are spreading across the state during monsoon and have also affected tourism. Natural disasters, again associated with monsoon like landslides, floods and cyclones happen here. Though quite less compared to northern states, Kerala has also reported cases of harassment of women tourists and local crime in destinations coupled with drug mafia and pedophilia.

2. CONCEPTUAL FRAMEWORK AND RESEARCH METHODOLOGY

2.1. Overview of literature

By its very nature, tourism is a global and intensely competitive industry. Although inherently vulnerable to economic crises, natural disasters and outbreaks of warfare and epidemics, international tourism has shown remarkable resilience in recovering from the adverse effects of such negative, but short-term, factors. Safety and security have always been indispensable condition for travel and tourism. But it is an incontestable fact that safety and security issues in tourism have gained a much bigger importance in the last two decades. Changes in the World during the last two decades were enormous. Due to terrorist acts, local wars, natural disasters, epidemics and pandemics, security has significantly decreased. Traditionally, many tourism professionals have avoided addressing issues of tourism security and tourism safety all together. There has been a common feeling among these professionals that visitors will wonder if too much security indicates that they should be afraid and that even speaking about these subjects will frighten customers. Thus, especially in the years prior to 2001, the industry often took the position that the less said about tourism security and safety the better. (Tarlow, 2002, 2009a; Laws & Prideaux, 2005; Wilks & Page, 2003; Mansfeld and Pizam, 2006; Henderson, 2007).

The safety and security in tourism industry has been identified as one of the forces causing changes in the tourism sector in the new millennium (Hall et. al., 2003; Breda and Costa, 2006; Freyer and Schroder, 2007; Edgell et. al., 2008; Tarlow, 2007, 2009a). Crime, terrorism, food safety, health issues and natural disasters are the main area of concern (Breda and Costa, 2006). Jacoby and Kaplan (1972), Nyskiel (2005), Roehl and Fesenmaier (1992), Sonmez and Graefe (1998); Basala and Klenosky (2001) Dimanche and Leptic

(1999), Reisinger and Mavondo (2006), Raichel et.al (2007) etc. have classified risks into various categories.

2.2. Conceptual framework

Safety and security has always been indispensable for travel and tourism. Tourism safety has been identified as an issue of paramount importance to the effective functioning and sustenance of the Tourism industry. Kerala has actively engaged Tourism Police in major destinations to prevent crime and life guards and lifesaving volunteers in water bodies to avoid accidents. The state has a well-equipped primary healthcare network as well as a functioning Disaster Management Authority at the state and local level. But, there has been no active coordination or a joint effort among these various agencies for effective tourism operations. The new Kerala state Tourism Policy mentions about forming a Contingency Response Cell, but there has been no active step towards it so far. Some fatal accidents have occurred in tourism destinations and there have been occasional outbreaks of epidemics and natural disasters, especially during the monsoon season. Also, no thorough study has been undertaken yet to analyze the present state of safety and security in Kerala's destinations as well as to identify the scope for professional Risk Management. The main objective of this study is to classify the major risks associated with prominent tourism destinations in the state and to ascertain the measures taken for minimizing them. The study also aims to find out the gaps as well as to suggest better tourism risk management policy.

The core concept of this research project is to address the risk and disaster related issues in major destinations of Kerala through geospatial approach. For example, when discussing about the landslide risks of tourism area the mitigation consists of identifying the buildings, spots and roads at risk. GIS can be used to first map their exact location, and in later stages to plan the actions to be taken in the next steps: evacuation routes, emergency assistance and clean-up, based on the correlation with the road infrastructure and construction. This becomes the primary layer in a GIS Platform. The maps prepared in detail could be used for this purpose and becomes a major layer in a GIS Environment. The vast developments with the expansion of GIS capabilities and availability of other tools, such as advanced remote sensing instruments or the Global Positioning Systems (GPS) has extended the scope of effective destination management.

2.3. Research questions or hypotheses

The most important objective of this study is to identify the major risks associated with important tourist destinations of Kerala. The study will chalk out solutions for mitigating these issues at state as well as district and destination levels.

2.4. Approach and Methodology

The whole study will look into four dimensions: (1) Creating profile and current status of the tourism destinations (2) Identifying the major risks associated with selected tourism tourist destinations of Kerala, and the existing risk tackling measures (3) Mapping and Grading the selected destinations based on the nature and intensity of risks (Hazard and vulnerability

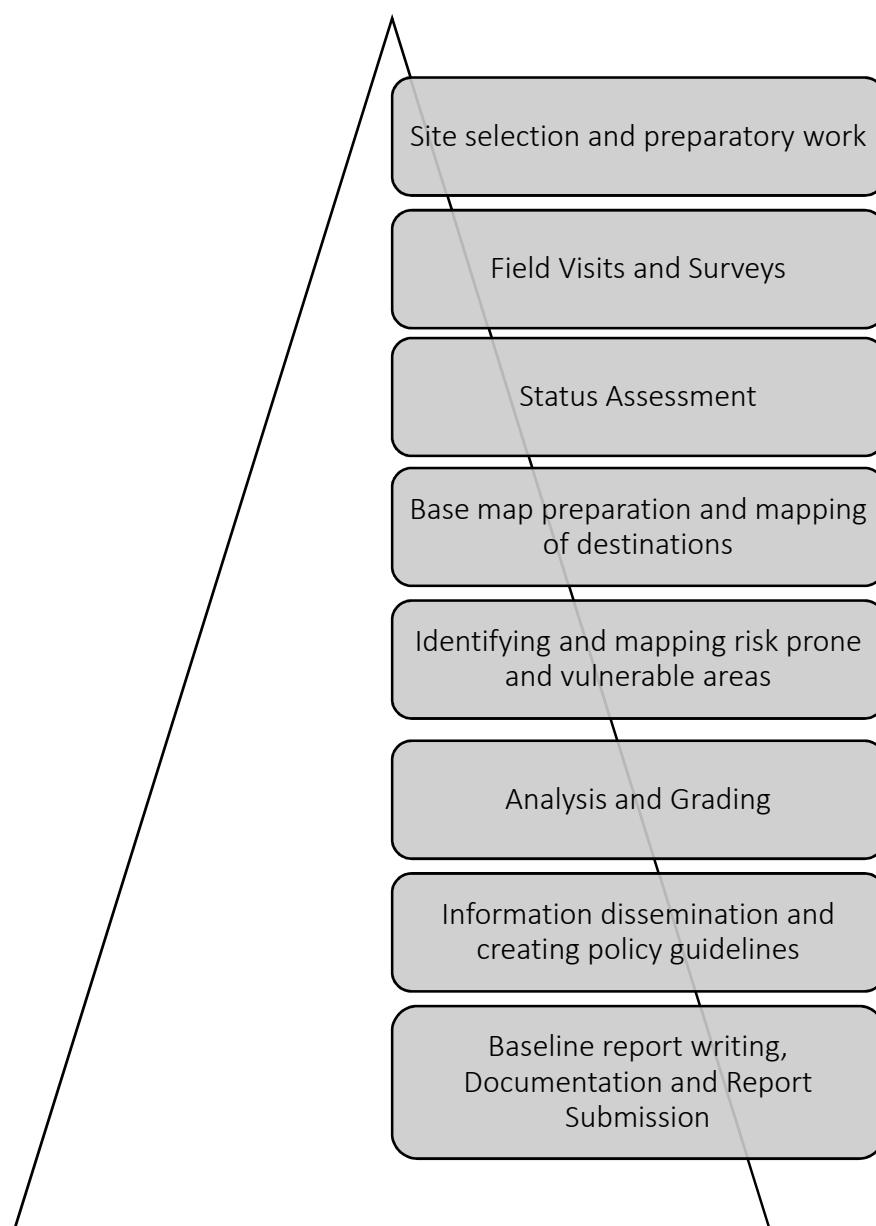
map prepared by the State Disaster Management Authority will be considered) and 4) suggesting measures to maintain Kerala's tourism destinations with minimal disaster risk.

Data will be collected on the following broad areas viz. risks and accidents in destinations, natural hazards and disasters specific to destinations, detailed analysis of existing situation and spatial mapping using GIS/GPS technologies. The proposed study will be based on both primary data and secondary data. The primary data will be collected from the selected destinations through well-structured inventory models (mentioned later in this section). The feedback from the officials of the District Tourism Promotions Councils, Tourism Associations, elected representatives of concerned Panchayats, officials of the State Disaster Management Authority, local public and other stakeholders will be taken through participatory interviews. The in-depth analysis with the help of inventory and field level experiences will constitute the integral part of the study.

For the study, the risks associated with the destinations have been classified into four:

- 1) Accidents – drowning, falling from hills etc. in the case of destinations and fire in accommodation and other establishments; this includes natural spots like beaches, backwaters, river side spots, hill station spots, waterfalls, dams and reservoirs apart from general accidents on roads.
- 2) Health related – epidemics and diseases affecting the state; health problems of tourists at destinations; general hygiene and cleanliness of destinations; availability of medical services in and around destinations
- 3) Natural hazards and Disasters – floods, landslides, cyclones, earth quakes, drought, erosion etc. and factors associated with it
- 4) Crime and Terrorism – human made problems like theft, violence, harassment and so on.

2.4.1. Methodology Flowchart



2.4.2. Coverage

The universe of the project is the entire state of Kerala. The state has fourteen districts. The study will concentrate on the top three major destinations in each district that are prone for any risk categories. This number can slightly vary depending on the availability of destinations. The destinations are chosen based on the physiography viz. coastal areas, midland and the highland. The details of the destinations selected is mentioned the next chapter.

2.4.3. Data Collection

Since this involves a major work, the data collection method will also vary with observation related inventory through specially designed indicators, questionnaire survey and interviews with various departments and agencies. The major data will be collected through observation at destination level to assess the present situation and gaps existing in these places. Photography will also be a part of the research analysis.

2.4.4. Data Analysis

The data received through inventory observation will be presented and documented with supportive photographs and suggestions for improvement. Simple statistical tools will be used to analyze the data received through questionnaires and interviews. Finally, the destinations will be grouped into various risk prone categories based on a grade scale through GIS/GPS spatial mapping, observation indicators and the hazard and vulnerability map from SDMA. The research will also suggest management and policy levels to be initiated for risk management at destinations.

2.4.5. Site Selection and Preparatory Work Including Surveys

Approved/Major Tourism Destinations in each district spread across three physiographic divisions viz. lowland, midland and high land are selected for the study. The input chart models prepared for data collection is given below.

Categorization based on Physiography

Sl no	Destination	Physiography	Location	Remarks
1	A	Lowland	Relatively	any
2	B	Midland	Relatively	any
3	C	Highland	Relatively	any

Categorization based on tourism.

SL NO	DESTINATION	NATURE	ACTIVITY	REMARKS
1	A	HISTORIC	SITE SEEING	SIGNIFICANCE
2	B	NATURAL	TREKKING	SIGNIFICANCE
3	C	LEISURE	ENTERTAINMENT	SIGNIFICANCE

Site visit, documentation, and Situation Assessment

SL NO	DESTINATION	DOCUMENTATION	SITUATION ANALYSIS
1	A	DESCRIPTION AND DETAILING	EXISTING GAPS

Office Visits (Tourism, Disaster Management, Forest, Fire & Rescue etc)

SL NO	DESTINATION	OFFICE VISITS	F	G	D	S
1	A	VARIOUS GOVT.OFFICES	DISCUSSIONS WITH STAKEHOLDERS			

Risk Assessment and Classification

SL NO	DESTINATION	NATURE OF RISK	REMARKS
1	A	NATURAL AND SIMILAR AGRICULTURAL AND SIMILAR DEVELOPMENT AND SIMILAR HUMAN AND SIMILAR SITE MANAGEMENT AND SIMILAR OTHERS	

Risk Inventory

SL NO	DESTINATION	NATURE OF RISK	SEVERITY	FREQUENCY	REMARKS
1	A	LANDSLIDE	HIGH/MEDIUM/LOW	HIGH/MEDIUM/LOW	

Risk Inventory (magnitude)

SL NO	DESTINATION	NATURE OF RISK	PROBABILITY/EXTEND OF DAMAGE	DEGREE OF LOSS OF VALUE	EXTEND OF VULNERABILITY
1	A	LANDSLIDE	HIGH/MEDIUM/LOW	HIGH/MEDIUM/LOW	

Risk Assessment based on Hazard and Vulnerability Map

SL NO	DESTINATION	NATURE OF RISK	SEVERITY	FREQUENCY	REMARKS
1	A	LANDSLIDE	HIGH/MEDIUM/LOW	HIGH/MEDIUM/LOW	

2.4.6. Mapping and Analysis Part

1. Physiographic map (delineating highland, midland and lowland)
2. Plotting tourism destinations
3. Hazard map preparation for Kerala

4. Plotting field data if any
5. Superimposing for analyzing
6. Vulnerability map preparation
7. Grading tourism destinations based on risks

2.4.7. Implications of the study

India being a vast country is prone to all major tourism risks mentioned before. All these will have a direct influence on the image of 'Incredible India'. Kerala has been a pioneer in sustainable tourism development and has very well used modern technologies for firmly affixing its brand image as 'God's own country'. Kerala is relatively peaceful with excellent law and order situation and a stable Government. The state also matches Western countries in social development like literacy, personal hygiene, cleanliness and health standards. But many accidents have occurred in tourism destination like the boat accidents in Kumarakom, Thattekkad, Thekkady and Alappuzha which all claimed a number of lives. Other than this, a number of tourists have drowned and lost their lives in major tourism areas like beaches, waterfall sites, rivers and dams/reservoirs and in major road accidents. Recently, there has been outbreak of a number of epidemics like Dengue fever, Chikun guniya, Leptospirosis, H1 NI, Avian influenza, Monkey fever etc. in the state especially during the monsoon which has claimed many lives. Natural disasters associated with monsoon like landslides, floods and cyclones have happened in Kerala. Although less in number, Kerala has also reported cases of harassment of women tourists and local crime in destinations coupled with drug mafia and pedophilia.

No research has been conducted so far to analyze the present state of safety and security in Kerala's tourism destinations and to identify the scope for professional Tourism Risk Management. The main objective of this study is to work out the major risks associated with prominent tourism destinations in the state and ascertain the measures taken for minimizing the risks. The study also aims to find out the gaps as well as to suggest better risk management policy. It will address a number of related issues in tourism risk management and will even highlight the scope for a professional risk management authority in the state. This study is perhaps the first of its kind in the state of Kerala and perhaps even in India. The study can be developed as a model to be replicated in other states too.

3. CHAPTER: STUDY AREA PROFILE

3.1. Geography of Kerala

Kerala is geographically boarded on the west by the Arabian Sea and the east by the Western Ghats. Within the graticule $8^{\circ}18'N$ & $12^{\circ}48'N$ and $74^{\circ}52'E$ & $77^{\circ}22'E$, the total land area of state is $38,863 \text{ km}^2$. Kerala experiences humid equatorial tropic climate with an annual rainfall of 3104 m mainly contributed by the South Asian Monsoon system. The state has a coastline of about 590 km with an approximate breadth of 35 to 120 km. The state has a population of 3,33,87,677 (Census, 2011) which translates to about 860 people/km^2 .

Physiographically the state can be divided into four domains from east to west, viz., the Western Ghats, the foothills, the midland and the coastal low-land. The Western Ghats, bordering the eastern boundary of the State, form an almost continuous mountain wall, except near Palakkad where there is a natural mountain pass known as the Palakkad Gap. The average elevation of the Ghats is about 1500 meters above sea level, occasionally soaring to peaks of 2000 to 2500 m. From the Ghats, the land slopes to the west on to the plains, into an unbroken coastline.

The foothills of the Western Ghats comprise the rocky area from 200 to 600m.above MSL. It is a transitional zone between the high -ranges and midland. The strip of hills and valleys on the eastern edge, close to the Ghats, comprises of steep mountains and deep valleys, covered with dense forests. Almost all the rivers of the state originate here. In the Midland Plains of central region, the hills are not very steep and the valleys are wide. This forms an area of gently undulating topography with hillocks and mounds. Laterite capping is commonly noticeable on the top of these hillocks. The low, flat-topped hillocks forming the laterite plateau range in altitude from 30-200m and are observed between coastal low-land and the foothills. The valleys have been developed as paddy fields and the elevated lands and hill slopes are converted into estates of rubber, fruit trees and other cash crops like pepper, arecanut and tapioca. Tea and coffee estates have cropped up in the high ranges during the last two centuries. Coastal low-land is identified with alluvial plains, sandy stretches, abraded platforms, beach ridges, raised beaches, lagoons and estuaries. The low-land and the plains are generally less than 10m above MSL.

The Coastal Belt strip is comparatively plain. Extensive paddy fields, thick groves of coconut trees and picturesque backwaters, interconnected with canals and rivers, are the features of this region. No wonder, Alappuzha an old sea port town of this region is known as the 'Venice of the East'. In the southern and northern parts of the state, the coastal belt also has some small hillocks. There are 44 rivers in the state, of which 41 originate from the Western Ghats and flow towards west into the Arabian Sea. Only three tributaries of the river Cauvery originate in Kerala and flow east into the neighboring States. These rivers and streams



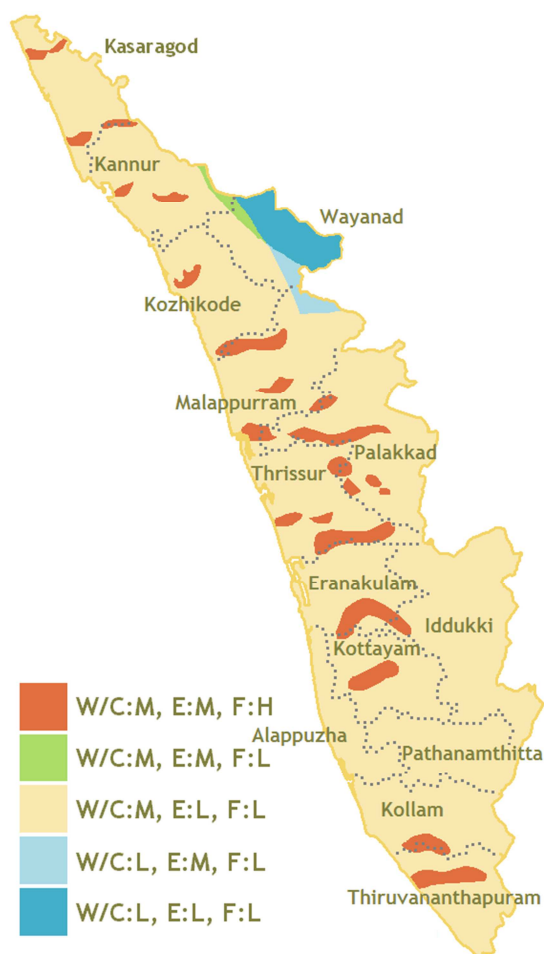
flowing down from the Western Ghats either empty themselves in to the backwaters in the coastal area or directly into the Arabian Sea. As the Western Ghats are nowhere more than 120 kms from the sea, all these rivers are comparatively short.

Kerala is endowed with a variety of soils thanks to the climate, topography, and vegetation characteristics. Laterite and loams form the major soil types of Kerala. The other soil types developed as a result of agro climatic variations include riverine and coastal alluvium, black soils, and problem soils like acid saline, hydromorphic, and greyish Onattukara.

Kerala, located in the humid tropics, is known for green landscape, evergreen forests, serene water bodies, rolling mountains and narrow valleys. With high rainfall, chains of backwater bodies, many rivers, reservoirs, lakes, ponds, springs and wells, the State is considered by many as the land of water. South west monsoon (June to September) and North east monsoon (October to November) are the two monsoon seasons of the State of which South west monsoon is more predominant. About 85% of the annual rainfall receives during the monsoon period between June and November (70% during South west and 15% during the North east monsoon) and the remaining 15% only during the non-monsoon period between December and May as summer showers.

Kerala is the land of monsoons. It is also one of the wettest places in the world, where annual rainfall is of the order of 3000 mm. About 68 per cent of the rainfall is obtained during southwest monsoon while 16 per cent in post monsoon and the rest from summer (14 per cent) and winter rainfall (2 per cent). The occurrence and distribution of rainfall in the State also shows high spatial variations. The Western Ghat regions of Wayanad district receive rainfall higher than the State average (about 3588mm) whereas, it is 2329 mm only in Palakkad district. The regions like Attappady in Palakkad district receives rainfall less than 1000 mm. Due to the steep topography, a major portion of the high rainfall received in short duration drained to sea very fast (within 48 hours), not much to retain on the ground surface. Kerala State in the humid tropics receives an annual average rainfall of about 3062 mm, which is about 2.5 times more than that of national average. (NIDM).

3.2. Risk Profile



The State of Kerala is vulnerable to a number of natural and manmade disasters of repetitive nature resulting in loss of life, property, infrastructure and disruption of economic activities. The State is categorized as a multi hazard prone State and the vulnerability profile also tend to be high. Kerala is prone to high incidence of lightning, and is estimated that about 70 people die every year due to lightning. Seasonal Drought and Vagaries of Monsoon have long time implications in the Disaster Profile of the State considering the geographical space which it acquires every year. About 14.8% of the state is prone to flooding (CESS, 2010). The mountain regions of the state experience several landslides during the monsoon season. It is known that a total of 65 fatal landslides occurred between 1961 and 2009 causing the death of 257 individuals (Kuriakose, 2010). Between 1871-2000, the state experienced 12 moderate drought years. The 570 km long coast line of Kerala is prone to erosion, monsoon storm surges and sea level rise. Kerala is also prone to several

anthropogenic disasters such as road accidents, rail accidents, boat capsizing, industrial accidents, epidemics, pest infestation, stampedes, building collapses and fire accidents.

According to the Indian Human Development Report, 2011, Kerala has a Human Development Index of 0.79 which is the highest in the country. HDI being a composite index of consumption rate (proxy to purchasing power), education and health, is an indicator of the socio-economic vulnerability of the population. The higher the HDI, the higher is the coping capacity, but greater is the cumulative loss potential and thus a higher degree of risk.

3.3. Universe of the Project

Kerala: Multi Hazards Zones Map

Legend

"W/C" = Wind/Cyclone, "E" = Earthquake, "F" = Flood, "H" = High risk, "L" = Low risk, "M" = Medium risk.

The universe of the project is the entire state of Kerala. The state has fourteen districts. The study will concentrate on the top three major destinations in each district that are prone for any risk categories. This number can slightly vary depending on the availability of destinations. The destinations are chosen based on the physiography viz. coastal areas, midland and the highland.

The list of destinations selected in each district and the physiographic regions which it is confined to is given below.

4. Chapter: Data Collection: First Phase

Extensive collection of data has been conducted during first phase, carried out mainly on districts of northern and central Kerala. Second Phase is concentrating on the top three destinations in each district of South of Kerala which are prone for any risk categories. The destinations can be subjected to change depending on its accessibility and availability. The first phase data collection was based on the physiography viz. coastal areas, midland and the highland.

The first phase involved collection of data through observation at destination level to assess the present situation and gaps existing in these places. Photography is also considering as a part of the research analysis. So during the destination visits, research team is using photography as a data collection tool.

The intense and wide-spread data collection prospects a major work, thus the data collection method will also vary with observation related inventory through specially designed indicators, questionnaire survey and interviews with various departments and agencies.

4.1 Contents of Data collection Techniques and tools

Major data collection has been fragmented into three parts of destination inventory, Part- A, Part-B and Part-C.

- Part-A: General Information on Destination
- Part-B: Safety and Security in the Destination
- Part-C: Geospatial Issues in the Destination

4.1.1 Part-A: General Information on Destination

General information of the destination is categorized into eight main divisions detailing basic information and facilities of the destination. Name, location, access, destination management, major attractions, major activities, destination timings, and general facilities which includes from parking to waste management.

4.1.2 Part-B: Safety and Security in the Destination

This category is arranged to evaluate safety requirements and its implementation in the destination. The data collection tool is designed into two sections i) Destination Safety Audit and ii) Activity Safety Audit (where applicable in the government run activities).

- i) Destination Safety Audit: Nearest police station, presence of police aid post in the destination, nearest fire and rescue station, nearest primary health centre/hospital/medical facility, presence of onsite medical facilities in the destination, first aid kit, presence of warning sign boards, CCTV camera surveillance, security staff in the destination, lifeguards/ lifesaving volunteers, lifesaving equipment ranging from life jackets to rescue boat or any other

considering the type of destination, and listing out major issues/ accidents occurred to tourists in the destination (last five years).

- ii) Activity Safety Audit (where applicable in the government run activities): The audit applying to the safety provided for tourism activities provided in destinations such as boating, water sports, aero sports, land based sports, other activities (animal rides, bullock cart rides and jeep safari), and wild life tourism activities. Moreover, the audit is also looking at the attack by wildlife where the incidents are reported or the higher density of wildlife interference in the area of destination. Lastly, the major issues/accidents occurred to tourists while undertaking activities in the destination in last five years.

4.1.3 Part-C: Geospatial Issues in the Destination

Inspecting geospatial issues is the final and vital destination data collection looking at potential natural disasters and hazards linked to a destination. Part-C comprises four sections

- i) Destination profile: Understanding the locality, characteristics and geography of the destination are the main purposes of this section. Destination is divided into highland, midland, and lowland, whereas characteristics are divided into urban and rural. Geography of the destination is determined by considering whether it is plain land, undulated slope/land, valley, water bodies, coastal, mountain terrain, forest, or another kind. This section is mainly oriented to know the physicality of the location to consider possible vulnerability to natural disasters.
- ii) Hazards and Disasters (Nature and Human Induced); is the second section aimed to identify the occurring and prone to, natural and human induced disasters of the location. Number of natural and human induced disasters are listed to get an account from the destination authority and locals. Disasters such as earthquake, landslide, lightning, flood, flash flood, cloud burst, cyclone, tsunami, coastal erosion, forest fire, heat wave, drought, or any other are taken for the gathering of data. In addition to, biological agents are also considered as a step to spot peculiar cases from the destinations involving biological agents which were reported. The natural outbreaks of epidemics or intentional use of biological agents (Viruses/bacteria etc.) through dissemination of micro-organism or toxins in food or water or insect vector or by aerosol, food crops and livestock are subjected to test here.
- iii) Nature of Hazard/Disaster: this section is targeted to assess the severity, frequency and magnitude of the hazard and disaster.
- iv) The fourth and final section is based climatological factors which are collected from secondary data sources on how changes over a decade have resulted in risk factors in the destination

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Developing Barrier Free Destinations – a case study of Thrissur, Kerala

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Abstract:

Being an industry with vast economic potential to improve the visitor experience and increase capacity building within the tourism industry, it is necessary to take into consideration the broader aspects of visitor accessibility. Tourism as a leisure activity must be enjoyed by all which includes persons with special needs. Barrier Free Tourism is not just about giving equal rights to the disabled; it is also about tapping the highly lucrative market of national and international tourists who along with their family members constitute a sizable market. Around 650 million people in the world today are estimated to be living with disabilities, majority of whom are from the top tourism spending countries. Leveraging this market segment will not only help in positioning destinations in a unique way but is also likely to give a competitive edge to the destination over other places since barrier free infrastructure development is a major hurdle for many countries. Although Kerala is a popular destination and is renowned for its pioneering efforts in the development of tourism, it has so far not emphasized the need for comprehensive and authoritarian research relating to barrier free tourism which was emphasized in some of our previous works. Having undertaken access audit in major destinations in the state, some immediate needs for making them inclusive was materialized in Thrissur, hailed as the Cultural Capital of Kerala. The project was implemented in a plethora of destinations including beach, dam site, hilltop picnic spot and parks. This paper summarizes the major features of this model project which can be regarded as the first initiative towards implementing this novel concept in the state.

Key words: Visitor accessibility, Inclusive travel, Assistive technologies, Barrier free Kerala Tourism

Present scenario of Barrier Free Tourism

Currently accessible tourism or barrier free tourism broadly includes adequate transport, differential services, and targeted marketing for the disabled. With an estimated, expected figure of 1.2 billion, there will be an overwhelming preponderance of differently abled in the world by 2020. This market has been emerging from over a decade now but not much concerted effort has gone into tapping its full potential. The major impediments are obviously the lack of understanding about the market segment, its size, socioeconomic and travel-related attributes and the factors constraining these travelers participation in tourism and travel activities.

Daniels et al, in their study in 2005 have mentioned that “travelling contributed to improving the quality of life for people with disabilities in terms of enhancing self-esteem and increasing social adjustment”. Other studies have suggested that “people with disabilities also had the same desire to enjoy traveling and to participate in travel related activities” (Darcy & Daruwalla, 1999; Yar et al., 2004). A 2005 STCRC-funded workshop gave a working definition for accessible tourism “as a process of enabling people with disabilities and seniors to function independently and with equity and dignity through the delivery of universal tourism products, services and environments” (adapted from OCA 1999). This definition includes access for all kinds of disabled people including mobility, vision, hearing and cognitive disabilities (Darcy, 2006, p.4).

Context of Barrier Free Tourism in India

The market segment of reduced mobility groups in India is roughly estimated to be 186.3 million. Even if one-fourth of this is taken as economically significant from tourism angle, it still amounts 46.58 million. India has also adapted to the ‘Biwako Millenium Framework for Action: Towards an inclusive Barrier-Free and Rights-Based Society for Persons with Disabilities in Asia and Pacific’, which encourages and promotes its member countries to focus on seven priority areas including access to build environment and public transport. Moreover, India has launched ‘Sugamya Bharat Abhiyaan’ under Ministry of Social Justice for making the environment barrier free and accessible for the persons with disabilities. In the Indian context, Barrier free tourism is still in its nascent stage and thereby limits the entry of a large segment to most of the destinations. Governments, destination marketers, accommodation providers, transport operators and those responsible for planning destination regions have not been positive and proactive in removing obstacles for the disabled. These require governments, destination marketers, accommodation providers, transport operators and those responsible for planning to create a brand which can be projected as an inclusive destination. As conversion of tourism spots into inclusive destination is a humongous task for developing nations with resource constraints it is required to segment and market selected places.

Barrier Free Kerala Tourism Project

Tourism development in the South Indian state of Kerala in particular, has raised several concerns about the absence of equitable facilities required by differently abled tourists at par with other tourists. Kerala, though has carved its own niche in international tourism is yet to become disable friendly. Government has to concentrate more on developing infrastructure facilities to ensure equitable facilities. The State Commisionerate for persons with disabilities, Government of Kerala requested the Department of Tourism, Government of Kerala for conducting access audit at major destinations and to compile with accessibility standards and guidelines. The Department of Tourism finally launched the ambitious ‘Barrier Free Kerala Tourism’ project with administrative sanction (AS) for an amount of Rs. 9,00,00,000/- (Rupees Nine Crore only) for making nearly hundred destinations across the state access friendly. The amount has been divided and allocated to fourteen districts to be implemented through District Tourism Promotion Councils.

Approach for developing barrier free destinations

The segmentation corresponding to the degree of accessibility proposed has been grouped into three broad categories: Visual (low), Participative (medium) and Experience (high). The respective branding concept also is highlighted in terms of promotion of the destination based on these dimensions (Omkumar & Anita). This categorization has been modified and applied for practically implementing this project.

- **Segment 1 - Visual:** The visual pleasure of visiting and seeing this place has to be projected. These locations are disabled friendly for mobility in reaching different parts of the place. This includes good accessibility till the destination and infrastructure components including accessible toilets, access friendly walkways, and ramps wherever needed for smooth access all around, tactile paths for visually challenged, signage, drinking water, first aid, safety and security measures etc.
- **Segment 2 - Participative:** In these locations all additional facilities required for persons with disabilities will be provided where they are able to feel the same experience like general tourists. Use of Braille brochures, tactile maps, equipments like normal wheel chairs, motorized wheel chairs and beach wheelchairs, assistive technologies including audio guides, augmented and virtual realities, interactive touch screen kiosks etc. will form part of the experience.
- **Segment 3- Experiential:** Compared to the first two segments, each site may have a particular unique experience for the visitor with special needs. This experience may be developed through components envisaged in the first two segments. Where present, these can form the highlight of that destination for persons with disabilities wherein they get a personal assistance with a warm welcome.

Thrust areas for implementing the approach

The approach categories mentioned above have to be implemented in destinations and for these some thrust areas have been identified. It need mandatory guidelines too so that the developments are made

- **Guidelines for making accessible built environment including public spaces:** The Central Public Works Department (CPWD) under the Ministry of Urban Affairs and Employment, have developed guidelines and space standards for barrier free built environment in their 'Handbook on barrier free and accessibility' which also includes model building bye-laws to facilitate adoption of these by local bodies in the state. Similarly, the Ministry of Urban Development has published in detail 'Harmonized guidelines and space standards for barrier free built environment for parsons with disabilities and elderly persons'.
- **Accessible Information:** The tourist service chain should begin with information about destinations and ways to get there without any difficulties. The websites of tourism enterprises including the transport sector and destinations must be accessible also for visually impaired users.

- **Use of Assistive Technology:** This comprises devices and systems used by persons with disabilities or elderly people to overcome barriers to independence and full participation (Hersh and Johnson 2008). Use of assistive technologies are many and varied now and can include motorized and beach wheel chairs, sensor controlled walking sticks, Braille brochures, tactile maps, audio guides, augmented and virtual reality experiences, touch screens etc. It also involves personal assistance from another person in carrying out activities as well as readiness to provide practical support.
- **Training:** Training forms an important component of making a barrier free destination as it only can bring out the real inclusiveness through the intangible component. It is to be imparted to both persons with disabilities as well as staffs in destinations. Firstly, orientation and mobility (O&M) training is used to teach people with disabilities the new skills required to understand their environments and enable them to travel independently and safely (Gense and Gense 2004; Welsh 1981). It includes training in the effective use of all their available senses to understand and represent their environment, training in the use of mobility aids etc. Secondly, the sensitization training is imparted to staff in the destination or in properties on providing professional assistance to persons with disabilities visiting the destinations. Sensitive and willing staff with the right attitude and strong interpersonal skills can overcome many of the barriers that persons with disabilities face and turn what may be perceived as an inaccessible property into an accessible one.

Case study of Thrissur District

Thrissur, the cultural capital of Kerala is located almost in the central part of God's Own Country. With a heritage that blends past spirituality and tradition with the rush of the modern, it is a destination waiting to be unraveled. From ancient times, this district with its cultural heritage and archaeological wealth has played a significant role in the political history of South India. Thrissur offers all tourism products of Kerala including secluded beaches, serene backwaters, mesmerizing cascades, pristine highlands; enchanting forests, a number of dams and reservoirs, exotic rural life and lot more dot the verdant landscapes of Thrissur. It is a masterpiece of tangible and intangible heritage with its world renowned 'Thrissur Pooram', colorful festivals, art forms, cultural edifices and crafts.

The Department of Tourism has allotted Rs. 73, 51,500/- (Rupees Seventy three lakhs fifty one thousand and five hundred only) towards implementation of 'Barrier Free Kerala Tourism' project in Thrissur District in ten places. The selected locations are Snehatheeram Beach Park, Vilangankunnu Park, Peechi dam garden, Park at Vazhani dam, Park at Munakkal Beach, Poomala dam garden, Athirappilly – Vazhachal site, Ramavarma Maharaja Park, Chavakkad Beach Park and Enamavu Nehru Park. Basic infrastructure in six destinations including accessible toilets, drinking water, wheelchairs etc. was mainly created utilizing the fund sanctioned under 'Green Carpet' scheme during the year 2016 - 2017. Similarly, in three to four destinations, already major project work sanctioned is ongoing which involves incorporation of features for persons with disabilities. The work in such destinations has been proposed to be undertaken as part of the ongoing project. All other

amenities needed for persons with disabilities as mentioned in the three segments were undertaken in this work. The detailed estimate for the amount sanctioned for the project has been prepared under two heads by two competent agencies. The work includes civil work comprising infrastructure development and digital work including audio / video guides and public information system. The civil work has been done by Kerala State Nirmithi Kendra (KESNIK) which has undertaken most of the 'Green Carpet' works as well as other major development projects in the district. The digital work has been executed by Kerala State Electronics Development Corporation (KELTRON) which is a major public sector undertaking in this field. The detailed work done as per the three segment categories have been listed below:

Work done destinations

No.	Destination	Visual	Participative	Experiential
1	Azheekkode Beach	<p>Munakkal</p> <p>Completed</p> <ul style="list-style-type: none"> • Accessible toilet • 1300 m fully accessible pathway with 16 ramps • 7 accessible rain shelters • 340 m tactile pathway to beach • Three drinking water fountains • First aid with stretcher • Signage <p>Proposed</p>	<ul style="list-style-type: none"> • Touch screen kiosk • Braille brochures • Tactile map • Normal wheel chair and beach wheel chair 	<ul style="list-style-type: none"> • Board walk to beach • Wheelchair accessible Chinese fishing net (unique item)
2	Peechi Dam	<p>Completed</p> <ul style="list-style-type: none"> • Two accessible toilets • Lactation room • Three drinking water fountains 	<ul style="list-style-type: none"> • Touch screen kiosk • Braille brochures • Tactile map 	<ul style="list-style-type: none"> • Access to dam top for persons with disabilities

- Signage
- Two wheelchairs
- Signage

Proposed (Under ongoing major project)

- Fully accessible lower and oval garden
- Audio guide
- Motorized wheel chair

3 Poomala Dam and Boating Centre

Completed

- Accessible toilet
- Braille brochures
- Ramps to office, hall and boating area
- Tactile map
- 75 m tactile pathway to office and toilet
- Wheel chair
- Drinking water fountain
- Signage

Proposed (Under sanctioned major project)

- Accessible open space
- Accessible food court
- Accessible boating

4 Snehatheeram Beach

Completed

- Accessible toilet
- Touch screen kiosk
- Three ramps to ticket counter, park and lactation room and stage
- Braille brochures
- 210 m tactile pathway to ticket counter, beach front benches and toilet
- Tactile map
- Wheel chair
- Beach facing accessible benches
- First aid and stretcher
- Signage

Proposed

- Disable friendly

children's park

5 Vazhani Dam

Completed

- Accessible toilet
- Lactation room
- 9 ramps to make the area accessible
- Fully accessible garden, park and pool side walk
- 550 m tactile path
- Accessible amphitheatre
- Three accessible drinking water fountains
- Signage
- Touch screen kiosk
- Braille brochures
- Tactile map
- Normal and motorized Wheel chair
- Fully accessible dam top and garden

Proposed (Under sanctioned major project)

- Audio guide
- Musical fountain which can be enjoyed by all

6 Vilangankunnu

Completed

- Accessible toilet
- 800 m circular accessible walkway
- Lactation room with ramp
- Accessible rest place and benches
- Drinking water fountain
- First aid
- Signage – board and normal
- Accessible food court
- Touch screen kiosk
- Braille brochures
- Tactile map
- Normal and motorized wheelchairs
- Wheel chair accessible sunset view point

Proposed

- Audio guide and sensory guide path
- Making butterfly garden into garden of senses

- AR & VR

Work proposed destinations

No.	Destination	Visual	Participative	Experiential
1	Athirappilly – Vazhachal site (some components proposed under ongoing project in DTPC site)	<ul style="list-style-type: none"> • Accessible toilet at DTPC site • Ramp to roadside view point 	<ul style="list-style-type: none"> • Touch screen kiosk already provided 	<ul style="list-style-type: none"> • A detailed project has to be made studying global examples to make it access friendly.
2	Chavakkad Beach (under ongoing project)	<ul style="list-style-type: none"> • Accessible digital toilet • Ramp to existing pathway 	<ul style="list-style-type: none"> • Wheelchair 	
3	Enamavu Nehru Park (under proposed project)	<ul style="list-style-type: none"> • Accessible toilet • Accessible park 	<ul style="list-style-type: none"> • Wheelchair 	
4	Nattika Beach (done – others to be planned)	<ul style="list-style-type: none"> • Accessible toilet available • Ramp to enter leisure area provided 		
5	Sree Ramavarma Maharaja Park, Thrissur (to be planned)	<ul style="list-style-type: none"> • Under Thrissur Corporation and Behsad Group; Accessible leisure area 		
6	Thumboormoozhi River Garden	<ul style="list-style-type: none"> • Accessible toilet • Accessible bridge and new pathway and park area • Two drinking water fountains already provided • First aid and stretcher available 	<ul style="list-style-type: none"> • Touch screen kiosk already provided • Braille brochure available • Tactile map provided • Wheelchair available 	<ul style="list-style-type: none"> • Accessible view point in children's park • Accessible view point near bridge • Accessible hanging bridge – unique attraction

Listing and promotion

After creating all necessary basic amenities and making these destinations barrier free, it is essential to deliver the message among the targeted visitors. Also, some promotional activity has to be done for creating awareness and publicity. District Tourism, Thrissur also has taken initiatives for the same through campaigns and listings.

Campaigns: Thrissur is one of the first to create basic infrastructure for differently abled in destinations including ramps and accessible toilets. After the first round of creating facilities under the Green Carpet scheme, three campaigns were organized in three destinations in association with Thrissur Municipal Corporation, Thrissur Association of persons with disabilities and ESAF. The first event was held on World differently abled day on December 3rd 2017 at Vazhani followed by another event at Poomala on January where nearly hundred persons with special needs attended. On May 22nd 2018 'Beach for All' was conducted at the newly inaugurated Nattika beach.

Listings: District tourism Thrissur has become accredited listed service provider of PANTOU (Promoting Accessible Tourism around the World), an initiative of ENAT (European Network for Accessible Tourism). It is the first Government level body in the country to have been listed in the above site. With these, the District Tourism has also launched pre booked a one day Barrier Free Tour in the district connecting inclusive destinations. With the completion of the second round of project, the accessible facilities created will be listed in major apps and websites like wheel map, route for you etc. In the next phase path finding audio guides, enriched contents through augmented and virtual realities will also be uploaded in general apps for the benefit of tourists with special needs.

Conclusion

The works implemented in Thrissur has been the first organized implementation of Barrier Free Tourism in the state. The project has tried maximum to incorporate components and create inclusive destinations in the district. Barrier free destinations in Thrissur have become a role model for other sites to emulate in Kerala. This has been achieved through a series of research that has been undertaken. Further analysis and studies can help to take this concept to further global levels.

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Perception of Tourists towards Eco-Hotels and Its Relation to Promotion of Sustainable Tourism in Kerala State

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Abstract

Nowadays, tourists give greater attention and concern on environment and want to reduce negative effects of traditional tourism on environment to improve cultural, social and environmental integrity of tourism. Meanwhile, environment friendly hotels are also an inseparable component of sustainable tourism activities. More than two fifth of tourists have moderate level of perception towards eco-hotels. Significant difference is prevailing among perception towards eco-hotels and profile of tourists. The perception of tourists towards eco-hotels has positive, significant and moderate relation with promotion of sustainable tourism. To improve perception of tourists towards eco-hotels and promotion of sustainable tourism, eco-hotels should get environmental accreditation from competent authority and they must have communication with tourists in eco-friendly ways. Besides, eco-hotels should offer green loyalty programmes for tourists. In addition, eco-hotels must adopt green practices as effective strategies in order to promote sustainable and eco-friendly tourism.

Key Words: Eco-Hotels, Perception, Promotion, Sustainable Tourism, Tourists

Main Conference Topic: Sustainability, Environment and Risk Management

Introduction

As awareness on environment increases among people, many organizations have introduced environment friendly products and services (Hengky, 2011) including hotel industry. Most of predominant hotels across the globe have adopted environmental friendly practices to give tourists opportunities to reduce their damage on environment especially in tourism destinations (Gao & Mattlia, 2014). Environment friendly practices carry different kinds of benefits namely reduction in consumption of energy and cost for operations, attaining competitive advantage and improving image of hotel among tourists (Penny, 2007). Presently, environment friendly practices are important promotional strategies for hotels in a stiff competitive hotel business (Han et al. 2010). At the same time, tourists are also demanding environment friendly products and services from hotels.

Even though tourists have favourable feelings on environment friendly products and services, they are not ready to spend additional money for them all the time because they think environment friendly practices as social and environmental responsibility of hotels (Lita et al. 2014). Nowadays, tourists give greater attention and concern on environment and want to reduce negative effects of traditional tourism on environment to improve cultural, social

and environmental integrity of tourism. Meanwhile, environment friendly hotels are also an inseparable component of sustainable tourism activities. The practices of environment friendly hotels will promote sustainability of tourism, local communities, culture and economic actions in tourist places. Thus, it is essential to study perception of tourists towards eco-hotels and its relation to promotion of sustainable tourism in Kerala state.

Related work

Tourists were interested in energy and water saving facilities, fire and environmental friendly features, recycling of wastes and information on eco friendly tourism destinations (Rivers et al.1991). Tourists were highly aware and caring the environment but they did not concern about strategies for environmental conservation while selecting hotel (Kasim, 2004). Tourists had positive perception towards green lighting system and certification, while, they had negative perception on refillable soaps and disposal of shampoo containers (Millar & Baloglu, 2011).

Guests perceived positive for eco-friendly or green practices of hotel and they were ready to pay premium prices for it and highly educated guests inclined towards eco-friendly practices of hotel (Kang et al. 2012). The intention of guests to revisit the hotel which was determined eco-friendly and sustainable practices of hotels such as use of materials from local market, supply of green products and energy saving and eco-friendly bulbs and eco-friendly environment of hotel(Berezan et al. 2013).

Environment friendly practices related to energy and water saving practices and solid waste management followed by hotels were considered and accepted by tourists (Manaktola & Jauhari, 2007). Green hotels purchased energy efficient instruments and equipment, locally produced eco-friendly materials to reduce impacts on transportation and involved in environmental conservation programmes (Schubert et al. 2010). Hotels followed programmes on recycling of wastes and re-use of towels and bed sheets, eco-friendly room and bathroom facilities and eco-friendly lighting and accreditation for sustainable development of hotels and tourism (Kim et al. 2011).

Consumers perceived that eco-friendly practices had positive impacts on environment and they were ready to pay extra prices for eco-friendly products and services (Sudhagar, 2015). Green characterizes namely energy saving lights rooms, recycle waste bins in the room and lobbies and green accreditation were positively perceived by guests of hotels (Verma & Chandra, 2016), while, guests were not perceived positively about reuse of towel, dispersers of shampoo pockets and bed sheets in hotels.

Sustainable development of tourism was influenced by effective use of cultural, social, economical and environmental resources and it provided specific experiences to tourists in terms of products and services offered by eco-friendly hotels (Rukuiziene, 2014). The development of eco-hotels had significant impact on sustainable development of tourism and no significant impact of eco-hotels on sustainable tourism development among socio-economic profile of excluding gender of tourists (Masa'deh et al. 2017).

Methodology

The present research is done in Kerala state. Tourists are chosen by using convenience sampling method and structured questionnaire is used to collect data from 300 tourists. Percentages are worked out to understand profile of tourists and mean and standard deviation are calculated for perception of tourists towards eco-hotels. The t-test and F-test are done to scrutinize difference among profile of tourists and their perception towards eco-hotels. The correlation analysis is carried out to study relation among perception towards eco-hotels and promotion of sustainable tourism.

Results

Profile of tourists

The profile of tourists is given in Table 1. The findings disclose that 61.33 per cent of tourists are domestic tourists, whereas, 38.67 per cent of them are foreign tourists and 57.33 per cent of them are males, whereas, 42.67 per cent of them are females. The findings exhibit that 30.33 per cent of tourists are coming under age category of 31– 40 years, whereas, 12.00 per cent of them are coming under age category of above 50 years and 40.67 per cent of them are having college education, whereas, 24.33 per cent of them are having informal education. And 40.00 per cent of tourists are having monthly income of Rs.35,001 – Rs.45,000, whereas, 11.00 per cent of them are having monthly income of above Rs.45,000.

Table1: Profile of tourists

Profile	Number of Tourists	Percentage
Type of Tourist		
Domestic	184	61.33
Foreign	116	38.67
Gender		
Male	172	57.33
Female	128	42.67
Age Category		
Less than 20 Years	43	14.33
21 – 30 Years	83	27.67
31– 40 Years	91	30.33
41 – 50 Years	47	15.67
More than 50 Years	36	12.00

Education		
Informal	73	24.33
School	105	35.00
College	122	40.67
Monthly Income		
Below Rs.25,000	46	15.33
Rs.25,001 – Rs.35,000	101	35.67
Rs.35,001 – Rs.45,000	120	40.00
Above Rs.45,000	33	11.00

Perception of tourists towards eco-hotels

The perception of tourists towards eco-hotels is given in Table 2.

Table 2: Perception of tourists towards eco-hotels

Perception	Mean	Standard Deviation
Eco-hotels use environment friendly materials	3.96	0.87
Eco-hotels provide environment friendly food	3.92	0.86
Eco-hotels have environmental accreditation	3.31	0.98
Eco-hotels have greeneries in their premises	3.90	0.95
Eco-hotels handle wastes in eco-friendly manner	3.87	0.89
Eco-hotels have eco-friendly communication	3.34	0.83
Eco-hotels have harmonization with environment	3.84	0.91
Eco-hotels have eco-friendly interior decorations	3.81	0.99
Eco-hotels provide pollution free environment	3.85	0.80
Eco-hotels have green loyalty programmes	3.37	0.78

The tourists agreed with eco-hotels use environment friendly materials, eco-hotels provide environment friendly food, eco-hotels have greeneries in their premises, eco-hotels handle wastes in eco-friendly manner, eco-hotels have harmonization with environment, eco-hotels have eco-friendly interior decorations and eco-hotels provide pollution free

environment, while, they are neutral with eco-hotels have environmental accreditation, eco-hotels have eco-friendly communication and eco-hotels have green loyalty programmes.

Distribution of tourists based on perception towards eco-hotels

The distribution of tourists based on perception towards eco-hotels is given in Table 3. The perception of tourists towards eco-hotels is segmented into low, moderate and high levels based on Mean \pm SD. Mean and SD are 33.82 and 3.65 respectively.

Table 3: Distribution of tourists based on perception towards eco-hotels

Level of Perception towards Eco-Hotels	Number of Tourists	Percentage
Low	66	22.00
Moderate	127	42.33
High	107	35.67
Total	300	100.00

Out of 300 tourists, 42.33 per cent of tourists are having moderate level of perception towards eco-hotels following by high level (35.67 per cent) and low level (22.00 per cent).

Type of tourist and perception towards eco-hotels

The relation among type of tourists and perception towards eco-hotels in is given in Table 4.

Table 4: Type of tourist and perception towards eco-hotels

Type of Tourist	Level of Perception towards Eco-Hotels			Total	t-Value	Sig.
	Low	Moderate	High			
Domestic	44 (23.91)	72 (39.13)	68 (36.96)	184 (61.33)	6.420	.000
Foreign	22 (18.97)	55 (47.41)	39 (33.62)	116 (38.67)		
Total	66 (22.00)	127 (42.33)	107 (35.67)	300 (100.00)	-	-

The figures in the parentheses are per cent to total

Out of 184 domestic tourists, 39.13 per cent of them are having moderate level of perception towards eco-hotels following by high level (36.96 per cent) and low level (23.91

per cent). Out of 116 foreign tourists, 47.41 per cent of them are having moderate level of perception towards eco-hotels following by high level (33.62 per cent) and low level (18.97 per cent).

The t-value of 6.420 is explaining significant difference exists in perception towards eco-hotels among type of tourists at one per cent level.

Gender and perception towards eco-hotels

The relation among gender of tourists and perception towards eco-hotels is given in Table 5.

Table 5: Gender and perception towards eco-hotels

Gender	Level of Perception towards Eco-Hotels			Total	t-Value	Sig.
	Low	Moderate	High			
Male	42 (24.42)	62 (36.05)	68 (39.53)	172 (57.33)	5.182	.000
Female	24 (18.75)	65 (50.78)	39 (30.47)	128 (42.67)		
Total	66 (22.00)	127 (42.33)	107 (35.67)	300 (100.00)	-	-

The figures in the parentheses are per cent to total

Out of 172 male tourists, 39.53 per cent of them are having high level of perception towards eco-hotels following by moderate level (36.05 per cent) and low level (24.42 per cent). Out of 128 female tourists, 50.78 per cent of them are having moderate level of perception towards eco-hotels following by high level (30.47 per cent) and low level (18.75 per cent).

The t-value of 5.182 is explaining significant difference exists in perception towards eco-hotels among gender of tourists at one per cent level.

6.3.3. Age Category and perception towards eco-hotels

The relation among age category of tourists and perception towards eco-hotels is given in Table 6.

Table 6: Age Category and perception towards eco-hotels

Age Category	Level of Perception towards Eco-Hotels			Total	F-Value	Sig.
	Low	Moderate	High			
Less than 20 Years	7 (16.28)	19 (44.19)	17 (39.53)	43 (14.33)	7.028	.000
21 – 30 Years	16 (19.28)	41 (49.40)	26 (31.32)	83 (27.67)		
31– 40 Years	21 (23.08)	30 (32.97)	40 (43.95)	91 (30.33)		
41 – 50 Years	13 (27.66)	24 (51.06)	10 (21.28)	47 (15.67)		
More than 50 Years	9 (25.00)	13 (36.11)	14 (38.89)	36 (12.00)		
Total	66 (22.00)	127 (42.33)	107 (35.67)	300 (100.00)	-	-

The figures in the parentheses are per cent to total

Out of 43 tourists belong to age category of less than 20 years, 44.19 per cent of them are having moderate level of perception towards eco-hotels following by high level (39.53 per cent) and low level (16.28 per cent). Out of 83 tourists belong to age category of 21 – 30 years, 49.40 per cent of them are having moderate level of perception towards eco-hotels following by high level (31.32 per cent) and low level (19.28 per cent).

Out of 91 tourists belong to age category of 31 – 40 years, 43.95 per cent of them are having high level of perception towards eco-hotels following by moderate level (32.97 per cent) and low level (23.08 per cent). Out of 47 tourists belong to age category of 41 – 50 years, 51.06 per cent of them are having moderate level of perception towards eco-hotels following by low level (27.66 per cent) and high level (21.28 per cent). Out of 36 tourists belong to age category of more than 50 years, 38.89 per cent of them are having high level of perception towards eco-hotels following by moderate level (36.11 per cent) and low level (25.00 per cent).

The F-value of 7.028 is explaining significant difference exists in perception towards eco-hotels among age category of tourists at one per cent level.

Education and perception towards eco-hotels

The relation among education of tourists and perception towards eco-hotels is given in Table 7.

Table 7: Education and perception towards eco-hotels

Education	Level of Perception towards Eco-Hotels			Total	F-Value	Sig.
	Low	Moderate	High			
Informal	17 (23.29)	30 (41.09)	26 (35.62)	73 (24.33)	6.409	.000
School	16 (15.24)	50 (47.62)	39 (37.14)	105 (35.00)		
College	33 (27.05)	47 (38.52)	42 (34.43)	122 (40.67)		
Total	66 (22.00)	127 (42.33)	107 (35.67)	300 (100.00)	-	-

The figures in the parentheses are per cent to total

Out of 73 tourists possessing informal education, 41.09 per cent of them are having moderate level of perception towards eco-hotels following by high level (35.62 per cent) and low level (23.29 per cent). Out of 105 tourists possessing school education, 47.62 per cent of them are having moderate level of perception towards eco-hotels following by high level (37.14 per cent) and low level (15.24 per cent). Out of 122 tourists possessing college education, 38.52 per cent of them are having moderate level of perception towards eco-hotels following by high level (34.43 per cent) and low level (27.05 per cent).

The F-value of 6.409 is explaining significant difference exists in perception towards eco-hotels among education of tourists at one per cent level.

Monthly Income and perception towards eco-hotels

The relation among monthly income of tourists and perception towards eco-hotels is given in Table 8.

Table 8: Monthly Income and perception towards eco-hotels

Monthly Income	Level of Perception towards Eco-Hotels			Total	F-Value	Sig.
	Low	Moderate	High			
Below Rs.25,000	15 (32.61)	18 (39.13)	13 (28.26)	46 (15.33)	3.691	.012
Rs.25,001 – Rs.35,000	25 (24.75)	47 (46.54)	29 (28.71)	101 (35.67)		
Rs.35,001 – Rs.45,000	18 (15.00)	46 (38.33)	56 (46.67)	120 (40.00)		
Above Rs.45,000	8 (24.24)	16 (48.49)	9 (27.27)	33 (11.00)		
Total	66 (22.00)	127 (42.33)	107 (35.67)	300 (100.00)	-	-

The figures in the parentheses are per cent to total

Out of 46 tourists fall under monthly income of below Rs.25,000, 39.13 per cent of them are having moderate level of perception towards eco-hotels following by low level (32.61 per cent) and high level (28.26 per cent). Out of 101 tourists fall under monthly income of Rs.25,001 – Rs.35,000, 46.54 per cent of them are having moderate level of perception towards eco-hotels following by high level (28.71 per cent) and low level (24.75 per cent).

Out of 120 tourists fall under monthly income of Rs.35,001 – Rs.45,000, 46.67 per cent of them are having high level of perception towards eco-hotels following by moderate level (38.33 per cent) and low level (15.00 per cent). Out of 33 tourists fall under monthly income of above Rs.45,000, 48.49 per cent of them are having moderate level of perception towards eco-hotels following by high level (27.27 per cent) and low level (24.24 per cent).

The F-value of 3.691 is explaining significant difference exists in perception towards eco-hotels among monthly income of tourists at one per cent level.

Relation among perception of tourists towards eco-hotels and promotion of sustainable tourism

The relation among perception of tourists towards eco-hotels and promotion of sustainable tourism was studied by using correlation analysis and the results are given in Table 9.

Table 9: Relation among perception of tourists towards eco-hotels and promotion of sustainable tourism

Particulars	Correlation Co-efficient
Perception of Tourists towards Eco-Hotels and Promotion of Sustainable Tourism	0.53**

**** indicates significant at one per cent level**

The correlation coefficient between perception of tourists towards eco-hotels and promotion of sustainable tourism 0.53, it is positively and moderately associated at one per cent level of significance.

Conclusion

The above findings elucidate that more than two fifth of tourists have moderate level of perception towards eco-hotels. Significant difference is prevailing among perception towards eco-hotels and profile of tourists. The perception of tourists towards eco-hotels has positive, significant and moderate relation with promotion of sustainable tourism. To improve perception of tourists towards eco-hotels and promotion of sustainable tourism, eco-hotels should get environmental accreditation from competent authority and they must have communication with tourists in eco-friendly ways. Besides, eco-hotels should offer green loyalty programmes for tourists. In addition, eco-hotels must adopt green practices as effective strategies in order to promote sustainable and eco-friendly tourism.

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Sustainable Marketing Practices for Successful Tourism in World Heritage Sites

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Abstract:

Tourism sustainability is important to understand in order to address short term goals of competitiveness in the tourism market and achieving long term success in maintenance and preservation of the heritage sites. Designation as a World Heritage site brings increased tourist flow generating income through ticket sales, concessions and associated tourism amenities such as restaurants and hotels. Heritage sites bring a certain level of prestige and international recognition, but they also have an impact on the local communities as they impact day to day life and rituals of the residents. The success of a site must balance its visitation and preservation. Marketing strategies can affect both the popularity of a World Heritage site as well as create an expectation of the tourist experience. The marketing segment of this tourist field is interesting to explore from both the tourist perspective and the impact on preservation efforts. Marketing recommendation will provide steps towards the UNESCO World Heritage site can follow to create a balance between use and sustainability.

Key words: Heritage, marketing, sustainable, tourism, local, community

INTRODUCTION:

Heritage sites bring a certain level of prestige and international recognition, but they also have an impact on the local communities as they impact day to day life and rituals of the residents. Several paradigms exist in evaluating the success of a UNESCO World Heritage site. This paper specifically examines how marketing strategies bolster sustainable tourism efforts. Designation as a World Heritage site brings increased tourist flow generating income through ticket sales, concessions and associated tourism amenities such as restaurants and hotels. As a particular World Heritage site gains attention, positive benefits increase in the areas of publicity, government support and donations. However, simultaneously growing concerns may also arise about the impact of tourist levels on the overall sustainability of the site for future generations. Ironically the growth in tourists may adversely affect sustainability efforts. So, positive effects of designation can frequently result in a negative impact upon these treasured sites. The success of a site must balance its visitation and preservation. Marketing strategies can affect both the popularity of a World Heritage site as well as create an expectation of the tourist experience. The marketing segment of this tourist field is interesting to explore from both the tourist perspective and the impact on preservation efforts. Marketing recommendation will provide steps a UNESCO World Heritage site can follow to create a balance between use and sustainability.

Tourism sustainability is important to understand in order to address short term goals of competitiveness in the tourism market and achieving long term success in maintenance and preservation of the heritage sites. It is as important to understand the historical and cultural significance of sites as it is to understand the economic and social influences at the locations. An additional constraint is related to the type of sites available; natural, cultural or mixed designation.

Sustainable Tourism Marketing - A strategy whereby the objectives are to understand the interaction between the organization managing a site and surrounding natural forces, on approach to create a social, economic and environmentally balanced forum (Gilmore et al., 2007).

Visitor Management - Are techniques that aim to reduce the visitors' physical impact on a heritage site. Visitors impact the sites by their sheer number, length of visit and visitor behaviors such as flash photography, parking cars and walking patterns (Shackley, 1998).

World Heritage site list status was more important in tourism marketing than conservation efforts. Heritage preservation has a tentative relationship with tourism because World Heritage sites seem to be deteriorating. Professionals were also concerned with the indefinite expansion of the World Heritage brand. This was more important to the professionals than worrying about the lack of representation in different member countries. The credibility of the listing is linked to the amount of expansion. Future debates and research seem to fall on the issue of unbalanced representation by regions.

Relationship between Visitor Management and Marketing:

A relationship exists between marketing and visitor management at World Heritage sites. Tourism viewed as successful only on the merits of increase visitors numbers can in fact prove detrimental to the sites if increased visitor numbers puts a strain on site preservation. Ideally marketing efforts should satisfy visitor needs at the same time as preserving the sites for future generations. Mr. Fullerton, et al., 2010 proposed demarketing, in essence discouraging a certain class of visitor from site visitation; as a means for increasing preservation. Demarketing is considered as an important branch of marketing and should not be considered the opposite of marketing (Beeton & Benfield, 2010). Three types of demarketing were identified: general, selective and ostensible (Fullerton, et al., 2010). General demarketing occurs when total demand is decreased. Selective demarketing occurs when certain market segments are discouraged. Ostensible demarketing creates a scarcity of product and therefore greater demand.

Five demarketing tools were highlighted by the authors. The first is educating potential visitors, second marketing to desirable markets, third publicizing other sites as alternatives followed by limiting sites seasonally and finally making access to fragile areas difficult. Implementing the five demarketing tools is beneficial to assisting sustainability efforts.

Brand Equity

Brand awareness provides an identity to the user and can evoke a sense of trust and loyalty (Misiura, 2006). Brand awareness relies on several factors based on loyalty, perceived quality, associations and awareness (Portia, Reichel, & Cohen, 2011). The World Heritage site name can be regarded as a brand. The branding of UNESCO World Heritage sites allows for a set of associations and expectations to be created. The UNESCO brand also evoked certain feelings or perceptions by customers. Brand awareness is a marketing tool for UNESCO World Heritage sites.

Sustainable Tourism Practices

Marketing of tourism in a sustainable manner can be viewed as a paradigm shift (Jamrozy, 2007.) It was not until the mid-1980's that sustainable marketing theory and concern for green practices arose. The author argues that tourism marketing can be integrated in such a manner as to not disrupt the natural sustainability of the surroundings. Managing tourism sustainability becomes a macro function where interactions and independent roles play into the larger tourism system. Sustainable tourism by definition addresses the needs of present visitors at the same time as preserving destinations for future generations (Hawkins, 1998). The sustainable marketing model takes into consideration three categories: Society, the environment and the economy; combining green and economical marketing as well as considering the societal influences. Three factors comprised the sustainable tourism marketing. First an understanding that tourism is a phenomenon of sustainable living practices. Second connecting stakeholders to the tourism system. Third, and last, achieving sustainable marketing goals through both profit and non-profit institutions.

Challenges to Sustainability:

Tourists who are attracted to the center of the city and being around the buzz of action yet abstaining from contributing to the city in the form of money paid for amenities or attractions. Many of these tourists stay at hotels outside the city and eat at outlying areas, therefore contributing to the rural communities as opposed to the city itself. This trend threatens the sustainability of the city. Signs of oversaturation include strains on resources such as roads, buildings and parking areas. In addition the annual viability of attractions is affected because tourist patterns are unpredictable based on day trippers.

Sustainable Tourism Plan

The World Heritage name has become a top brand for tourism. The growth in tourists leads to the importance of developing a sustainable marketing strategy. Sustainable tourism marketing addresses the dichotomy between social and economic needs and the environmental perspective. For the World Heritage site to be viable it should incorporate a well-managed plan to account for financial needs of sustaining the site and environmental needs have doing no harm for future site existence. World Heritage sites are supported by tourism entities such as transportation, accommodations, facilities and other managed attractions. The amount of service provided is directly linked to the site sustainability. Three

perspectives evolved: focus on conservation, focus on increasing tourist levels and focus on developing visitor facilities. The study indicated the need for the implementation of a plan for strategic sustainable tourism marketing management taking into consideration the needs of each of the three perspectives. Collaboration between local and government entities as well as a stronger marketing plan could contribute to improved sustainability.

Admission Prices as a Strategy for Sustainability:

Pricing and admissions rates were both illustrated as means for achieving sustainable tourism. A challenge facing many World Heritage sites is a lack of funding to keep up with conservation and restoration needs. As a result many sites have introduced aggressive marketing strategies to increase visitation thereby increasing revenue from admission prices. This strategy puts a strain on the sites because overcrowding can cause faster deterioration to the sites. Increasing fees provides for an increase in revenue at the same time as placing a value on the visitation process. Increased fees can discourage casual tourists who may contribute to damaging the site. In addition the increased fees can be used to better educate visitors about conservation needs.

Marketing Recommendations

Marketing strategies can address the dual need for promotion of World Heritage sites in conjunction with preservation of the sites. A balance is necessary between sustainability and visitor demand. A marketing plan that takes into consideration sustainability efforts can be beneficial for World Heritage site preservation.

Based on the study the following are recommended strategies for sustainable tourism marketing:

- Demarketing.
- Promotion.
- Developing Brand Awareness.
- Agency Collaboration.
- Cooperation between Benefiting Parties.
- Price Strategy.
- Marketing Sustainability.

By implementing one or more of these strategies UNESCO World Heritage sites can simultaneously contribute to the short term success and increase long term sustainability of their sites.

Demarketing:

Demarketing is an effective mechanism for controlling the number and quality of visitors at World Heritage sites. Demarketing, discourages a certain class of visitor from site visitation. Demarketing by definition is not the opposite of marketing which deals with an

ever expanding market with an unlimited supply of product; instead demarketing is an intrinsic aspect of marketing management.

In addition five strategies are recommended to utilize demarketing. General demarketing occurs when total demand is decreased. From a marketing perspective this can occur when advertising costs are decreased; leading to a reduction in promotion and distribution of information. In addition messages can be created within existing brochures to discourage tourists from visiting or not to visit during certain peak times (Leask & Fyall, 2006). Selective demarketing occurs when certain market segments are discouraged. By selectively decreasing the number of tourists the site can be more easily preserved for future generations. Cyprus has used selective demarketing to discourage young, rowdy tourists from visiting its historic countries sites (Beeton & Benfield, 2010). Promotion was the first step by marketing to certain types of tourists. Next marketing focused on deliberate sites and experiences and did not promote nightclubs, shopping or other amenities which attract younger crowds. In addition pricing became a factor with wholesalers being discouraged to discount prices. Ostensible demarketing refers to creating a scarcity of product and therefore promotes greater demand. Ostensible demarketing offers the appearance of asking for a reduction in demand at the same time stimulating a greater desire for the product (Fullerton et al., 2010). This method of demarketing can allow an alternate site to promote itself while allowing the primary site a reduction in tourist impacts. By tourists visiting an alternate but comparable site they can satisfy their needs for a cultural experience while allowing the primary site a period of rest from tourist demands.

Five strategies are recommended to utilize demarketing (Fullerton, McGettigan, & Stephen, 2010). The first is educating potential visitors; this can be done through educational material, or by experiences, or through specific instructions at the site entrance. Educating visitors allows for information about the sites preservation needs to be passed on as well as reinforcing sustainable practices. Second, marketing to desirable markets, this strategy allows sites to attract conscientious visitors. The goal of demarketing is not always to discourage and decrease the number of tourists, but to increase the number of conscientious tourists treating the site with respect. The third demarketing method is to publicize other sites as alternative destinations; this would spread the number of tourists over a broader area decreasing environmental impact on one particular site. This method requires cooperation with other World Heritage sites, and is particularly effective in condensed areas such as in England or France where several sites are found in close proximity. The fourth initiative is to utilize a seasonal schedule for access. This allows tourists to visit during certain parts of the year, while also allowing the site "off season" time for preservation efforts to take place. Fifth, and last, sites can choose to make access to fragile areas difficult or restricted. Caple (2000) informed of specific preservation needs based on site specific locations. For example, a castle may have certain areas that are well maintained and capable of supporting heavy traffic, while others may be fragile and will have limited access to decrease risk.

Promotion

Promotion is typically used to increase demand, but it is also a tool to control accessibility (Beeton & Benfield, 2010). Accessibility in this case means the delivery of information surrounding a site such as advertising material and media promotions. Promotional materials can be used to not only inform and advertise, but also to persuade the tourist population. Persuasion can use the tactics of demarketing before mentioned to discourage tourists from certain areas or to encourage visitation in the off season. Selective messages can be used as a marketing tool for UNESCO World Heritage sites to promote their sites in certain manners. While this strategy may not be effective in keeping tourists away, it may distract some visitors or encourage more conscientious tourists.

Develop Brand Awareness

Brand awareness relies on several factors based on loyalty, perceived quality, associations and awareness (Portia, Reichel, & Cohen, 2011). The UNESCO World Heritage site title and logo bring a certain level of prestige to sites. A marketing strategy to encourage sustainability can be supported simply through promotion of the UNESCO World Heritage brand. Displaying the logo demonstrates the particular site is concerned with the principles of conservation and preservation that the UNESCO Organization put forth. In order for sites to use this strategy they should prominently display the UNESCO logo in addition to providing specific education about the goals of the organization. This strategy will be reinforced if all UNESCO World Heritage sites follow the same promotion thereby increasing brand power, awareness and association.

Agency Collaboration

Another important recommendation for UNESCO World Heritage sites looking to increase their sustainability through their marketing plan is to work in tandem with tourism and government agencies (Fullerton, McGettigan, & Stephens, 2010). Often UNESCO sites may share affiliation with both local and national entities; if multiple organizations pool their resources and marketing efforts they can better educate visitors and provide an experience which maximizes sustainability efforts.

Cooperation between Benefiting Parties

In a similar regard to governing agencies working together, various tourist amenities can work together to encourage sustainability; cooperation from benefiting parties can contribute to overall sustainable tourism initiatives (Chen, & Chen, 2010). UNESCO World Heritage sites are not sustained solely by their establishment. Their continued success relies on ancillary services such as transportation, accommodations, food and beverage and retail services. When these various tourist amenities work together to market their products and services, they can promote mutually beneficial practices and will support the overall efforts of the sites.

Price Strategy

Increasing admission prices can have a double benefit by increasing revenue for preservation efforts and discouraging casual tourist traffic that might put a strain on the site and increase the rate of deterioration (Fyall & Garrod, 1998). Increasing fees provides for an increase in revenue at the same time as placing a higher value on the visitation process. Ultimately increasing admission prices increases value to visitors because it contributes to preservation of sites for future generations. Regulation and permits are two formal ways to control tourist impacts at UNESCO World Heritage sites (Beeton & Banfield, 2010). Regulation allows sites to manage their locations more responsibly by assuming management of their land space. When sites move to self-regulation as opposed to control from local or national government entities they can more easily control the land use and marketing of the space. Permits are a form of regulation that provides restrictions or limitations to guests. For example there may be a limited number of permits distributed per season thereby allowing sites to anticipate needs based on a controlled number of tourists. Permits may be used for the purpose of restricting certain activities such as the amount of hunting or fishing allowed in an area. The use of permits and reservation systems has become successful in Italy and England where they have been used as a tourism management tool. Yosemite National Park in California utilizes a system of restricted space to decrease the number of tourists in flooded areas. This has allowed for restricted areas to regenerate at the same time as creating publicity for areas that are accessible by tourists.

Marketing Sustainability

Marketing sustainability can also be achieved by looking at traditional conservation practices. Conservation efforts extend beyond UNESCO World Heritage sites to protect many historical artifacts and locations. A look at some of the traditional methods of conservation provides additional ways for sites to integrate sustainable practices into their conservation plans. One example of preventative conservation is the storage of artifacts for preservation (Caple, 2000). By correctly storing artifacts they can be visited at the same time as preserved for future visitors such as with the items buried in the Egyptian pyramids. Understanding environmental effects on artifacts and sites can contribute to attaining long term conservation practices. One such example is the effect of oxygen on the natural deterioration of sites. By understanding the effects of oxidation, the natural settings can be better preserved.

Other traditional methods stem from awareness and education (Aplin, 2002). Public awareness through items such as brochures, websites and media coverage can support conservation needs and increase sustainable practiced. General education provided to tourists can increase the appreciation for conservation needs and lead to a rewarding experience. Simple marketing strategies can involve increasing awareness of the visiting public. Natural sites can also implement education about conserving the eco systems. Wetlands for example absorb pollutants; by providing education about this fact visitors can be mindful of their actions at the site.

Conclusion:

The challenges and opportunities that the UNESCO World Heritage sites present are vast. One important benchmark for sites is how the marketing plans reflect the need for continued sustainable tourism. Balancing marketing needs with sustainable tourism practices can prove to be a challenge to UNESCO World Heritage sites that already face threats from deterioration and other conservation challenges. The marketing strategy of World Heritage sites has a substantial contribution to the sustainable practices of the sites. This study provided some strategies, implementing marketing practices to support the sustainable tourism needs. Strategies include demarketing, promotion, developing brand awareness, collaboration between agencies, cooperation between benefiting parties, pricing strategies. In order to balance the conservation and preservation needs of the sites, the recommendations should be incorporated into the marketing plan. By considering the spectrum of needs, sites can be respectfully visited in the present and protected for future generations.

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Tourism-led Local Economic Development: Challenges and Opportunities of Flea Market Arts and Crafts Traders in Johannesburg

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Abstract

The arts and crafts industry is one of the key tourism sector linking Local Economic Development (LED) and economically disadvantaged people to provide income generating and employment opportunities (CIGS, 1998). The local arts and crafts market in South Africa is known as flea markets. The flea markets as a part of tourism LED is under-represented within the existing literature which has resulted to a research gap to bring forward the challenges and opportunities faced by the people involved in this sector. This paper discusses a case study of arts and crafts flea market of Johannesburg in South Africa and provides empirical research findings about the challenges of street traders and role of tourism stakeholders. The paper discusses some of the strategies for reducing challenges faced by arts and crafts street traders and providing opportunities for greater access of tourists, marketing and branding of local tourism products.

Keywords: Arts and crafts, Tourism, Flea Market, Local Economic Development

Main Conference Topic: Economy, Entrepreneurship and Tourism

Introduction

Urban tourism has gradually contributed to economic growth in both developed and developing counties in the world (Brida and Pulina, 2010). Urban tourism offers countless possibilities for local economic development (LED) of an area. Tourism is one alternative driver for LED and for reducing economic informalities. Successful tourism-led LED requires certain preconditions in terms of having certain assets for tourism development. Tourism is one of the thriving sector, however, the City of Johannesburg has number of challenges and opportunities which remain unaddressed and under-explored in terms of tourism-led LED. This paper aims to bring forward some of the challenges and opportunities that exist within Johannesburg's tourism-led LED, as it focuses on arts and crafts street traders and the role of tourism stakeholders. The cities and towns having good tourism product mix and functional character in form of diversity of things, often attract more number of visitors. The variety of tourism diversity can exist in several form such as art, design, architecture, culture,

environment, people, music, literature and among other natural settings. The factors such as positive environmental, economic, social and cultural aspects are largely responsible for greater tourism-led LED (Sitinga and Ogra, 2014). This in turn leads towns and cities to use the appropriate opportunity of urban tourism as an economic growth tool.

In the global north, the destination development is often linked with development of economic and social development. The other approaches for urban tourism is linked with urban regeneration through social and economic development of towns and cities (McLachlan & Binns, 2014). Based on the asset and functional tourism capability, the towns and cities have reinvented their roles from production cities to consumption oriented cities with much integration and role of urban tourism for sustainable development (Kagermeier and Saarinen, 2012). There is greater emphasis of integration of tourism as an economic driver for city development (Ioannides and Timothy, 2010).

In the global south, growing cities have identified the need for getting value from cities assets to integrate for urban tourism development. The cities see this as a path that will offer assured alternative means for fostering and integrating economic development, growth and livelihood opportunities and job creation (Rogerson, 2012). In the developing cities urban tourism is looked by various policy and decision makers and stakeholders as a major enabler for integrating various urban catalytic projects. According to Law (1993) these policy makers have identified urban tourism as a sector that has the ability to adopt and adapt global best practices at local level. By supporting urban tourism many of the economic challenges can be addressed in the developing cities. Urban tourism has the ability to lead developing cities to wealth creation, job creation, development of the quality of life in city living (Ioannides & Timothy 2010).

Related work

The Local Economic Development (LED) is a development approach which emphasizes on the economic development through integration of activities by various stakeholders locally within the value chain network. The integration often cuts across horizontal and vertical layers across local to national level linkages within the wider spectrum of sectors in areas of economic development, social, urban planning, tourism, development and other areas of planning and governance (Nel & Binns, 2014). The objective is often focused at the improvement of quality of life and bringing wider benefits of economic development and capacity building to communities. The process of LED engages wider engagement of stakeholders within the value chain which is aimed for creating better opportunities for growth and employment opportunities (LEDNA, 2014).

In South Africa, support for LED comes from a range of government departments, including the Department of Trade and Industries, Cooperative Governance and Traditional Affairs, and Department of Tourism. This support is given to boost the several initiatives and endeavours in areas of mainstreaming informal sector to address unemployment, poverty and sustainable livelihood and among other critical issues faced at the local level. The different planning frameworks, tools and policy instruments along the three tiers of governance does recognize the importance of LED as an enabler and catalyst for achieving

Sustainable Development Goals (SDGs) (Abrahams, 2003). However, at local level, in spite of incorporating in various tools like Integrated Development Plans (IDPs) and among other policy instruments and frameworks, the cooperation and partnership environment for LED is faced with several challenges in areas of strategy, development, implementation in tourism sector (LEDNA, 2014).

Tourism-led LED

The post-apartheid era in South Africa emerged as a new destination in the international arena with focus on domestic and international tourism. The local governments realized the potential of tourism economy and much focus was laid on the policy sector (Rogerson, 2004). However, the tourism-led LED is not much emphasized and is little discussed and under-represented in the context of South Africa (Nel, 2001). Tourism being one of the drivers for various spin offs which have direct and indirect linkages for job creation for economic development, there is limited focus and attention to the tourism-led LED in South Africa. There is a need to have wider understanding and integration of the complex issues by the policy makers (Rogerson, 2004). The tourism-led LED creates several spin offs at a city level which has multi-pronged linkages and impacts. From the regeneration context, it can enhance the physical, environmental improvements, create economic benefits and overall impact on the image of cities (Law, 2000). The business environment in terms of investments as well as functional integration and creative activities gain wider spin offs ((Ioannides & Timothy, 2010).

Tourism promotion has become an anchor for LED planning. This has paved a way for tourism-led LED which focuses on realizing much impacts based on the tourism assets such as cultural and heritage attractions and products. The tourism is strongly marketed and often linked with hosting of major events in form of business tourism, sports, culture tourism. However tourism-led LED requires an appropriate strategies and integration around development of tourism products, assets and involvement of stakeholders. A city not having a clear understanding for tourism in spite of good tourism products and assets are generally physically unattractive, lack infrastructure, are inaccessible by dominant transport facilities. The tourism-led LED is not seen as an attracting viable option for such cities and towns (Rogerson, 2012).

Arts and Crafts Flea Markets

Tourism is one of the potential sectors which contributes to job creation directly and indirectly. The arts and crafts sector within tourism cannot be separated for its contribution to the job creation through tourism-led LED. The arts and crafts industry has several spin offs in terms of integrating formal and informal sector for boosting tourism experience and creating platform for inclusive economic development opportunities for the disadvantaged people (CGIS, 1998). The contribution of informal sector into tourism economy has been recognized and supported in several forms. In many cases, the arts and crafts sector is still considered as an informal sector when it is in form of a street vending. At the same time, it is also considered as Small, Micro and Medium Enterprise (SMME) which has the potential to develop small businesses and integrate number of value chain stakeholders. In South

African context, such business falls under SMMEs as per Department of Trade and Industry (DTI).

The arts and crafts products brings functional value add in terms of tourism diversity from social and economic context (Ogra, 2014). However, in many instances, such arts and crafts markets are not fully formalized in the tourism value chain and often remain untapped in terms of tourism potential. The flea markets remain isolated which is often not regulated and thus remains out of tourism development focus (Tamukamoyo, 2009). Some of the cases where arts and crafts markets are formalized have flourished mainly due to the active role of stakeholders at various tiers of governance and includes an active participation from private sector.

In many urban African cities, and in many other cities of the developing world, informal economic activities have historically played a central role in the lives of the poor and dispossessed. Most arts and crafts traders do not have life savings, pensions or affordable health care plans. They also face countless other challenges similar to those faced by a large number of inhabitants of cities in Africa and across the developing world. These challenges include an unreliable public transport system, inefficient and corrupt governments, inadequate and unreliable provision of amenities like water and electricity, and problems with accommodation (Tamukamoyo, 2009).

According to CIGS (1998):

“The low level of education and poor literacy and numeric skills related to tourism sector in South Africa restricts people’s entry points to the economy to earn an income. With poor education and only survivalist literacy skills, the arts and craft industry is one of the few entry points available to these South Africans who are excluded from the formal economy. Such opportunities are both essential and limited for South African communities. For these under-resourced people and community’s arts and crafts activity acts as a low cost training for skills which can be later utilised in the formal sector”.

Research Methodology

A mixed method research was adopted in the research study which comprised of qualitative and quantitative research approaches for evaluation and maximization of complementary strengths and minimizing overlapping weaknesses (Steckler, 1989). The mixed-method approach provides an opportunity to look into the research and combine the qualitative approach and quantitative approach in a manner which is complementary each other (Morse, 2003). The research used semi-structured research survey questionnaires and interviewed 79 arts and crafts traders and 30 tourists/visitors. In this research, data was collected from primary and secondary sources. This was done to maximize the complementary strengths and minimize any overlapping weaknesses from both data sources (Morse, 2003).

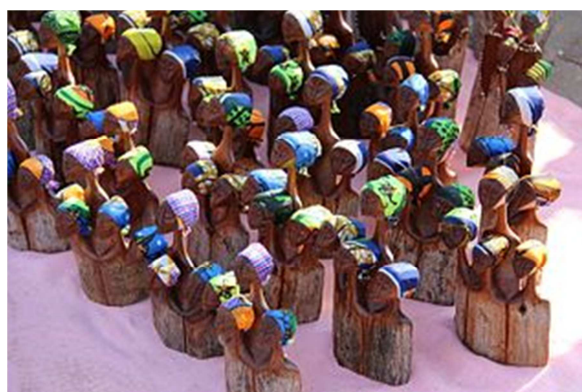
Case Study

Johannesburg in Gauteng South Africa is the second largest city in Africa with an area of 1645 km² and a density of 2700 km². The metropolis has a population of more than

4.4 million according to Census 2011. Johannesburg is considered as gateway to Africa and has a strong base for tourism development market. The growth for tourism growth in Johannesburg exists but there is still a lot to be done before the city fully harnesses this economic development opportunity (COJ, 2014). Johannesburg offers visitors an experience as unique and diverse as the city itself. The specific focus areas selected for the purpose of research included Bruma and Rosebank within the metropolitan area of Johannesburg. Bruma is a suburb in Johannesburg, and it is located in Region F. Bruma has an area of 128 km² and a density of 1800/km². Bruma has a population of 2260 according to Census (2011). Within Bruma there is an arts and crafts flea market operating along Oppenheimer Street. Rosebank is one of the leading mixed development commercial and residential suburb of Johannesburg with an area of 82 km² and a density of 1300/km². Rosebank has a population of 1085 according to Census (2011). In the vicinity surrounding of Rosebank mall, the African arts and crafts market operates which is high frequented by visitors / tourists.

Research Findings and Results

In the sample for the Johannesburg flea market arts and crafts traders a sample of 79 traders were interviewed from the case study areas Bruma and Rosebank flea markets. The sample consists of 39 traders from Bruma and 40 from Rosebank who participated in the research questionnaire survey. The results from the survey show that traders at Johannesburg's arts and crafts flea markets are mostly males. The dominant age group amongst the traders is between 19 and 35 years old. More of the arts and craft traders are from foreign African countries compared to the number of South Africans. The dominant race amongst the traders is African black as there are very few Coloured and Indian traders with no white traders at all. A large portion of the traders live in close proximity to their trading site compared to the ones that reside in another localities or visitors to the areas which they trade at. Most of the traders went to secondary school however a slightly lower number went to up to higher education compared to the ones that only went up to primary or have no schooling. Majority of the traders are unemployed and earn a monthly income less than R3000.



Tourism attractions, markets and products

Bruma Flea Market Arts and Crafts Products (Bead work, Wire work, Wood work, Stone work)

Source: Aurobindo Ogra

Product range

The Bruma and Rosebank flea markets have a variety of products exhibited for perusal, appreciation and purchase. Most of the traders sell local arts and crafts which accounted to 39%. The other arts and crafts are from neighbouring countries of South Africa such as Zimbabwe, Swaziland and among others. A mixture of local and foreign arts and crafts is sold by around 32%. Around 29% of the traders sell only foreign arts and crafts.

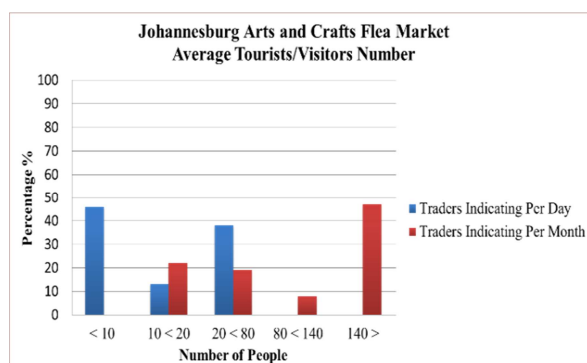
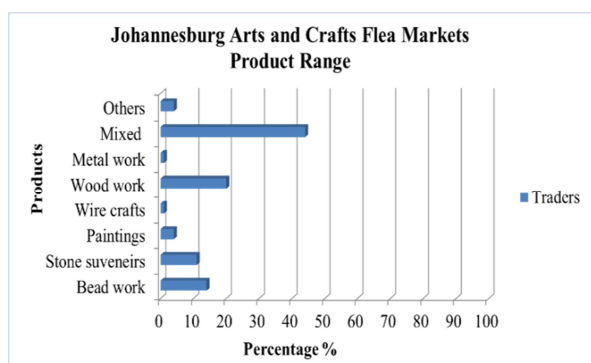


Figure 1: Product range of arts and crafts flea market traders in Bruma, Johannesburg

Most of the traders are sell a mixed variety of products than a specific arts and crafts. Around 44% of the traders sell mixed arts and crafts and specialise in specific arts and crafts. Around 20% of the traders specialise in wood work, 14% specialise in bead work, 4% specialise in paintings, 4% in other forms of arts and crafts such as wire crafts and metal works.

Visitor's type

Around 46% of the traders indicated that they get less than 10 visitors per day, 13% of the traders indicated they get between 10-20 visitors per day, and 22% of the traders indicated they receive 10-20 visitors per month, 38% of the traders indicated they received 20-80 visitors per day, 19% traders indicated that they received 20-80 visitors per month, 8% indicated they received between 80-140 visitors per month, and 47% indicated they received between 20-80 visitors per month. Most of the traders indicated that foreign tourists participate more than local visitors in their businesses. 80% of traders indicated that foreign tourists are more frequent at their markets, while 20% traders indicated that local visitors are more frequent to their markets. 89% of the traders indicated that foreign tourists are better sales contributors, while 11% traders indicated that local visitors are better sales contributors.

Space occupation

Most of the traders occupy formal spaces than informal and more traders are permanently allocated than temporary ones. 71% of the traders indicated than they occupy formal space, while 29% indicated that they occupy informal space. 53% of the traders indicated that they are permanently allocated, while 47% traders indicated that they are temporarily allocated. Most of the space that the traders occupy is privately owned as indicated by 64% traders, 32% of the traders indicated that the space they occupy is owned by agency/traders. Most traders (47%) indicated that they occupy a space of less than 10 square meters, 46% of traders indicated that they occupy a space with a size between 10 and 15 square meters, while 4% of the traders indicated that they occupy a space with a size between 15 and 20 square meters, and 4% of the traders indicated they occupy a space with a size of more than 20 square meters.

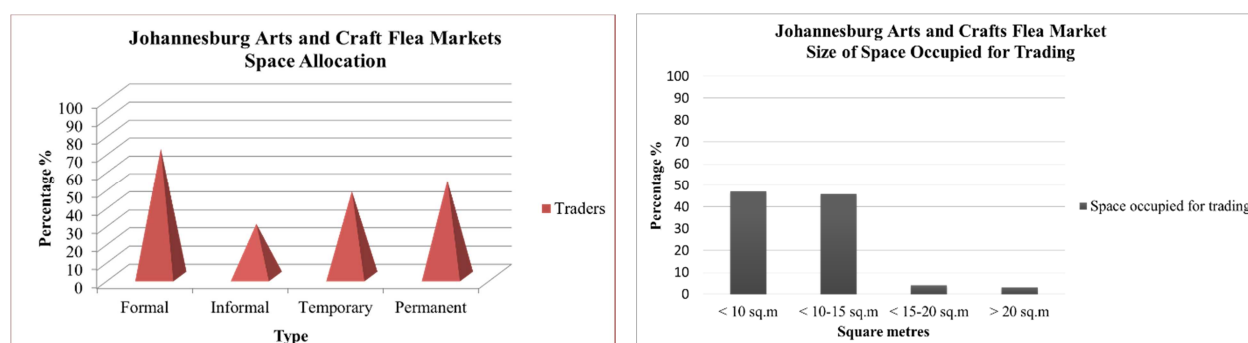


Figure 2: Type of space allocation at arts and crafts flea market in Bruma, Johannesburg

Monthly rentals and earning

Around 57% of the traders indicated that they pay a monthly rent between R1000 and R3000, and 37% of traders indicated that they pay a monthly rent between R200 and R1000, 5% of the traders indicated that they pay a monthly rent of less than R200, and 1% of the traders indicated that they pay a monthly rent of more than R3000. Around 33% of the traders earn less than R3000, 22% of the traders indicated that they earn between R3000 and R5000, 22% of the traders earn between R5000 and R7000, 8% of the traders indicated they earned between R7000 and R10000, 5% of the traders indicated that they earn more than R10000.

Tourists/ visitors perceptions

Visitors identified the following as the factors that make local arts and crafts market unique and different from other tourist attractions:

- Visitors see the arts and crafts markets as colorful and vibrant.
- Unique arts and crafts sold at the flea markets where from all over the African continent.
- Distinctive range of products that represented the unique rhythm of the African continent was identified as a unique factor.
- Shopping experience was identified as a unique difference as the flea markets were very different from what they were used to.

The visitors gave the following platforms as the means of them finding out about the arts and crafts flea markets:

- Indicated that they found out about the flea market from their tour guide.
- Found the flea market through mall brochures, and
- Found out about the flea market through signage and word of mouth.
- Identified the internet as another platform that they found out about the arts and crafts flea market.

The visitors indicated that they were attracted by the unique collection of African arts and crafts products. The handcrafted tribal exotic, incomparable artefacts, hand-carved items from all over Africa were the main centre of attraction. African arts and crafts that cannot be easily found anywhere in the world.

Key Challenges and Opportunities

The key challenges observed and as highlighted by the traders include: no support from tourism department; no support from City Council; flea market/ place is not marketed well; space is not permanent; the traders have to pay higher rentals; less sales/ less frequent visitors; less space for trading; street trading in open area; location not favourable for sales / tourists; distance to flea market from their stay is far; no adequate space for storage; crime around the surroundings; lack of financial support and lack of social media and internet

marketing. Some of the opportunities to enable better conducive environment to flea market traders include: marketing of the place / products; institutional support/ more place to display arts and crafts products; lesser rentals; permanent designated space / locations; and support from Tourism/ City Council for entrepreneurship opportunities and engagement.

The arts and craft traders identified the following things that the City Council and Tourism Department could do for them:

- The traders identified the need to have the arts and crafts flea markets advertised and marketed for more exposure to tourists and potential investors. This would promote tourism development and foreign market could grow.
- The crafts markets needed to be organised and maintained. As they need access to services such as water and electricity.
- The traders operating on the streets identified the need for improved shelter stalls and parking spaces to accommodate tourist busses. They could trade on various weather conditions and the bus parking could improve the tourism flow.
- The traders identified the need for some of them to obtain work permits to prevent harassment from the department of home affairs.
- The traders identified the need to prevent Chinese markets from taking over their businesses.
- The traders identified the need to get shipping arrangements for the large arts and crafts products.

Conclusion

There is a need to explore the involvement of other government and private institutional stakeholders involved within tourism-led LED in Johannesburg. The current urban planning in Johannesburg was found as not sensitive towards the needs of local flea market arts and craft traders. This shows a need to explore how the urban planning in Johannesburg can be improved to accommodate local economic development opportunities such as arts and crafts flea markets. This study provided an assessment of flea market arts and crafts traders in terms of the challenges and opportunities. There is still a need to investigate how these challenges could be addressed and how the opportunities could be used to improve tourism-led LED. Successful tourism-led LED requires certain preconditions in terms of having certain assets for tourism development. Studies such as this one help to inform new ways and methods to improve unemployment and poverty levels in South Africa. The arts and crafts flea markets provide unskilled and semi-skilled people with the opportunity to create a meaningful livelihood. However the challenges that still exist in this sector still need to be addressed for the sector to reach its full development potential.

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Digital Marketing and New Product Development of Tourism

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Abstract

Tourism contributes to the economy of a nation by generating income, employment and foreign exchange. The internet revolution is drastically reshaping global society and pushing the world towards information based economy. Commercial activities such as information gathering, shopping, trading, collaboration, and distribution are changing and companies are forced to adopt their strategies. Digital Marketing today has become an indispensable part of every business irrespective of its size and type. Hospitality and Tourism is one of the industries that is most affected by digital development. Travel companies are among the first ones to utilize Digital Marketing Technology in their practices to engage communication and make sure their customer have the best possible away-from-home experience. It is one of the newest and greatest ways to reach the buyers persona and tailor their offering to their target audience. Tourism as a New Product was truly the convergence of development in many sectors, yet the result of convergence lacks the expected benefits to the Indian Scenario even after a Century. This paper attempts to study the importance of digital marketing in tourism so that New Product development of Tourism is made available to garner greater heights for Tourism in India.

Key words: Digital Marketing, Internet, Tourism, Tourism Product, New Product development.

Main Conference Topic: IT Challenges and Solutions

Introduction

The constant developments in technology, communication and particularly the Internet has revolutionized the entire tourism industry, by generating new business models, reconstructing the distribution channels, reshaping the production processes in tourism industry and last but not least has influenced the suppliers of tourism services as well as the stakeholders.

According to statistical data, more than half of the world population today (54.4 percent) uses the Internet (Internetworldstats, 2017). The trend of growth in the number of Internet users continues on yearly basis and technologies and Internet services which have appeared in the last decade, primarily social media and mobile technologies, particularly contribute to such trend. The above mentioned is supported by the fact that over 1.5 billion people use Facebook and over a billion use YouTube. It is estimated that there are 7 billion

mobile phone subscribers today and that the mobile-broadband coverage includes 95% of world population (ITU, 2015). Taking into account the growth of Internet usage and its services as well as their advantages in business, it is expected that companies will continue with the trend of larger investments in digital marketing in the forthcoming period. It is estimated that by 2019 in the USA the digital marketing expenditures in total marketing budget will grow from current 30 percent to 35 percent, whereas the total digital marketing costs in 2019 will altogether amount to 100 billion dollars (Frick, 2015).

Lately, digital marketing has been taking an increasingly larger portion of overall marketing activities and has become the integral part of today's concept of marketing. The literature data show that almost 1/3 of the total marketing budget is allocated for digital marketing (Breikss, 2011). At the same time, the trend of investment growth in digital marketing is natural due to the characteristics of contemporary media. Digital marketing strategies imply choosing the appropriate digital marketing means via one of the digital channels (Chaffey, Smith, 2008, p. 40). Some of the characteristics refer to adaptability, freedom of choice, user control, cost savings and most importantly, interactivity. Digital marketing relies on Internet technology and simple features of digital surrounding, but all authors emphasize interactivity as the key characteristic.

Interactivity influences performance quality, motivation, amusement, cognitive abilities, learning, normatively and social interaction. McMillan (2002) emphasizes that interactivity influences the attitude toward the web site, relevance of the topic, returning to a web site, referring others to the web site, purchasing from the web site. Interactivity influences better processing of information about a web site and a certain product (Sicilia et al, 2005).

In the present paper, I have tried to enhance the implications of digital marketing and new product development for the visitors, the tourism operators, highlighting the informational systems which serve the tourism services. Tourism development aims to support the tourists by providing specialized sites and software which reduce the time necessary for knowing about tourism destinations, making easier the process of booking and orienting a car or help for planning the trip and making a decision.

Meaning and concept of Digital Marketing

Digital marketing is the very innovative concept in the 21st century. Through this form of media products and services are being promoted with the use of database-driven online distribution channels to reach consumers in an appropriate, significant, and individual manner. The term digital marketing has not any specific definition but it can be explained with the examples such as emails, online advertisements, pay per clicks, wireless text messages, instant messages, etc. All these examples are included in the definition of digital marketing. Digital marketing today has become an indispensable part of every business irrespective of its size and type. 34% of the businesses already had an integrated digital marketing plan in 2016 and 72% marketers believe that traditional marketing is no longer sufficient and digital marketing will make their company revenue to be increased by 40% by the end of 2018. The figure 1 shows that there are many channels of digital marketing that can be used in travel and tourism industry. The Content marketing is the top-rated digital

marketing techniques for 2017 with a rate of 20.3%. Big data, which include market and customer insight and predictive analytics, comes at the second level with 20.2%. Marketing Automation, which includes CRM, behavioral email marketing and web personalization, comes with rate 10.3%.

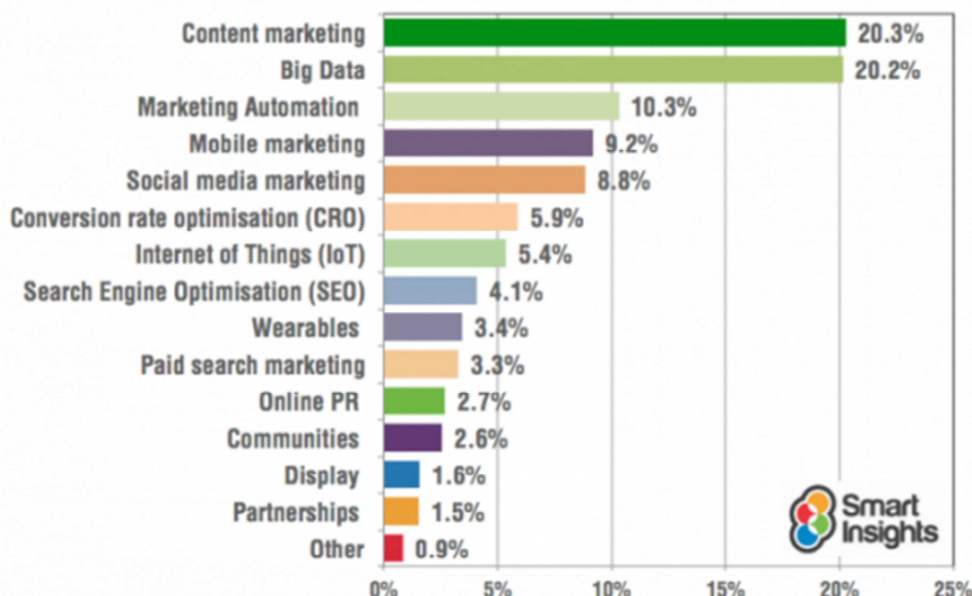


Figure 1: Top-rated digital marketing techniques 2017

Source: www.smartinsights.com

The increasing role of digital marketing has affected the way businesses promote their offerings to existing as well as new customers. The need for digital marketing has been felt like never before in the tourism industry wherein customers have instant access to all kinds of information on the latest offers and best prices. Today digital marketing plays a critical role in the success of each business which exists in the tourism industry.

Tourism in the dot (.) com era

During the last decade of 21st century, India saw the innovation of digital tourism, its development and growth. It is because of the online revolution and its utility; the tourists are more interested to get information on destinations, facilities, prices and geography climate. This led to the development of e-commerce strategies in tourism industry focusing services like online booking of hotel, flight, car and many other online services provided by web. It is a perfect platform for the travel and tourism online travel portals like Travelchacha.com, Makemytrip.com, Yatra.com, Cleartrip.com, Ezeegol.com, Arzoo.com, Travekgruru.com, Travel.indiatimes.com, Travelocity.co.in etc., which present information about their products to the customers all over the world, in a direct, cost effective and in real time. On these sites the travelers have wide options of exploring details of hotels, flights, cars, buses and other allied services. Thus, E-commerce in the tourism industry has emerged as a 'frontier area' for 'information technology. E-commerce is defined as "the process of buying and selling or exchanging products, services and information via computer networks including the

Internet”. However, implementation of Information and Communication Technologies (ICT) are only part of the story. In particular, network access costs, dissemination of information on electronic commerce, training, skill development and human resources provide big challenges for tourism industry.

Table 1: Country Wise Internet Users

Rank	Country	Users as per 2017
1	China	772,000,000
2	India	462,124,989
3	United States	312,322,257
4	Brazil	149,057,635
5	Indonesia	143,260,000
6	Japan	118,626,672
7	Russia	109,552,842
8	Nigeria	98,391,456
9	Mexico	85,000,000
10	Bangladesh	80,483,000

Source: www.internetworldstats.com

The 2007 report of The European Travel Monitor presents a growth of 47% of people who have booked online tickets. According to the American research, the whole amount coming from personal or business travel booked by tourists all over the world using the Internet raises upto 13 billion. The conclusion is that no other technology, except the television has had such a great impact on travelers as the Internet.

The Tourism Portal

A tourism portal can be seen as an infrastructure of a business community which offers a transparent environment to promote tourism business. It joins the providers of tourism service (hotels, holiday resorts), tourism agencies and the consumers of services in the virtual environment of the World Wide Web. All the participants are transparent by using the tools of the Internet. Tourism portals offer the most diverse services. Tourists not only book their stay online, but they will be provided with all the necessary information by e-mail and may pay on-line by using their credit card.

Application of Digital Marketing in Travel & Tourism Industry

The growth of digital marketing has had an impact and will continue to impact travel & tourism industry. It has become an essential tool for managing the business. Understanding the main drivers of travel & tourism that includes geographical diversity, government initiatives, development of customised packages, changing consumer dynamics, easily

available finance and benefits of customised packages for the target market are the key towards success in tourism. As compared to traditional promotion methods that use printed information, voluminous contents are available online. As a source of instant information, the web/mobile app is the first choice as there are no restrictions or constraints in searching for information. To exercise hold on brand and to create equity, it is important to make consistent presence online. In addition, web is the place where customers share their valuable feedback; write reviews, share visuals to attract larger audience. Another significant fact is the ability of digital marketing to address the niche market where customers have specific requirements. Ex: Eco tourism, Adventure tourism, Medical tourism etc. With internet it is now possible to cater to specific needs by providing necessary information. In order to compete and succeed digitally, the most relevant digital marketing activities include:

Quality Website

‘Marketing experts must come up with attractive websites, find a way to attract customers to visit the web site, keep them there for a while and make them frequently come back to their website.’ (Kotler, P., Bowen, T. John., Makens, C. James 2010). This is especially true for businesses which are only present online like the tourism industry. Websites work as digital destinations for the audiences wherein a business can define their brand’s experience. It is very important to keep the website content concise and ensure that the USPs are clearly visible. A good website should have all the services clearly listed down along with the relevant information. Adding high-resolution images of various services being offered like hotel rooms, spa etc. will enable the users to take an informed decision. Users tend to read webpage as compartmentalized chunks of information by swiping their eyes from left to right, and then continue on down the page in an F-shaped pattern, skipping a lot of text in between. The best strategy is to break up long articles into sections so that users can easily skim down the page. It is also important to ensure that there is enough breathing space around the various images, texts and buttons on the website. Adequate spacing between elements on a page allows for a more enjoyable reading experience and allows time to focus on the individual pieces of a page without being overwhelmed by everything else around it. A lot of websites open the price lists, menus and packages in a new window to avoid disrupting the current experience of the users. The website must be built in a way that it allows the users to make a purchase without the need of any kind of assistance. It must be updated regularly keeping in view the changing customers’ needs and preferences. The navigation tab should have a clear option for deals/packages to avoid an increase in the bounce rate. A good website represents the quality the business stands for and thus it should be developed and maintained keeping in mind the functionality of the industry.

Strong Social Media Presence

Social Media is a new marketing tool that allows you to get to know your customers and prospects in ways that were previously not possible. This information and knowledge must be paid for with output of respect, trustworthiness, and honesty (Marjorie Clayman). The most relevant social media platforms for a tourism business include the following:

- i. Facebook
- ii. Instagram
- iii. Twitter
- iv. LinkedIn
- v. YouTube

Presence on these platforms is not just about promoting the latest packages and facilities; it is much more than that. A user will not avail the services on a daily basis so it is essential that a business becomes a part of the conversation users are having on these platforms. Focusing on posting content which adds value to the audiences' lives will help improve the engagement rate. Ixigo uploaded a simple video of travel hacks and it proved to be one of the most successful digital marketing campaigns of that year. Lastly, a brand shouldn't consider all these platforms as one. Each of them comes with its own set of USPs. Facebook and Instagram should be the top two platforms a tourism business.

Search Engine Optimization

SEO plays a very important role in determining the website traffic. The businesses need to ensure that equal attention is paid to both on-page and off-page SEO activities. Use of 'Keyword Planner' to find the most relevant keywords for the tourism business is the first step towards effective SEO. Google, the biggest search engine, understands synonyms so keywords must be carefully chosen. The focus should be on creating quality backlinks rather than just increasing their numbers. Usage of long-tailed keywords such as 'best holiday package India' shall lead to more conversions rather than short-tailed keywords.

Email Marketing

'The use of email marketing creates the opportunity to offer any potential interested guest to arrive at the right time at the minimum cost, and the results of such activities must be measurable, which creates a basis for decisions on future marketing activities.' (Kotler, P., Koller, K.L. 2008). Email Marketing enables users to know about the latest offers by the hotels, special deals on holiday packages, membership clubs, room availability and so much more. Transactional emails are sent to users to keep them updated about the status of their bookings. Emails are also a very good way of keeping the relationship going with the customers post the transaction has been completed. Special mailers are sent to customers on their birthdays and anniversaries by offering a special price on the services. This provides an incentive to the customers to make a purchase while visiting the competitors.

Content

Content is the essence of digital marketing. Good quality content must be engaging and add value to the everyday lives of the audiences. According to socialmedia.com, "There's no secret formula to successfully engaging with your audience on social media, but applying 'The 80/20 Rule' should always be a big part of your social media strategy. It simply comes

down to this: use just 20% of your content to promote your brand, and dedicate 80% to content that really interests your audience and engages them in conversations.” In the tourism industry, videos and infographics are an interactive content type to get noticed and engage the users.

Mobile-Friendly

There are 6.8 billion people on the planet; only 3.5 billion use a toothbrush, whilst 4 billion of them own a mobile phone, most of which are smart phones (Hubspot). The website, app, updates on social media, emails, SEO or any other aspect of digital marketing, being mobile-friendly is a prerequisite in today's times.

New Product Development – Possibilities for India

In view of the perspectives seen, it is important here to consider provision of tourism in the format of a product. It is apt at this juncture to touch upon the concept of product in tourism. Purchase of a product in tourism is a speculative investment, involving a high degree of trust on the part of the purchaser, the more so since holidays are one of the most expensive purchases made in the year. When tourists buy a tourism product, they are buying more than a simple collection of services, such as an airline seat, hotel room, three meals a day and the opportunity to sit on a sunny beach, they are also buying the temporary use of a strange environment, incorporating novel geographical features – old-world towns, tropical landscapes – plus the culture and heritage of the region and other intangible benefits such as service, atmosphere and hospitality.

A common striking feature of a tourism product is that of the consumption of it, the consumer or the tourists must be brought to the product rather than the product being taken to the consumer. Tourism is such a remarkable phenomenon that every product can be given a touch of Newness through digital marketing. This is possible because 'New Products' include *Original products, Improved products, Modified products and New brands*. At a time when the whole world was shifting its priorities toward Service Industry, the developers of Tourism in India did not pay enough of attention on the aspect of service properties and the techniques in the provision of Tourism. Peters and Waterman in their text *In search of excellence*, detail that the basic operating principle in service sector is to bring excellence as

1. a deep respect for the customer,
2. a keen sense of the buyers, and
3. an admirable capacity to motivate the employees.

The Government had not thought about it. Tourism, already complex by its basic structure, gets more complex with the tourists – its recipients through the changing attitudes and the trends of the World.

Conclusion

In total, the new product development in tourism through digital marketing is absolutely interesting because tourism has plenty of original products by the gift of Nature and by the work of our forefathers who ruled under various kingdoms. These *Original Products* have to be just Improved by appropriate maintenance and presented in a *modified* way so that the product is customer/tourist centered which will certainly make India as the matchless *Brand Name* in the scenario of World – Tourism.

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Brief biographies of the authors

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A Study on the Services of Hotel Industry and Sustainable Tourism in Madurai

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Abstract

Tourism is one of the world's leading Global Industries (11% of Global GDP). The World Tourism Organization estimates that there will be 1.5 billion tourists in 2020, representing 21% of World Population. Strong Population growth in developing regions is set to attract almost 50% of International Tourists in 2020. The World Tourism Organization notes that with the next 5 to 10 year, range of production offer to tourist seeking the rural experience is to increase significantly. There is a clear trend in the growth of rural tourism with the increase in the number of tourists visiting these places. India's vast rural diversity and heritage offer tremendous potential for tourism in rural areas. The Principle of Sustainable Tourism Development stipulates that the level of development does not exceed the carrying capacity of the area. The Public Sector can play a very useful role as a catalyst and in providing alternatives to the consumer against exploitation at the state and local levels. In particular there is an immense scope for the public sector to develop tourist infrastructure and reasonably price facilities for domestic and foreign tourists. In the mixed economy of India both the public and private sectors have to subsist side by side. The two main responsibilities of the Government, at the center and in the states, are to develop the infrastructure and to regulate the working of the tourist industry. The services of Hotel Industry and Sustainable Tourism in Madurai, Madurai is popularly known as "temple city", in recognition of its spiritual commitment. In fact hotels have been known to run 24 hours round the clock in a city like Madurai. Everywhere, there is competition. Customer retention and attracting potential customers are equally important for every business including Hotel Industry. Nowadays, competency mapping is also emerging in maximizing the involvement, implementation of managerial decisions in an efficient manner. The study aims in identifying the deficiencies in required competencies and providing suitable suggestions to enhance the same. Planned in the shape of a lotus, Madurai is the second largest city in Tamilnadu with history that goes back to nearly 2,500 years. Madurai is situated in the bank of the river vaigai. Madurai spreads along the rocky banks of the river Vaigai in the state of Tamilnadu. Madurai has a rich historical background in the sense that Lord Shiva himself performed sixty-four wonders called "Thiruvilaiyadals". Planned in the shape of a lotus, Madurai is the second largest city in

Tamilnadu with history that goes back to nearly 2,500 years. The cultural prominence of Madurai in ancient times has earned it the epithet of the 'Athens of South India'. The illustrious past of the city can still be witnessed in the architectural splendor of the temples and the palaces. Madurai is also called by different names like "City of Jasmine" (Malligai Maanagar), "Temple City" (Koil Maanagar), "City that never sleeps" (Thoonga nagaram) and City of four junctions" There are several places of tourist attractions in Madurai, but it is the Meenakshi Temple that is the hub of activity. Located at the heart of the city, the Meenakshi Sundareswarar temple has long been the focus of both Indian and international tourist attraction as well as one of the most important places of Hindu pilgrimage. It is the hub of the religious and cultural life of the city.

KEY WORDS: *Tourism, Madurai Meenakshi Temple, Mandapam, Tourist Circuits, Carvings*

Main Conference Topic: *Cultural Heritage, Hotel Industry, Sustainable Tourism in Madurai*

Introduction:

Madurai, located in Tamil Nadu on the banks of Vaigai River, is often called as the "Temple city" as it is speckled by a number of shrines. With its inescapable charm, the city attracts many tourists from within as well as outside the country. This place is a treasure-chest for people who are keen to know more about the traditions and religious life of the Hindus. It provides beautiful glimpses of Hindu religion with shrines like Meenakshi Temple and Pazhamudhir Solai. Some of the other temples located in and around Madurai are the Koodal Alagar kovil Temple, Thiruparankundram and Alagar kovil Temple. Besides places of worship, Madurai is home to Thirumalai Nayak Palace where tourists can enjoy sound and light show in English as well as Tamil language. Other tourist places in Madurai are the Vandiyur Mariamman Teppakulam, Gorippalayam Dargah and Kazimar Big Mosque & Maqbara. Apart from these attractions, tourists can visit the Gandhi Museum where blood stained dhoti of Gandhiji is kept carefully. There is a Khadi Bhavan in the museum, from where tourist can avail handloom products at best prices. Famous for its rich culture, Madurai plays host to numerous festivals. Chithrai Festival is celebrated for 10 days during the month of April and attracts thousands of devotees. Bull Run (Jallikattu) is also organised in the city which co-occurs with the famous Pongal Festival. Most of the tourists plan their Madurai tour during the time when these festivals are celebrated. Participating in these festivities give them the chance to assimilate with the locals and accustom with the culture they follow. Located in Kochadai, Heritage is a 17-acre property, which offers an exclusive experience in its private villas and airy rooms. An Olympic-size swimming pool, spa, restaurant, bar and coffee shop are available here. Around 6 km from Meenakshi Amman Temple, The Gateway Hotel Pasumalai is among the best hotels in Madurai. Its range of amenities includes a gym, swimming pool, spa, lounge bar, restaurant, meeting venues, banquet hall, business centre, and badminton and tennis courts. JC Residency, situated in

the Chinna Chokkikulam area, has well-equipped board room and seven banquet halls with varying capacities. A multi-cuisine restaurant, coffee shop, swimming pool, Jacuzzi and gymnasium are some of its other features. Opposite Madurai Junction railway station, Royal Court has four meeting rooms for corporate travellers and a gym for fitness

conscious guests in addition to two restaurants. Hotel The Nook, a business hotel, is about 3 km from Thirumalai Nayakkar Palace. Its features include contemporarily designed rooms and a multi-cuisine restaurant. About 4 km from Gandhi Memorial Museum, Azhagar Kovil has airy rooms with elegant wooden flooring. A restaurant, bar, conference hall and swimming pool are among its offerings.

HEALTH:

Planning for health becomes an integral part of metropolitan planning and health status of population is an important indicator of human resource development. Investments in health sector have direct relationship indicators place it near the top among the States of India. Policy of the Government is to provide a healthy and disease-free life to the people of Tamil Nadu. Madurai has established itself as the major health center in Southern Tamilnadu and is fast becoming the health destination of choice for people in southern part of Tamilnadu.

TOURISM:

The city attracts a large number of tourists from within the country and abroad. About 9,100,000 tourists visited Madurai in 2010, out of which foreigners numbered 524,000. The palace complex of Thirumalai Nayak Palace was constructed in the Indo-Saracenic style by Thirumalai Nayakar in 1636 CE. It is a national monument maintained by the Tamil Nadu Archaeological Department. The daily sound and light show organized by the department explains the virtues of King Thirumalai and the features of the palace. The palace of Rani Mangamma has been renovated to house one of the five Gandhi Sanghralayas (Gandhi Memorial Museum, Madurai) in the country. The people of Madurai celebrate numerous festivals, which include Meenakshi Tirukkalyanam, the Chittirai Festival and the Car Festival. The annual 10-day Meenakshi Tirukalyanam festival, also called Chittirai festival, celebrated during April-May every year attracts nearly million visitors.

Madurai Economy:

The sector of Madurai economy is well developed with a number of sub-sectors showing a lot of progress. The city is considered as one of the economically developed regions of the state of Tamil Nadu. There are a number of banks in the city, which offer good-quality banking services to the citizens of Madurai. There are many well known banks in Madurai, which provide different types of banking services to the citizens of the city. The names of a few important banks of the city are Bank of Baroda, Bank of Madurai, Bank of India and Canara Bank. There are many job openings at Madurai. Opportunities for building a good career is available in a number of different fields like airlines, data entry, accounting, banking, software development, business process outsourcing, finance, biotechnology and human resources. The market of real estate at Madurai is also well developed. The major real estate services that are provided in the city are buying, hiring and selling of flat, house,

land and office and other business centers. A few reputed real estate agencies of Madurai are T M Construction, Uma Real Estate and Vilas Buildings Private Limited.

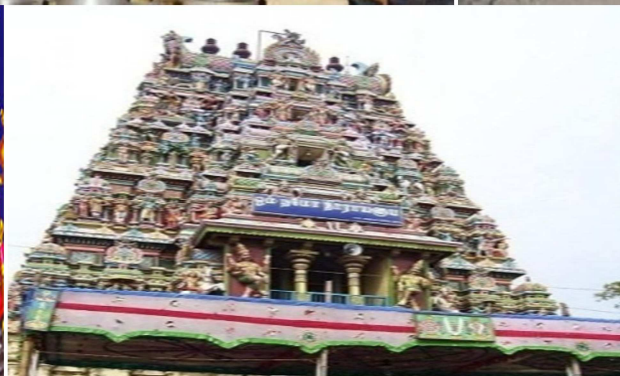
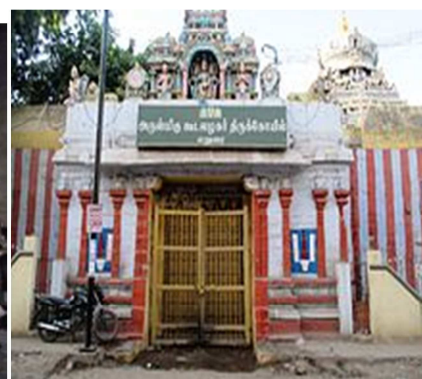
Tourism Boom in Madurai:

For Elisheva from Israel, a visit to Tamil Nadu was a long cherished one. She had been touring Kerala and Tamilnadu for the past 10 Days. A Stop in Madurai for two days was important for her as she was yearning to explore one of the oldest cities in the world. "It was an exciting experience to see the architectural beauty of Meenakshi Amman Temple and other historical buildings here. I liked everything here, except for the hot weather," She said. The number of foreign tourists visiting Madurai has gone up to 2.17 lakh in 2017 from 1.22 lakh in 2016, which is an increase by 78%. When compared to 2010, the number of foreign tourists in 2017 was for four times higher. Growth of Tourism here is not restricted to foreign tourists alone. There is a good increase in the number of domestic tourists as well. While the number of domestic tourists visiting Madurai and southern districts is increasing every year, 2017 registered a healthy growth of 24% compared to its previous year. Members of Travel Club and Hoteliers opine that with the increasing number of tourist, various industries connected to tourism are also benefiting. It is also helping the local economy to grow. Foreigners visit Madurai mostly after visiting other places in Tamil Nadu including Mahabalipuram and Thanjavur and Prefer to stay for atleast two days. Former president of Madurai Travel Club Mr.S. Senthilkumar said the tourism department in Tamil Nadu in the last couple of years has been quite. It has been various activities in the foreign lands to promote tourism. Moreover, it has now started working with the Tamil nadu Mart Society and consulting with the stakeholders, he said "Almost 80 to 90% of the foreign tourists visiting Madurai are staying for two nights, which is a good sign. It is high time we have to provide more things to keep them amused."

AIIMS to come up near Madurai, Tamil Nadu CM thanks PM Modi:

Tamil Nadu government today said the much-anticipated All India Institute of Medical Sciences (AIIMS) facility announced for the state by the Centre will come up near Madurai at an estimated Rs 1,500 crore. Chief Minister Mr.K Palaniswami thanked Prime Minister Mr.Narendra Modi for selecting Thoppur for this purpose. "The 250-bed modern facility will be set up at Thoppur near Madurai at an estimated Rs 1,500 crore," Mr.Palaniswami told reporters here, adding, it will also have 100 MBBS seats. The AIIMS facility was announced for Tamil Nadu in the Union Budget 2015-16 but had faced some delays over the location of the facility, with demands being made by various sections for it to be set up in their respective districts. Mr.Palaniswami recalled that a central team had earlier visited five locations, including those at Madurai, Erode and Pudukottai districts, before zeroing in on Thoppur. Assuring all support from the Tamil Nadu government in the establishment of the proposed AIIMS, he thanked Mr.Modi for allocating such a facility to the state. In a letter to the Prime Minister, Mr.Palaniswami said the late Chief Minister J Jayalalithaa was very keen that an institution of the stature of AIIMS was established and made functional in Tamil Nadu. She was keen on ensuring Tamil Nadu got such a facility "as it would substantially augment the facilities in the state for providing quality medical education, research and also

ensure high-end tertiary level healthcare in the public sector to benefit the poor and middle classes of the the state," he said. Mr.Palaniswami said he has directed state Health Minister Mr.C Vijayabaskar, Principal Health Secretary, Mr.J Radhakrishnan and other senior officials to provide all necessary support to the Central government so as to facilitate early commencement of work.



MADURAI TOURIST PLACES

Role of Services Sectors in India's GDP:

Services Sector in India today accounts for more than half of India's GDP. According to data for the financial year 2006-2007, the share of services, industry, and agriculture in India's GDP is 55.1 per cent, and 18.5 per cent respectively. The fact that the service sector now accounts for more than half of the GDP marks a watershed in the evolution of the Indian economy and takes it closer to the fundamentals of a developed economy. The Hotel and Tourism's Industry contribution to the Indian economy by way of Foreign Direct Investments (FDI) inflows were pegged at US\$ 2.35 billion from April 2000 to February 2011, according to the Department of Industrial Policy and Promotion (DIPP). The service quality (SERVQUAL) Model offers a suitable conceptual frame for the research and service quality measurement in the service sector. The model has been developed, tested and adopted

during various researches in co-operation. The model is based on the function of quality as a comparison to the expected and the obtained as well as a consideration of service quality.

Statement of the Problem:

It is evident that the first generation entrepreneurs in and around Madurai city are engaged in various activities like industrial engineering, trade, **agricultural** engineering, **tourism** development, catering technology and hotel management, food production, readymade garments manufacturing, soft-drinks production, bakery, flour mills, electrical and electronic goods manufacturing, polythene bags and PVC pipe manufacturing, steel and wooden furniture manufacturing and travel business. Entrepreneurs engaged in these types of activities are based on their knowledge and skills acquired through formal education. Entrepreneurs of first generation are not doing well though they have entered into small-scale industrial ventures. They face a lot of operational problems while managing their establishments. The problems are, lack of raw-material, finance, marketing, government, funding agencies, competition and support from the family. Because of the multi-various problems the entrepreneurs feel frustrated, and they could not concentrate in sustaining the growth of their business. Madurai District is one of the tourist spots in Tamilnadu and attracts Foreign and Domestic tourists. Numerous Businessmen and officials make regular official visits to Madurai District. These activities regularly promote the floating population to Madurai District. Madurai District has been surrounded by Historical monuments and places. There has been an opinion that if the district needs to attract more tourists then it must offer better boarding and lodging facilities. Considering these aspects and the Hotel accommodation available in Madurai District, an attempt has been made to understand the visitor's expectations and perception about the quality of hospitality industry in this District.

Years	Tamilnadu			Madurai Region		
	Domestic Tourists	Foreign Tourists	Total	Domestic Tourists	Foreign Tourists	Total
2004-2005	3412729	253236	3665965	426593	31655	458248
2005-2006	3466484	255984	3722468	427961	31998	459959
2006-2007	353306	265179	3598485	430891	32339	463230
2007-2008	3567582	293338	3860920	435071	32342	467413
2008-2009	3628643	276647	3905290	437186	33331	470517
2009-2010	3423086	283279	3706365	412420	34130	46550
2010-2011	3723944	322944	4046918	446668	38915	485583
2011-2012	3754023	366984	4121007	452292	44215	496507
2012-2013	3925840	384721	4310561	467362	46352	513714
2013-2014	3451048	415124	3866172	415789	50015	465804

The key for success of any business is customer satisfaction and hence Hotel Industry business also faces hectic competition. The business risks are very high, by virtue of its nature.

The risks are listed below:

Objectives of the Study:

To study the marketing services provided by the Hotel Industry in Madurai District

- To assess the customer's satisfaction towards the Hotels in Madurai District
- To measure the service quality of the Hotel Industry
- To suggest suitable measures for the improvement of Hotel Industry

Methodology:

If any study on research is to be recognized as valid or true, it must be done in systematic and scientific manner. Hence research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it, we study the various steps that are generally adopted by researcher in studying his research problem along with the logic behind them. The methodology used for carrying out the present study, aims and objectives of the study, research hypothesis, research design, and pilot study, sampling design, sources of data, tools for data collection, method of data collection, statistical analysis and limitations of the study.

Service Quality Dimensions:

Research suggests that customers do not perceive quality in a unidimensional way but rather judge quality, based on multiple factors relevant to the context. The dimensions of service quality have been identified through the pioneering research of Parasuraman (1985), Valarie Zeithaml (1985) and Leonard Berry (1985). Their research identified five specific dimensions of service quality that apply across a variety of service contexts.

Reliability:

Delivering on promises Of the five dimensions, reliability has been consistently shown to be the most important determinant of perceptions of service quality among U.S customers. Reliability is defined as the ability to perform the promised service dependably and accurately. In its broadest sense, reliability assures that the company delivers on its promises, promises about delivery, service provisions, problem resolution, and pricing. Customers want to do business with companies that keep their promises, particularly their promises about the service outcomes and core service attributes.

Responsiveness: Being willing to help:

Responsiveness is the willingness to help customers and to provide prompt service. This dimension emphasizes attentiveness and promptness in dealing with customer requests, questions, complaints and problems. Responsiveness is communicated to customers by the length of time they have to wait for assistance, answers to questions, or attention to problems. Responsiveness also captures the notion of flexibility and ability to customize the service to customer needs.

Assurance: Ability to convey trust and confidence:

Assurance is defined as employee's knowledge and courtesy and the ability of the firm and its employees to inspire trust and confidence. This dimension is likely to be particularly important for services that customers perceive as high risk, or for services of which they feel uncertain about their ability to evaluate outcomes - for examples, banking, insurance, and brokerage medical and legal services.

Empathy: Provision of caring, individualized attention:

Empathy is defined as the caring, individualized attention that the firms provide its customers. The essence of empathy is conveying, through personalized or customized service, that customers are unique and special and that their needs are understood. It includes approachability, sense of security and the effort to understand the customer's needs.

Tangibles: Representing the service physically:

Tangibles are defined as the appearance of physical facilities, equipment, personnel and communication materials. Tangibles provide physical representations or images of the service that customers, particularly new customers, will use to evaluate quality. Service industries that emphasize tangibles in their strategies include Hospitality services in which the customers visit the establishment to receive the service, such as Restaurants and Hotels Retail stores and and Entertainment companies.

Findings:

In this study 76% of the Hotel Owners who started the business belong to the age group of above 41 years. Out of 25 Hotel Owners 24 are Male and only one is Female. 28% of the Hotel Owners income ranges from 4-5 Lakhs per month. 94% of the Hotel Owner procure milk from private source for their Hotels. They procure grocery items from wholesalers and they purchase daily. 90% of the Hotel Owners had insured their Hotels in Government insurance company. In this study 72% of the Hotel Owners provided both Catering and Restaurant services. 80% of the Hotel Owners do not provide cultural shows, beauty parlours and gym facilities. 96% of the Hotel Owners provide first aid facility and television facility, only star Hotels provide ambulance facility o their customers. 80% of the Hotel Owners Provide Lift Facility, Ticket Booking Facility to their customers and accept credit card payments. 80% of the Hotel Owners provide special discount to their regular customers. 100% of the Hotel Owners say that word-of-mouth promotion gives more impact their business. Generally the

Hotel Owners allow the employees to receive the tips. Table inferences show that 51% of the respondents who preferred to stay in Hotels belong to the age group of 21-30 years. They stay in the Hotels for employment and professional purposes. 77% of the respondents are male who preferred to stay in Hotels belong to the age group of 21-30 years. They stay in the Hotels for employment and Professional purposes. 77% of the respondents are male and 93% of the respondents are Indian. 75% of the respondents stay in the Hotel for the purpose of occupation, conference, marriage and pilgrimage. Friends and Relatives had also been the source of influence to select these Hotels. The customers were very much satisfied with the tariff charged, quality of the service provided, check in procedure, clean environment, friendly approach of the employees, special discount provided, and varieties of food offered and pricing of food items. Hypothesis testing between services received and various demographic details of the respondents reveal that there was no significant association between choice of Hotel and service provided. There was significant association between age, sex, nationality, educational qualification, occupation, marital status, monthly income, purpose of visit and length of stay and services provided by the Hotel owners. The significant positive relationship between services provided and demographic details of the respondents reveal that quality services provided at these Hotels were the main criterion of all the respondents irrespective of age, sex, nationality, educational qualification, occupation, marital status and monthly income, purpose of visit and length of stay.

Suggestions:

Hotels do initiate effective steps to constantly improve the quality of services provided to their customers. It is seen that the customers are waiting for table. So, increasing the number of seating facilities would solve the problem and in addition provide employment to many by the Hotel Premises. The time taken to deliver the service to the customers shall be minimized to 10 minutes. A special discount in tariff may be considered for regular customers. Management could see that tariff charged by them is affordable to customers of all classes, not compromising on their quality of services and maintaining good customer relations. The Hotel Authorities may get out of their way in serving their customers with the best food, accommodation services and bringing about flexibility in their services to make their stay a pleasant experience. The management needs to take efforts to see that basic facilities like sanitation, flexibility in check in and out timings, money exchange, cash facilities, ticket booking facilities are adequate to attract and retain customers. The staffs employed have to be well trained. They need to respond to their guests in an amicable way and be prompt in their services. Appearance of the Hotel, neatness maintained in the premises, and the appearance of the staff count to a great extent to sustain the competing market share. Hotel staff may be trained and motivated at regular intervals in providing quality services. Regular feedback from their customers helps to increase their quality of services and their guests letter.

Conclusion:

“Service to man is service to God” As the proverb says the Hotel Owners and the managers provide good service to their customers, which in turn will increase the profitability of the Hotels. In the Hotel Industry , service quality, as an extremely subjective category, is crucial to the satisfaction of the customers. If they increase the quality of service it will attract more customers at the same time they can expand the business, and it will lead to more employment opportunities. But also helps the Hotel Owners to discover the needs, tastes, preferences and expectations of the guests. It also lists out various facilities provided by the Hotels to their customers and also various services mixes provided. We can say that it helps managers in setting the standards for the provision of services in the Hospitality Industry. Tourism, at the international level has emerged as an organized industry. The hotel industry with its striking features has been contributing much in the promotion of tourism. It is natural that budget and luxury hotels in India can afford to achieve the standard of hotels at international level. Food is one of the basic needs of human life. The hotel and catering industry is mainly concerned with the production and services of food. Thus it may be concluded from the study that South Indian food and North Indian food have attracted not only foreign tourists but also domestic tourists. Hence, there is no doubt that the food attraction is an important factor to promote tourism. Finally, hotel industry is the backbone of tourism industry, which creates national integration and international good will and understanding.

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A study on the Conceptualization and Applicability of Human Rights in Tourism sector

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Abstract

Tourism often becomes the gratification of the “self ” at the expense of the “other” and in that process, tourists find that other stakeholders like the community and the industry violates their human rights. The residents at the destination areas find their human rights being violated by the visitors and the industry; and, employees find that both their employers and the tourists disregard their dignity. In one way, tourism helps to develop states’ economy while in another way it violates the basic rights of people, especially the local people at the destinations (Dann and Seaton, 2001). Economic benefits are also uncertain: most of the profits from tourism flow back to the industrialized nations, and the people in destinations, who offer their natural, social and cultural resources to make the tourism product successful, receive either an unfairly low return or suffer from a deterioration of their livelihood as a result of negative environmental, social and cultural effects from the tourism activity. In short, fair trade in tourism is an absurd concept since modern tourism itself is founded upon the pleasure principle of gratifying experience at the cost of unfairness to the other

The UN World Tourism Organisation (UNWTO) estimates that 6-7 per cent of the global workforce earns a living either directly or indirectly through tourism. In 2010, 940 million people traversed the globe as tourists, generating some US\$ 919 billion in export earnings¹. Given these remarkable figures, it is not surprising that tourism is increasing harnessed by low and middle-income countries as a means to drive socioeconomic development.

2) Significance of the Study

However, these benefits are fundamentally undermined by the human rights violations that so often accompany tourism development, and in which both governments and industry stakeholders are very often complicit. These violations include land grabs and forced displacement, loss of livelihoods, compromised access to water and other essential natural resources, environmental degradation, poor working conditions, exclusion from decision-making processes, cultural erosion, and the sexual exploitation of women and children.

Tourism is one of the largest and fastest growing services industries in the world. It has the potential to generate many jobs and create great wealth. However, all too often, tourism’s benefits are not equally shared. In fact, tourism development frequently violates people’s human rights, particularly poor and vulnerable communities in developing countries, exacerbating poverty and trapping people in cycles of deprivation. Such rights abuses include:

1. Displacement from homes and lands to make way for tourism developments
2. Loss of livelihoods
3. Loss of access to natural resources, such as grazing land, coastal areas and fresh water and their cultures as tourist attractions
4. Poor pay and for tourism industry employees

These abuses arise out of government failure to protect the rights of citizens, as required of them under international law. In their pursuit of foreign investment and currency exchange, many governments prioritise the interests of big business, allowing exploitation and human rights violations to go unchecked. This is particularly the case in many poor countries, where adherence to human rights norms and standards may be weak. Businesses also have a responsibility to respect the human rights of workers and local communities.

It is typically the most socially and economically marginalised people who are not only excluded from tourism's benefits, but find themselves pushed into deeper poverty as a result of its arrival. This includes coastal communities in Tamil Nadu, south India, who – lacking official land title deeds - were prevented from returning to live beside the sea following the 2004 Asian tsunami, thereby forcing them into destitution. Fishing communities in Sri Lanka continue to face similar challenges, as their government sells off vast tracts of land for tourism 'mega-resorts'. It includes the rice farmers of Bali, whose water is being both appropriated and polluted by the island's burgeoning tourism industry. It includes the workers of the 5-star Sheraton hotel in Algiers who have recently been dismissed for attempting to unionise, and the indigenous Endorois in Kenya, who were forced off their land to make way for a wildlife reserve for tourists. For such communities, challenging these violations and seeking redress can be particularly challenging given the high dependency many countries foster upon tourism, alleviating it to sacred cow status and stifling those who cry dissent.

Like most globalised industries, tourism is fiercely competitive. Significant power rests with a small number of large, international tour operators and hotel chains, which are steadily buying up their rivals and pricing out local competitors in a race to the bottom.

3) Review of Literature

The destination community perspective

Studies have proved beyond doubt that tourism can cause change or loss of local identity and values, brought about by several closely related influences like commoditization, standardization, stereotyping, loss of authenticity, and the various forms of adaptation to tourist demand (Pizam, 1978; Saarinen, 2006). According to academic critics, the benefits of tourism are severely vitiated by the socioeconomic dysfunctions associated with the tourism demonstration effect-the rapid local assimilation of expensive western consumption patterns stimulated by the presence of relatively large numbers of tourists.

For the host countries of international tourism, the tourism industry creates dependency upon a fickle and fluctuating global economy beyond their local control. Local economic

activities and resources are used less for the benefit and development of communities and increasingly for export and the enjoyment of others. With so few international policies and guidelines restricting it, tourism has been given free reign to develop throughout the world. Local communities in many destination areas feel that their fundamental and derived human rights are taken away by external interests, thanks to the development of tourism activities

Tourist spending in the local economy, a potential enhancer of the community's wellbeing, often remains only in papers. This is because, a vast majority of tourists visit destinations as part of the all-inclusive trips offered by large tour operators located in the countries of origin of these tourists or somewhere else in the developed world. In this case, no real spending takes place in the local economy and the influence of the leakage effect is very substantial. Locals oppose to the all-inclusive holidays, because local restaurants, bars, guides and taxi-drivers lose business to the resorts. However, even the concerned governments fumble in front of the collective might of the industry:

The tourism-hospitality employee perspective

Employee rights and employer awareness of areas of conflict and sensitivity are some of the live issues in tourism. The focus of issues is upon four areas: hiring, investigation of employee misconduct, firing, and post-employment decisions by management (Ward, 1989). While the tourists relax in the sunshine around the world, life is far from paradise for the waiters, cleaners, cooks, porters, drivers, receptionists and other staff working to make the holidays happy and carefree. Gender discrimination of the employees, including sexual exploitation of female staff, is a major allegation against the tourism industry. Working conditions in the tourism industry, especially for those who fall in the lower echelons of the hierarchy, are notoriously exploitative (Murrmann, 1989). These conditions keep workers in poverty and violate the labor standards laid out in national and international legislation. Many a time, even international tourism and hospitality chains appoint local employees and offer them poor wages, below than that of similar employees of domestic firms in the other sectors. Employees, especially the seasonal workers, should have the human right to ask for adequate social protection. Many firms abandon the employees in the lean season and their families have to swim through the entire off-peak season through utter poverty and misery. It would have been wiser if these firms send them for training and development during the lean season or provide them alternate employment instead of sacking them (Claudio, 1992). Another thing is the industry encouraging employees to apply the knowledge-skill-attitude set that they have acquired in one firm in another: this, in addition to being a support to the human right to work at a place and job of one's choice, will benefit the industry in general and the employee concerned in particular (Malloy and Fennell, 1998). Since tourism is one of the largest industries in the world the magnitude of the impacts of human rights violations upon its employees cannot be whiled away. It is unacceptable for tour operators to profit from illegal and exploitative practices and then refuse to acknowledge their legal and ethical responsibilities. Tour operators have a responsibility to ensure that their holidays are not tainted by human rights abuses of their employees.

The tourism entrepreneur perspective

Tourism and hospitality entrepreneurs often receive the ire of the rest of stakeholders for anything and everything. However, it has to be noted that tourism as a phenomenon would have remained in its primitive stage but for the entrepreneurial initiatives of individuals and firms. It is the right of any natural or legal person to develop a professional activity in the field of tourism under the existing laws (Curtin and Busby, 1999). Especially small and medium scale entrepreneurs should be entitled to free access to the tourism industry with a minimum of legal and administrative hassles. When firms carry out activities with a view to promote fair tourism, they have the right to demand from the government protection, including police protection, against unscrupulous elements in the society who blindly oppose developments. Governments should not give discriminatory treatment towards certain firms against certain others while all are in the same business, too. Many ethical entrepreneurs believe that the price-cutting competition of undifferentiated mass market operators continues to be a threat to sustainable destination development. Furthermore, the 1992 EC Directive on Package Travel is preventing operators from using local suppliers, which is a fundamental principle of responsibility to the local society (Carey, et al., 1997).

The tourist perspective

According to the United Nations World Tourism Organization, the prospect of direct and personal access to the discovery and enjoyment of the planet's resources constitute a right equally open to all the world's inhabitants (WTO, 1999). Tourism is one of the refined expressions of the sustained growth of leisure time and it is against human rights to put obstacles on it. The WTO exhorts the public authorities of its member countries to develop social tourism for the disadvantaged sections of the society who otherwise are likely to be left out of the positive benefits of tourism. The concept of the right to have leisure and recreation is relatively older than the concept of the right to vacation (Curtin and Busby, 1999). The introduction of human right to tour as a new category of praxis is indeed a reflection of the advancement of human-life. This right means that tourists on the move should not be mal-treated and their dignity should be upheld; they should have access to places of transit and stay and to tourism and cultural sites without being subject to discrimination or excessive formalities. Tourism professionals should ensure that the contractual clauses proposed in the agreements with tourists are honored and in case of a breach of contract on their part proper compensation is given. Tourists have the right to demand opportunities for their cultural and spiritual improvement, including opportunities for practicing their religion (Carey, et al., 1997). A corollary to the human rights of tourists is the tourist's right to demand privacy: a major concern of tourists is the confidentiality of their personal data. Another one is, when the travel formalities between countries become cumbersome, whatever may be the justifications given, the same becomes an assault upon the human right of individuals to travel freely. The human right to travel also implies that, at least wherever the economic situation permits, tourists should be provided with sufficient foreign exchange at locations convenient to them. Tourists have the right to ask the public authorities to provide the necessary assistance for their repatriation in the event of the failure of the enterprise that organized the travel or in the aftermath of natural calamities or

civil unrest. However, a more useful right for tourists is the host and home governments constantly informing them with updated advisories. The human right to tour directly confronts with wide- ranging practices like the exploitation of tourists by touts and coolies, charging different rates for the same product from tourists than from the locals, afflicting tourists with physical and mental torture, sexual abuse, misguiding tourists, blackmailing tourists holding them as hostages, not giving them proper medical care, not providing legal assistance, and so on (Malloy and Fennell, 1998). While tourists move in other countries, the host governments have to ensure that their lives and properties are protected and that they go back with pleasant memories. Sometimes, governments take quick and stern action once the crime is taken place: Cuban government, for instance, executed one local man for murdering four foreign tourists (Reuters, 1999). However, initiatives to protect tourists before something untoward happening are rarer. Some good practices are worth mentioning, too: the city authorities of Tijuana, Baja California, México, has come up with a detailed “Tourist Legal Guide” that warns against the possible human rights violations against the visitors and provides the means of handling abuses (TLG, 2007).

The governmental perspective

It is generally agreed that the most important single function of government is to secure the rights and freedoms of individual citizens. Governments are expected to create the underlying legal framework for protecting human rights and to take action when those rights are denied. Human rights are a high priority for governments, especially for those elected democratically. Yet, the compulsions of economics over politics often make human rights the first causality. In the name of promoting trade in tourism, many a time, governments maintain a drooping attitude towards human rights and related issues. In order to realize large-scale tourism projects, local populations are expelled from their land often without adequate compensation. Beaches are reserved for hotel guests while access is barred to residents. The possibilities of residents to make an income in the primary sector are curtailed. In many countries, child labor is commonplace in the tourism industry, particularly in the informal sector. There are instances when even well-intentioned initiatives of governments have succumbed to the collective might of the multinational tourism industry that believes that human rights of the residents, employees, and the small scale local enterprises can wait.

There is an ongoing debate in the literature on political governance as to whether it is better to decentralize governance and give power to the institutions at the grassroots level than to centralize everything at the national and state levels. Proponents of the first view argue that decentralization brings the delivery of public services to those who ultimately use them and is the best available means to empower the disadvantaged groups and thereby to protect their human rights. Governments help to promote and protect human rights through supporting grass roots activities for indigenous human rights groups and building the institutional capacity of national human rights bodies. The counter view is that decentralization may lead to the concentration of powers to a few local elites and simultaneously may weaken the authority of national institutions in preventing such situations. Tosun (2000) believes that there are operational, structural, and cultural limits to

local governance in the tourism development. However, empirical evidence emerging from different contexts generally suggests that local control of tourism has generated more benefits than costs (Westerhausen and Macbeth, 2003; Williams and Papamichael, 1995).

4) Objectives

1. to analyse the applicability of Human Rights in the Tourism sector
2. To reckon the quintessence of honorable tourism in India
3. To reveal the human rights violations at select tourist destinations and its implications

5) Methodology & Research Design

The study unearths the reach and impact of Human Rights in the demanding industry of tourism and hospitality and intends to unleash the importance of code of conduct, Best Practices and Honourable Tourism philosophies in practising Human Rights in this service based sector. Case based analysis method was initiated at various corners of tourism sector to reveal the current status of Human Rights Issues, Impacts and its mitigation. Structured interview and field observation method were employed to collect primary data and Secondary data involves data published by India Tourism, newspaper articles, information provided in the websites etc.

6) Law for Safeguarding the Rights of Tourists

No Central Tourism Act or Tourism legislation has been formulated by the Government of India. However, the National Tourism Policy has been formulated in 2002 for development and promotion of tourism sector which also contains basic principles for safeguarding the interest of tourists and tourism agencies. These principles include:

1. Government led, private sector driven and community welfare oriented actions
2. Sustainability Development
3. Earmarking a section of State Police to act as Tourist Police.

Accordingly, the Ministry of Tourism has taken following steps/initiatives for safeguarding the interest of tourists and tourism agencies:

- ❖ Adoption of code of conduct for **safe and Honorable Tourism**.
- ❖ Grant of Central Financial Assistance to the State Governments of Rajasthan, Uttar Pradesh and Andhra Pradesh for setting up of Tourist Facilitation and Security Organization (TFSO) on a pilot basis.
- ❖ Issue of Guidelines on Safety and Security of Tourists for State Governments/Union Territories and Tips for Travellers in September 2014.
- ❖ Formulation of a voluntary scheme for granting approval to hotel projects and classification of functioning hotels under Star System from the point of view of their suitability for international tourists.

- ❖ Formulation of a voluntary scheme of approving Travel Agents, Tour Operators, Adventure Tour Operators and Tourist Transport Operators to encourage quality, standard and service in these categories.
- ❖ The launch of a 24x7 Toll Free Multi-Lingual Tourist Helpline in 12 Languages including Hindi & English on the toll free number 1800111363 or on a short code 1363 offering a “multi-lingual helpdesk” in the designated languages.
- ❖ Issue of advisory to State Governments/UT Administrations for creation of Tourist Police.

Besides the above, under the provision of Consumer Protection Act, a consumer can make complaint in any Consumer Court depending on the geographical and pecuniary jurisdiction, about any defective goods or deficient services which also includes tourism services.

7) Code Of Conduct For Safe & Honorable Tourism

Safe and Honorable Tourism

To leverage the burgeoning global travel and trade and in keeping with the Indian tourism industry's objective of positioning India as a global tourism brand, the Ministry of Tourism has strategically outlined in its policy the central principle of, 'Atithi Devo Bhava' (Guest is God). In stating this, is evident the commitment of Indian tourism to ensure that every tourist in India is physically invigorated, mentally rejuvenated, culturally enriched and spiritually elevated.

To meet this objective and at the core of the National tourism policy of 2002 is outlined the seven pillars of tourism, Swagat (Welcome), Soochana (Information), Suvidha (Facilitation), Suraksha (Safety), Sahyog (Cooperation), Samrachanam (Infrastructure Development) and Safai (cleanliness). 'Safe and Honourable Tourism' aims to strengthen the critical pillar of 'Suraksha' (Safety) and ensure that Indian tourism follows international standards of safe tourism practices, applicable for both tourists and local residents i.e local people and communities who may be impacted by tourism in some way. Its central objective is to ensure that tourism activities are undertaken, integrating the need to protect the dignity, safety and the right to freedom from exploitation of all tourists and local residents involved in or impacted by tourism. In today's scenario, following safety guidelines is not just about adhering to the provisions of the seven pillars but also implies good business. As the demand from travellers for safe and secure tourism services increases, this code will assist signatories to build capacities among their services chains and personnel so as to be able to respond to this demand.

This code is a guideline of conduct to enable the Indian travel and tourism industry to:

1. Encourage tourism activities to be undertaken with respect for basic rights like dignity, safety and freedom from exploitation of both tourists and local residents i.e people and communities who may be impacted by tourism in some way.
2. Aid the prevention of prostitution, sex tourism and forms of sexual exploitations like

assaults and molestations in tourism to safeguard the safety of persons, in particular women and children.

3. To enhance prevention of activities like forced or involuntary drug use, manipulated and incorrect information, cultural and social intolerance which could increase vulnerability to crime.

Applicability:

This code of conduct shall be applicable to all the owners, suppliers, contractors, employees of the travel and tour sector including hotels, restaurants, lodges, guest houses, tour agents, entertainment establishments etc. In addition it shall be applicable to service providers like event management organizations, entertainment providers, transport operators like taxis, buses, tour guides and other services or agencies associated with the tourism sector. This is not a legally binding instrument but a set of guidelines for the tourism industry. In addition to these guidelines, included in this code are key messages that signatories are encouraged to use.

8) Guidelines for the Tourism Industry

1. Information & training of personnel:

- ❖ Management will take up measures to build awareness and train staff on the guidelines of this code and appropriate legal provisions to enhance vigilance and to ensure that personnel act in a manner that promotes the safety of tourists, local residents and their own staff.
- ❖ All hotels and tour operators shall train and maintain two persons as focal points to ensure that all safety norms and guidelines of this code are adhered to. The officers shall provide correct information to tourists, like information on Child lines- 1098, Women Help lines- 1091, local police helpline 100 and also act as a liaison officer with agencies such as the local police station, immigration authorities, civil society partners working in this area, child and women welfare committees etc.
- ❖ In case of an incidence of exploitation, personnel shall be sensitized to report correct information to the appropriate authorities act in cooperation with law enforcement agencies, other agencies providing care and support and take necessary action to protect the interests of the individual whose rights are violated,.
- ❖ Organizations will promote awareness on the code among service providers affiliated to their business such as vendors, contractors, taxi drivers, tour guides, event management companies etc.
- ❖ In case of misconduct by a staff member or personnel of a service provider, signatories of the code will commit themselves to act in an unbiased manner, reporting the incidence to appropriate authorities and protecting the interests of the individual whose rights are violated.
- ❖ Identified victims shall not be treated as criminals. They should be identified as persons in need of care, protection and should be provided with legal, medical,

psycho-social and any other assistance without delay.

2. Public awareness and guest notification

- ❖ Messages of intolerance to any form of exploitation must be made evident in appropriate places visible to guests/clients, employees and other visitors. Guests and clients must also be provided information through the company's website, brochures, tickets, bills, in- room/in-flight communication etc on issues related to commercial sexual exploitation such as sex tourism, prostitution, pornography, forms of sexual assaults, molestations and key messages elaborated in this code.
- ❖ In order to enhance tolerance for social and cultural norms, signatories of this code must take action to provide information available to their best knowledge on local social and cultural beliefs and norms. Knowledge and tolerance for different social and cultural norms will allow tourists to dress, conduct themselves and respect local beliefs helping them to adjust and thereby reducing the vulnerabilities they might face as foreigners to a particular destination.
- ❖ Signatories of the code are encouraged to assist tourists with guidance on safety tips applicable to the specific city/place like places to visit, timings for visits, right dressing and precautions against moving alone, and against accepting eatables and favors from unknown persons etc. Guests and clients shall be cautioned against solicitations from touts, non-regulated tourism operators and encouraged to consult the website of the Tourism Ministry and other authorized websites. Signatories will ensure that a clause is included in registration papers seeking commitment of the tourist to act in a manner that respects the dignity and rights of local residents and also to conduct themselves in a manner that shall aid the tourist's own protection against exploitation.

4. Regulated use of premises and official equipment:

- ❖ Management/owners are encouraged to prohibit usage of the organization's premises for use or abuse of illicit substances, sexual violations and of company equipment for viewing, storage, distribution, promotion or use of material which could increase vulnerability to exploitations of the nature mentioned in this code.
- ❖ Individuals under the permitted age shall not be allowed permission in to restricted areas like bars and pubs.
- ❖ Tourism service providers shall verify and maintain a record of details pertaining to tourists, personnel and service providers like address, contact details etc and also commit themselves to maintaining confidentiality.
- ❖ Internet usage that promotes, seeks any contacts for sex tourism and other sexual services, for search of pornographic material and/or to solicit the sale and purchase of illicit substances shall be prohibited.

5. Ethical business practices and marketing:

- ❖ Management/owners shall ensure that all contracts with business partners, suppliers and franchise agreements bear a clause seeking commitment to provisions of the 'Code of conduct for Safe and Honorable Tourism' in their businesses.
- ❖ Any tourism enterprise or service provider found to act in a manner that undermines the safety of persons outlined in this code may be blacklisted.
- ❖ Sexually explicit images or concepts/images that may compromise the safety of individuals shall not be used for marketing purposes. An unambiguous company policy shall be set up to ensure that marketing and advertising does not support the promotion of sexual exploitation or promotion of sexually explicit images.
- ❖ Signatories are encouraged to patronize vendors and service providers who are committed to adhering to the provisions of this code.

6. Implementation and Monitoring:

- ❖ All signatories are required to maintain an annual report on 'Code of conduct for Safe and Honourable Tourism' and submit it to a designated authority.
- ❖ Management/owners shall report on: Training and capacity building initiatives carried out for personnel/ staff.
- ❖ Means adopted to raise awareness on safety among guests, personnel and service providers

9) KEY MESSAGES FOR AWARENESS BUILDING AND DISSEMINATION**1. Enhancing safety and security of all tourists**

- ❖ All signatories of the code are committed to act in a manner that protects the dignity and freedom against exploitation of persons especially women and children and facilitate prevention of incidences of sexual molestation, harassment of their guests and provide assistance in case of an untoward incident. In case of exploitation please call the Child line-1098, Women Help lines- 1091 and/or contact relevant authorities like the police or travel and tour operators.
- ❖ Like in many places in the rest of the world tourists are encouraged to follow some basic and practical safety tips such as to remain with a group or meet new people in public places, not to accept items from persons whom they have befriended recently, be wary of unexpected, unknown persons coming to their hotel room, never open the door to unsolicited room service or maintenance people etc.
- ❖ Tourists are encouraged to understand local social, cultural norms and beliefs and are encouraged to conduct themselves in a manner that respects these beliefs.
- ❖ Tourists must always take the advice of more than one person when seeking information on places to visit, shopping places, local customs, beliefs and norms

and remain vigilant on accepting completed documents. Tourists are encouraged to seek information from Government of India recognized information centers and visit the Ministry of Tourism's websites.

- ❖ Indecent Representation of Women (Prohibition) Act, 1986, Section 2 (c) – Indecent representation of women means the depiction in any manner of the figure of a woman, her form or body or any part thereof in such a way as to have the effect of being indecent, or derogatory to, or denigrating a woman or is likely to deprave, corrupt or injure the public morality or morals.
- ❖ Kidnapping or abducting in order to subject person to grievous hurt, slavery, etc. is an offence under Section 367 of the Indian Penal Code.
- ❖ Assault or criminal force to woman with intent to outrage her modesty is an offence under Section 354 of the Indian Penal Code.
- ❖ Punishment for rape offences shall not be less than seven years but which may be for life or for a term which may extend to ten years as the case may be, according to Section 376 of the Indian Penal Code

2. Enhancing safety of local people

- ❖ People across the world dress, eat and live differently and follow different values and norms. Tourists are encouraged to respect the local people and must commit themselves to acting in adherence to local laws.
- ❖ Signatories to the code maintain zero tolerance to acts of sexual exploitations, including commercial sexual exploitation like prostitution, sex tourism and trafficking of persons for it.
- ❖ Many tourists believe that they are protected by anonymity and thus laws are more easily violated. Any guest, staff, partner linked to this agency found to be indulging in exploitations outlined in this code or supporting it shall be reported to an appropriate authority.
- ❖ A few alarming trends that have emerged in recent years are sexual exploitation through sex tourism, paedophilia, prostitution in pilgrim towns and other tourist destinations, cross border trafficking.
- ❖ According to studies conducted by the Ministry of Women and Child Development, there are 3 million commercial sex workers in India, of which an estimated 40% are children.
- ❖ Human trafficking is a crime against humanity. It involves an act of recruiting, transporting, transferring, harbouring or receiving a person through use of force, coercion or other means, for the purpose of exploiting them. The consent of a victim of trafficking in persons to the intended exploitation is irrelevant irrespective of age.
- ❖ Sexual relationship with a child amounts to rape according to the Indian Penal Code and is punishable with imprisonment of minimum 7 years which can even be

extended to life imprisonment.

- ❖ Acquiring or inducing any person (irrespective of age or sex) for prostitution or causing a person to be taken for prostitution is an offence under Section 5 of Immoral Traffic Prevention Act 1956 and with a punishment of 3- 7 years.
- ❖ It is a myth that sexual intercourse with a virgin or a minor will cure STI or prevent HIV. It only spreads the disease further.
- ❖ Abetment to crime amounts to committing the crime itself.
- ❖ Victims of exploitation are not criminals. They are persons in need of care, protection, legal, medical and psychological assistance.
- ❖ Under section 7 of Immoral Traffic Prevention Act, 1956, letting out a hotel or any part thereof for prostitution is an offence for which the license of the hotel can be suspended.
- ❖ Publishing or transmitting or causing to be published or transmitted, material in any electronic form which depicts children engaged in sexually explicit act or induces Children to online relationship with one or more children for and on sexually explicit act is an offence under section 67(b) of the Information Technology (Amendment) Act 2008.
- ❖ Narcotics Drugs and Psychotropic Substances (NDPS) Act- Engaging in the production, manufacture, possession, sale, purchase, transportation, warehousing, concealment, use or consumption, import inter-state, export inter-state, import into India, export from India or transshipment, of narcotic drugs or psychotropic substances is an offence except for scientific and medical reasons. Punishment for the offence may imply imprisonment, fine or both.
- ❖ Handling or letting out any premises for the carrying on of any of the above mentioned activities is an offence under the NDPS act.
- ❖ According to the National Security Act, 1980, the Central Government or the state Government has the power to act against any person with a view to prevent him from acting in any manner prejudicial to the defence of India, the relations of India with foreign powers or the security of India.
- ❖ The Foreigners (Amendment) Act, 2004 - If a foreigner to the country acts in violations of the conditions of the valid visa issued to him for his entry and stay in India, shall be punished with imprisonment for a term which may extend to five years and shall also be liable to fine. If he has entered into a bond then his bond shall be forfeited.

10) Sustainable Development Goals and Human Rights

how tourism businesses can practically contribute to respect for human rights and fulfilment of the SDGs with their activities and business relationships. Showing the overlaps and giving first ideas how to combine the two concepts in tourism practice

The 2030 Agenda for Sustainable Development with its 17 Sustainable Development Goals

(SDGs) is a comprehensive and universal framework for governments and businesses. Embedding respect for human rights along their supply chain is the most powerful contribution of tourism businesses to sustainable development. The different approaches to integrate SDGs into tourism practice with a focus on decent working conditions in destinations with participatory destination development approach is regarded now as the need of the hour.

Human Rights and Responsible Business addresses the following issues /challenges.

- ❖ How can Human Rights information in destinations be gathered and tourism impacts be identified and prioritized?
- ❖ How can Human Rights topics be communicated internally and towards customers?
- ❖ How can Public Private Partnership projects support decent work in tourism? How can Multi Stakeholder approaches work for sustainable development of tourism?
- ❖ As tourism grows, pressure increases on resources and land. How does tourism affect fishing communities and how can tour operators empower coastal communities?

The UNWTO is in the process of transforming the **Global Code of Ethics for Tourism** into an international convention. In an open letter to the General Secretary the Roundtable welcomes UNWTO's efforts in this regard. A UN Convention creates an international, legally binding framework for responsible development within the tourism sector, which governments and businesses have to follow. However, the Roundtable expressed the concern that the process seems rushed and intransparent as it did not leave any room for interventions by small and medium enterprises or civil society organisations and affected communities. Without a serious review of the content of the Code of Ethics and a strong commitment to the 2030 Agenda as well as the UN Guiding Principles on Business and Human Rights, the added value of such a convention remains questionable. The Roundtable criticises that the conciliation mechanism of the convention is planned to be isolated from the convention itself. It should be included in an optional protocol, which member states have to ratify additionally. This is a serious step backwards in the process of the implementation of ethics in tourism and threatens the credibility of the convention. The Roundtable reaffirms its serious commitment to work jointly with UNWTO and offers to contribute to an open and productive review process of the draft convention at any time.

11) Global Code of Ethics for Tourism (GCET)

As a fundamental frame of reference for responsible and sustainable tourism, the Global Code of Ethics for Tourism (GCET) is a comprehensive set of principles designed to guide key-players in tourism development. Addressed to governments, the travel industry, communities and tourists alike, it aims to help maximise the sector's benefits while minimising its potentially negative impact on the environment, cultural heritage and societies across the globe.

Adopted in 1999 by the General Assembly of the World Tourism Organization, its

acknowledgement by the United Nations two years later expressly encouraged UNWTO to promote the effective follow-up of its provisions. Although not legally binding, the Code features a voluntary implementation mechanism through its recognition of the role of the World Committee on Tourism Ethics (WCTE), to which stakeholders may refer matters concerning the application and interpretation of the document. The Code's 10 principles amply cover the economic, social, cultural and environmental components of travel and tourism:

Article 1: Tourism's contribution to mutual understanding and respect between peoples and societies

Article 2: Tourism as a vehicle for individual and collective fulfillment

Article 3: Tourism, a factor of sustainable development

Article 4: Tourism, a user of the cultural heritage of mankind and contributor to its enhancement

Article 5: Tourism, a beneficial activity for host countries and communities

Article 6: Obligations of stakeholders in tourism development

Article 7: Right to tourism

Article 8: Liberty of tourist movements

Article 9: Rights of the workers and entrepreneurs in the tourism industry

Article 10: Implementation of the principles of the Global Code of Ethics for Tourism

12) A case let 1 - Tourism and human rights violations at Alappuzha in Kerala

Alappuzha, known popularly as the Venice of the east, is a beautiful strip of land stretching along the coast of the Arabian Sea networked by crisscrossing backwaters that connect small villages that constitute the region of Kuttanadu. The position of Alappuzha in the tourism map of Kerala, the southern-most State of India, is very important and it is indeed an integral component of the Kerala tourism product which has been rated as "one of the fifty destinations to be visited in one's lifetime" by the National Geographic Channel.

The region of Kuttanadu to which Alappuzha belong is also known as the "granary of Kerala" since a major chunk of the agricultural produce of the state of Kerala comes from this region. Till the early '80s, a majority of the farming community lived here were illiterate and were largely unaware of the developments being taken place outside the territory. But at the same time, the communities were self-sustained as they produced and shared whatever was required for them to lead a fulfilling life. Surplus was traded at the port city of Alappuzha. During that period, the cargo boats, called as "kettuvallam", were used to collect agricultural produce from the villages dotted across the backwaters and transport the same to sell in the market. The main produce was rice and hence they were popularly called "rice boats".

But, in a few years time, the situation has changed dramatically because of momentous regional development schemes. Roads, bridges and motorized ferry services came to the scene and people began taking advantage of the comforts of such modernity of sorts. As a result, rice boats became anachronistic and ceased to occupy a spot in the economic geography of the region. In the place of rice boats came their new incarnation, houseboats, which became the hallmark tourist product of Alappuzha. Tourism development in Alappuzha began to gear up in the early 1990's and it became an indispensable destination for nature tourists by 2000. In this march towards more and more growth, a major resource allocation crisis was in the making: tourists consumed a disproportionately large chunk of the consumptive resources depriving the local population of the traditional control over the same. The prices of essential commodities shot up and the income available from the agricultural and agribusiness activities became insufficient to buy them. This led to a sudden demand for employment in the tourism sector. However, openings were insufficient and even the available vacancies, in many instances, were filled up from talent sourced from elsewhere. By 2000, due to the over-supply of workers, wages began to slide down, leading to another major crisis. This provided the right set of conditions for antisocial elements to prop-up. Sex-tourism through houseboats, especially involving women and minors, is a major disruptive development worth mentioning. Tourists staying overnight in houseboats floating on the serene backwaters were provided with prostitutes and this took only a short while to be grown in full swing as a huge black market mafia.

Over a period, this has got the recognition as a safe business since there was hardly any raid or so by police. This has a spiraling effect: once the news is spread that wine and women are freely available the same influences the nature of subsequent demand. The irresponsible tourist in the postdrink/sex mirth makes the locals feel as if they were commodities for his consumption. Even otherwise, one big menace is the tourists' unsolicited photographing of locals, especially women, while they take bath in the backwaters, and putting them in the internet. Houseboat tourism generates other human rights violations as well: the sewages pumped out of these to the backwaters make it extremely unhealthy for human consumption. The locals who used to utilize this water for virtually everything in their routine lives ceased to get the benefit of something that they kept as their natural right from time immemorial. The government did not do anything to control the water pollution or bring in alternative sources of potable water. The local panchayat's request to bring water through pipes or construct water distribution canals has fallen into deaf ears. The water pollution had yet another detrimental effect upon the local livelihood: the region was a harvesting place for freshwater fish; fishes in particular and the aquatic life in general has almost depleted off the region's water body. Tourism related property developers grabbed a lot of easy deals from the state government which were damaging to the local interests. For instance, a large number of localities were forcefully evicted out of acres of agrarian land facing the waterfront in the name of resort construction, with meager compensation and no certain livelihood alternatives. Had the right to make a decent living been recognized as a human right, this could not have been permitted.

Case 2 - Sea Plane Project for Tourism or Traditional Fishing? What is Important at Alappuzha ?

The seaplane project which intends to boost the backwater Tourism in Alappuzha has finalized the water drome in Punnamada. But the project failed to gain confidence of the local citizens as they fear that the project will affect their livelihood. According to them, the state had gone ahead with the project without discussing it with all the stakeholders. The seaplane project when formally announced, hundreds of fishermen blocked the landing area in Punnamada Lake with their boats to stage their protest against. The fishermen who consider the seaplanes as a threat to the fragile ecology of the region and firmly believed that project will affect inland fishing.

Case 3- What should be Prioritized ? Tourism or Protection - The North Sentinel Episode

The killing of an American national by members of an endangered tribe in the Andaman islands off India's east coast has renewed concerns over the surreptitious practice of "tribal tourism" The indigenous islanders of North Sentinel, among the last of the "uncontacted" tribes in the world, killed 27-year-old John Allen Chau with arrows when he went to their island in November 2018. Andaman is home to five "particularly vulnerable" tribes. They are the Jarawas, North Sentinelese, Great Andamanese, Onge and Shompen. The Jarawas and the North Sentinelese haven't integrated with the mainstream population yet. This makes them a source of intrigue for many of the 500,000 tourists who visit the islands every year. The Nicobar Islands are home to two 'Mongloid' tribes – the Shompen and Nicobarese. The 'Negrito' tribes are believed to have arrived in the islands from Africa up to 60,000 years ago. All are nomadic hunter-gatherers, hunting wild pig and monitor lizard, and catching fish with bows and arrows. They also collect honey, roots and berries from the forest. Some of the Nicobarese people do some form of cultivation, and are also involved in what are considered 'mainstream' jobs.

It all started with a major step in August 2018 when the government excluded 29 islands – including the one inhabited by the Sentinelese tribe – from the Restricted Area Permit (RAP) regime, till 31 December 2022 – in a major effort to boost tourism here. Earlier, permission had to be taken for tourists to travel to these areas, most of which were off-limit in the past. The Andaman Islands are home to four 'Negrito' tribes – the Great Andamanese, Onge, Jarawa and Sentinelese.

2) RECOMMENDATIONS

- ☐ The Government should strengthen the Commission on Human Rights and the stakeholders engaging in tourism businesses in India should be made accountable for their human rights impacts.
- ☐ The tourism industry should take responsibility for mitigating human rights abuses that occur throughout their supply chains by undertaking independent social and environmental impact assessments as part of a process of human rights due diligence, based on the UN Guiding Principles on Business and Human Rights.

- The UN World Tourism Organisation (UNWTO) facilitates greater participation of civil society organisations in UNWTO processes and ensures that member countries are in compliance with the UNWTO Global Code of Ethics
- The governments concerned should protect their citizens from human rights abuses perpetrated by the tourism industry and implement regulations and planning controls which ensure sustainable tourism development.

3) CONCLUSION

In the name of development, human rights are often neglected while there are definite long-term advantages to be gained by actively promoting it. It is concluded that sustainable development of tourism is not possible until human rights as a relevant category is recognized by all the stakeholders. After all, tourism is all about temporary human movements to alien places and complex interactions among alien human beings involved in making tourism possible in different ways. Temporariness marked by liminality in everything obfuscates the long-term visions of stakeholders leading to downplay of human rights wherever admissible. For this to change, the international tourism system has to metamorphose from a blind economic orientation to an alternative orientation that respects ethics and cultural norms. The big question is: how do you create a code of rights that apply to a highly diverse group of stakeholders that tourism has got. Awareness and action about human rights has also become truly current and global in spread. In this backdrop, one of most significant practical application of the principles of human rights would be in making tourism a tool for global affirmative action: while post-modern humans around the world acquire a touristic face, tourism simultaneously has to acquire a human face.

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Future of E-Tourism

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Abstract

The revolution of the Internet and information and communication technologies (ICTs) in India has had already insightful repercussions for the tourism industry. A whole system of Communication Technologies and the Internet has been rapidly diffused throughout Indian tourism sectors. Subsequently, online travel bookings and associated travel services are accepted as one of the most thriving e-commerce implementations. The tourism industry initially concentrated on utilizing information system to increase efficiency in processing of information within and managing distribution. Since the emergence of the Internet, travel planning (e.g., travel information search and booking) has always been one of the major reasons that people use the Internet.

E-Tourism (electronic tourism) is a part of electronic commerce and unites one of the fastest development technologies, such as the telecommunications and information technology, hospitality industry and the management / marketing / strategic planning. The specific activities of the E-Tourism assume the existence of the tour operators, of the travel agencies and other entities with interests in tourism field in virtual space through a specialized portal. The phenomenon itself has implications for both travel consumer and for tour operators, travel agents. E-tourism involves for the final consumer the following aspects: e-information, e booking (hotels, transportation, etc) and electronic payment.

Keywords: *Big Data, electronic word-of-mouth (eWOM), Virtual reality (VR), Advanced Passenger Information (API).*

Main Conference Topic: *Tourism and Information Technology*

INTRODUCTION

The revolution of the Internet and information and communication technologies (ICTs) in India has had already insightful repercussions for the tourism industry. A whole system of Communication Technologies and the Internet has been rapidly diffused throughout Indian tourism sectors. Subsequently, online travel bookings and associated travel services are accepted as one of the most thriving e-commerce implementations. The tourism industry initially concentrated on utilizing information system to increase efficiency in processing of information within and managing distribution. Since the emergence of the Internet, travel planning (e.g., travel information search and booking) has always been one of the major reasons that people use the Internet. Since the emergence of the Internet, travel planning (e.g., travel information search and booking) has always been one of the major reasons that people use the Internet.

Digital technology has in the literature many different names, such as IT- Information Technology, ICT – Information and Communication Technology, DT - Digital technology, and DICT - Digital Information and Communication Technology, and its application in tourism as DT – digital tourism, e-Tourism - electronic tourism and e-tourist – electronic tourist. IT is usually defined as a term given to digital computer and communication technologies used for the acquisition, processing analysis, storage, retrieval.

TRENDS IN E TOURISM

1. Hardware trends

Hardware evolution to mention that will have profound impact on travel and tourism is robotization. Lately robotization in the form of self-driven cars has become hype, and self-driving tractors and self-driving trucks are already a reality, soon strongly influencing agriculture and the transport sector. Self-driving aviation is under development while self-driving taxis hit the streets of Singapore in August 2016. The future in automatization within transport sector and travel is just taking its first trial steps but will in many ways have bearing on future jobs in transport- and travel sector.

Another tourism sector that will be strongly influenced by intelligent robots and androids is the tourism service sector. Besides “classic” appearing robots, we start to see robots take up jobs as receptionists, interpreters, hotel staff, economists and salesmen. They look ever more human-like in appearance, intelligence and behaviour, and half of all service jobs are predicted to succumb to automatization within two decades. This may seem dystrophic, but already today a large share of the modern service economy is run almost entirely by computers. New technologies automate physical tasks (robotics), intellectual tasks (cognitive computing), and customer service tasks.

2. Software trends

The software or application programs develop in symbiosis the computer capacity and hardware evolution, and operation systems such as Windows or Mac OS have developed tremendously from their first appearance. Soon AI - Artificial Intelligence will be integrated parts of any software applications. Beside the increased usability and capacity of traditional applications such as Office and other everyday applications, the evolution of the Internet from Web 1.0 to present web 3.0 and future web 4.0 show an amazing technological development

3. Internet trends

By the millennium the web 2.0 emerged as an interactive and social web facilitating collaboration between people, with websites that emphasize user-generated content and usability. It became collaborative allowing social layers and collaborative projects such as Wikipedia, social networking sites and virtual communities with user-generated content like Facebook, blogs and micro-blogs like Twitter, podcasts, video sharing such as on YouTube.

Recently Internet has transformed into web 3.0, however, researchers and others do not fully agree on the definition and content of web 3.0 as is still is under development. It

refers to a third generation of Internet-based services that collectively comprise what might be called ‘the intelligent web’ —to be more connected, open, and intelligent, with semantic web technologies, distributed databases, natural language searching and processing, data-mining, machine learning, machine reasoning, autonomous agent, recommendation agents, and artificial intelligence technologies — which emphasize machine-facilitated understanding of information in order to provide a more productive and intuitive user experience.

4. Webpage trends

Web design for web 2.0 and web 3.0 based on both functionality and usability is becoming of critical importance for the travel industry. Travellers expect websites to be informative, interactive, and attractive. A successful website should therefore take customers’ interest and participation into consideration, to capture information about their preference, and to subsequently use the information to provide personalized communications and services. The mobile web is constantly evolving, and Google is always experimenting with new ways to speed up content delivery and performance across all devices.

5. Cloud computing trends

A major megatrend that started in 2015 is business digital transformation into cloud computing and cloud services. During 2017 Cloud 2.0 will be established where most of companies will have moved from “experimentation” with the cloud into full scale use, predicting that in 2018 over 60% of all business data will be cloud based. This disruptive digital transformation consists of transferring local daily data handling and computing to a distributed computing architecture in the cloud, providing computing resources and server-free applications located in the cloud as externally provided computing services, where organizations buy whatever resource they need (as a service) from an external cloud service provider.

6. Big data trends

All industries are affected by the emergence of big data, but travel industry has seen the most dramatic transformation in this respect. Companies that quickly embrace this digital transformation will more likely succeed in the future. This disruptive transformation is an effect of the exponentially rise of data and information over the last 10 years combined with the increased scale of computing power and storage capability together with the introduction of artificial intelligence in data handling.

Travel companies now can use this information to provide more targeted customer service and marketing. leads to a potentially new and lucrative area for travel professionals – predictive analytics. Thus, we are not only being able to predict where, when and how a customer is likely to travel but also being able to serve customers marketing messages or prompts at a time when they are likely to buy. Such connecting of separate data sets will be a growing trend for the travel industry in 2017 and forward. Today much data is still difficult to access hidden in servers of travel companies, but with the transformation into cloud

computing, departmental walls break down as data starts to be held in central reserves, data lakes, that can be shared across businesses.

7. Customer digital segmentation trends

In the 1980 the field of Psychometrics, sometimes also called psychographics, was developed, that focuses on measuring psychological traits, such as personality. This has primary been used by political marketing, such as the last US president election, where previously campaigns have been organized based on demographic concepts such as all women should receive the same message because of their gender. This Psychometrics approach opens for tremendous power of personal travel service and travel marketing, making the traditional market segmentation by region, by age group or by travel purpose, outdated, which are too simple to reflect the reality of how travel is purchased.

8. Social network trends

The history of social media is traced back to and co-evolved with the evolution of the *Internet*. A new trend from 2016 is that messaging is exploding as an engagement channel at hotels. Hotel brands big and small have made headlines for their adoption of various messaging channels, as well as for the development of their own messaging systems within existing apps or apps for the purpose of just messaging. Consumers have taken quickly to messaging platforms like *Facebook Messenger*, *WeChat*, *Snapchat*, *WhatsApp*, *Viber* and others, on top of their existing SMS abilities.

Messaging has entered the travel mainstream in 2016, primarily driven by text based bots, although voice based interfaces are starting to make their presence. Bots are virtual customer service agents that operate mostly on social networks, especially *Facebook*. 2016 was the year when chatbots emerged as a new interface for consumer interaction.

E TRENDS IN TRAVEL DISTRIBUTION

Traditionally, the travel distribution role has been performed by outbound travel agencies (OTAs), tour operators (TOs) and inbound travel agents (ITAs). As the Internet and eCommerce developed in the 1990s, the on-line travel distribution developed. Internet allowing to purchase travel products on-line on a 24h/365 days basis at their convenience, rather than during the office hours of traditional tourism providers. Search engines play a fundamental role in creating traffic to travel websites. Search has become increasingly important in travel and tourism, and about two-third of online travellers use search engines for travel planning. Search engines, through their indexing, matching, and ranking technologies, control what information is available to consumers and how it is presented. To be represented by search engines, tourism suppliers must engage in sophisticated search engine optimization.

Traditional distribution on the internet is through supplier's websites, which are carrying a booking engine. There are plenty of booking engines on the market, from low-end products with good prices to high-end booking services with great service. Website have traditionally been used to get people interested in the product, offering other channels such

as mail or even telephone for closing the sale. Using a booking engine makes this process easier, more efficient and thus resulting in more sales.

Travel distribution faces a range of potentially huge disruptions over the next 10 years that will significantly impact industry players and their business models. Five disruptive factors for the travel distribution industry:

1. Consumer expectations

It will grow to be the major disruptive factor demanding more choices, frictionless purchasing, inspirational shopping and personalized services.

2. Mobile devices

It is already today are a disruptive factor and will in the future have a major disruptive role, demanding 24-hour services during the whole travel cycle, where micro-moments in search and booking will influence the travel distribution system.

3. Big data and AI

It will allow real-time analysis of consumer preferences and responses to consumer's request based on consumer's previous choices and digital footprints. Virtual assistances and travel guides will change consumer behaviour and shift power to those players who control the technology.

4. Regulations

Regulations on the national and international level determine the rules governing the competition in the industry. A major disruptive factor over the next decade will be the extent to which regulators intervene to limit the power of larger players such as mega meta-online travel agencies (OTAs) and travel management companies (TMCs), and the rising gatekeepers such as *Google* and *Facebook*.

5. Travel risks

Such as terrorist attacks and natural disasters affect significantly consumer behaviour at all stages of the travel with impact on travel distribution. Demand may increase for low-risk destinations, safer times of the year or hotels with higher safety ratings. Regulations could be strengthened for advanced passenger information (API).

E TRENDS IN TOURISM MARKETING

A trend in tourism promoting is to use different picture-based social media applications such as Instagram, Pinterest, Snapbucket, Twitter, Tumblr and others, which can be regarded as a form of express marketing. Here pictures and videos are used as content carriers in the form of visual storytelling, to share content across different platforms to engage uses from YouTube, 360-degree feeds and Facebook Live. Info graphics - the use of visualized information. The reason for the popularity of info graphics is said that the brain is visually wired as almost 50% of the brain is involved in visual processes and 70% of all sensory receptors are in the eyes. Video is the strongest trend in social media, the film capacity of smartphones, and cheap editing and productions on desktop and smartphones,

has made video production everyone's option. For travel marketing, online video is a powerful way to convey excitement about a destination, product, service or brand and create awareness and engagement of a product or destination.

Context-based marketing uses ICTs tools such as location-based technology that recognise and enable to respond on the physical environment (context) of their users. Connecting the different concepts of context-based marketing, social media and personalization, with mobile devices, result in social context mobile (SoCoMo) marketing. SoCoMo marketing introduces a new paradigm for travel and tourism. It enables tourism providers and destinations to revolutionise their offering by obtain and share real-time, contextual information for various decision-making processes associated with the consumption of experiences, and to co-create products and services in real-time dynamically with their consumers. Such location-based social network (LSN) marketing using contextual information is increasingly relevant in tourism marketing, as in the near future big data collected by a wide range of sensors in a smart destination provide real-time information that can be used to influence the tourist experience.

Costly branding strategies employed by tourism marketers can, however, easily be undermined by consumer reviews and blogs. Research has shown that interpersonal influence and word-of-mouth (WOM), and when digitally, electronic word-of-mouth (eWOM), are ranked the most important information source when a consumer is making a purchase decision, especially in the tourism industry, whose intangible products are difficult to evaluate prior to their consumption. eWOM has thus change the structure of travel information and travel marketing, the accessibility of travel information, and subsequently travelers' knowledge and perception of various travel products.

The revolutionary 360-degree video means viewers can see the video from every angle just by swiping or moving the phone or tablet around-no headset required. Uploads of 360-degree videos continue to grow and have doubled lately. Virtual reality (VR) takes the 360-degree video experience a step further by adding depth. When viewed with a VR headset, 360-images become three-dimensional, which adds to the feeling of immersiveness. On top of that, spatial audio lets people listen to audio from all directions, just as in the real world. This makes VR and 360-degree video an incredibly powerful tool to create presence. When a viewer feels like they are there, they have a greater sense of the situation. Visual storytelling becomes more impactful.

CONCLUSION

Digital information technologies have had, and will have increasing profound impacts on the tourism industry. Travel will continue to be one of the most popular online interests to consumers. Access to the Internet and the mobile communication devices will increase the number of electronic connections between customers and the tourism industry.

These new technologies will increase the environment for creating relationships, allowing customers to access information more efficiently, conducting transactions more easily, and more closely interact electronically with businesses and suppliers. The growing up of the

digital generations changing the demographic profile and behaviours of Internet users, will result in Internet will be considered the primary source for travel information and travel experiences support.

User generated media such as blogging, podcasting, live-streaming, pictures sharing, and social networking are expected to play an even more important role in supporting travel planning activities as well as in the construction of memories and extended experiences in the post-consumption phase of travel. It will be an increased need to integrate such applications on tourism and travel websites and apps. Social networking and virtual world will continue to merge, offering engaging opportunities for communication, sharing and online experiences. New technologies are being developed in an increasing speed, which will have a significant impact on tourism. These will disrupt existing value chains in tourism, and lead to the emergence of new players in the tourism industry, and significantly influence consumer experiences.

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Brief biographies of the author

Dr. P. Premkanna holds Ph.D in Tourism Management from Madurai Kamaraj University, India. He has 21 years of academic experience and currently working as Professor and Head in the Department of Catering Science and Hotel Management at Hindusthan College of Arts and Science, Coimbatore, India.

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Sustainable Tourism In Cochin-A Study On Visitors Perception And Experience

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Abstract

Many destinations are focusing in providing optimum visitor satisfaction with increasing competition in the market, also destinations face growing challenges in striking a balance between consumption and conservation. Sustainable tourism has not often looked through a visitor's lens. Visitors are seeking experiences with deep connection to the destination and sustainable practices allow for a richer visitor experience. Understanding destination perceptions and experience of visitors is vital to promote a destination sustainably. In practical terms, this could be critical for destination like Cochin, one of the popular areas in India and Kerala's most popular tourism destination. Kerala through its unique tourism products and marketing strategies is way behind in executing the Sustainable Development Goals aimed at the UN's 2030 agenda for Sustainable Development. To develop as a Sustainable tourism destination, it is important to create and transmit a favourable image to potential tourists in target markets and thus represents the way for destinations to position themselves sustainably. In this background the present study has been undertaken by choosing 200 tourists as respondents to find the visitor's perception and experience and the demographic factors influencing visitor behaviour in Cochin. As the destination managers are striving towards creating a favourable image to raise upto sustainable tourism destination, the findings of this study will provide insights to tourism planners and marketing professionals to develop the appropriate selling proposition or "offer" that prioritize sustainability and fits the requirement of their target tourist market with a more visitor-oriented approach, considering visitors' preferences and quality of personal experience.

Key words: Visitor Perception, Visitor Experience, Sustainable tourism, Cochin, Destination Image.

INTRODUCTION

Tourism industry is moving towards the objective of driving economic growth with improvements in revenue, profitability and return on investment while holding priority to sustainability and quality of the visitor experience. Globalization and increasing competition between organizations and tourism destinations has resulted in finding out ways to differentiate specific and composite products in order to be successful. Promoting sustainability in a tourism destination has identified the adoption of the quality sustainable

approach in order to meet the balance between perception and experience of tourists and stakeholders that comprise the tourism system.

The Destination Management Organizations are taking up new marketing strategies to face the challenges that look to achieve a high level of satisfaction from all parts, both at the organizational and destination levels. In this, understanding the perceptions and experiences of tourists and visitors during their stay, appears as a major issue in terms of supply and positioning of tourism destinations sustainably.

(Mendes et al., 2010)

O'Leary, & Deegan, 2003 suggested that perceived image has great impact on the tourists' travel decision-making, behavior towards a destination, the satisfaction levels and recollection of the experience. This expresses understanding destination expectations and experience of visitors is vital to promote a destination sustainably. Perceived images are the basis for evaluation or selection process and thus provide a link between motivation and destination selection of the tourists.

For understanding differences in tourists' perceptions, images and motivations toward a destination it is critical to figure out and forecast tourism demand and its influence on the destination. This understanding of image and visitors' perceptions is critical to a destination and thus provides the basis for more effective and efficient strategic sustainable planning of the destination. In practical terms, this implies that image studies are a prerequisite to a sustainable marketing strategy and thereby to raise upto sustainable tourism destination.

According to (Sirakaya, et al., 2002), it is very important to understand when the destination image is formed, and at what point the image influences tourist's choice of a particular destination as stated by Pike & Ryan, 2004, main objective of any destination positioning strategy should be reinforcing positive images already held by the tourists, correct negative images, or create a new image which also supports the theories of sustainability.

REVIEW OF LITERATURE

DESTINATION IMAGE

The creation of a unique destination image is a major concern of the tourism scholars, practitioners of the industry and of the destination marketing. An increasing number of researchers support the importance of understanding, creation and strengthening of destination image as an important aspect of destination positioning (Chon 1991; Echtner & Ritchie 1991; Baloglu & Brinberg 1997; Reisinger & Turner 2000; Lee & Lee 2009; De Jager 2010; Wang & Hsu 2010; Ramkissoon et al., 2011).

Destination Image can be considered as an outcome of quality of services in the destination. Kozak (2000) through his studies summarized that destination attributes influences future behavioral intentions and satisfaction of the tourists. Several contributions in the tourism literature have shown the indirect influence of service quality on post-purchase behavioral intention through perceived value and tourist satisfaction (Wang et al., 2010).

Today in the highly competitive market, the ability to identify the various components of the destination image is more crucial than ever. In particular, the understanding which elements of the target image determine the tourists' choice of the destination and of their post-trip behaviors can help destination marketers to develop successful promotional strategies (Ramkissoon *et al.*, 2011).

Cognitive and Affective Image of a Destination

Many research efforts have focused on Tourism Destination Image being formed by two distinct but interrelated components: cognitive and affective (Lawson and Band-Bovy, 1977; Gartner, 1993; Dann, 1996; Baloglu and Brinberg, 1997; Baloglu and McCleary, 1999a; Beerli and Martin, 2004; Pike and Ryan, 2004). The cognitive component can be referred as beliefs and knowledge about the objective attributes of a destination, and the affective component implies to the appraisal of the affective quality of feelings towards the attributes and the surrounding environments. Researchers highly rely on Russell's (1980) scale to capture the affective image of a destination e.g., Baloglu and Brinberg, (1997) and there is a strong preference for ad hoc measures to assess the cognitive attributes of destinations.

DESTINATION PERSONALITY

Batra, Lehmann, & Singh, 1993; Aaker, 1997, describes Brand personality as the personality traits associated with humans that consumers perceive brand to possess. According to Keller, 1993, a unique brand personality can create a set of distinctive and favourable associations in consumer memory and thereby enhance brand equity.

Brand personality serves as a vital basis for differentiation (Crask and Henry, 1990). As a result, brand personality is an important factor for the success of a brand. As referred by Aaker and Fournier, (1995) Brand personality research suffers due to a lack of common theory of personality traits to describe products and brands. In this background, Aaker (1997) has developed a reliable and valid instrument: the Brand Personality Scale (BPS).

Based on the dimensions of human personality Aaker (1997) suggests a five dimensional brand personality structure which includes sincerity (down-to-earth, real, sincere and honest), excitement (daring, exciting, imaginative and contemporary), competence (intelligent, reliable, secure and confident), sophistication (glamorous, upper class, good looking and charming) and ruggedness (tough, outdoorsy, masculine and western). Based on Aaker's (1997) study, the literature evidences several applications of the BPS theory in different research areas (e.g., Aaker, Benet-Martinez, & Garolera, 2001; Siguaw, Mattila, & Austin, 1999; Supphellen and Gronhaug, 2003).

According to Crockett and Wood, like brand personality research, the tourism literature also refers the importance of destination personality, being the perceived image of a place and in influencing tourist choice behavior. At the conceptual level, many tourism academics acknowledges the importance of the destination personality construct (Henderson, 2000; Morgan, Pritchard, & Piggott, 2002; Crockett and Wood, 2002).

According to Ekinici and Hosany, 2006 till date, limited study exists that identify destination personality dimensions.

METHODOLOGY

In this literature background the present study has been undertaken by choosing 200 tourists as respondents to find the visitor's perception and experience by ascertain the Destination Image, Destination Personality, Services of Cochin, Overall Image, Destination Loyalty and also the demographic factors influencing visitor behaviour in Cochin.

OBJECTIVES

- Identify the demographic factors influencing visitor behaviour in Cochin.
- Study the factors determining the visitors expectations and experience towards Cochin
- Ascertain the cognitive and affective attributes of destination image, destination personality and destination loyalty.
- Provide insights to tourism planners and marketing professionals to develop sustainable business strategies

The measures for Destination Image, Destination Personality, Services of Cochin, Overall Image and Destination Loyalty were adapted from previous research. The questionnaire also comprises socio- demographics characteristics and aspects of travel behavior.

DESTINATION IMAGE

The study is combining both cognitive and affective components as suggested by Crompton, 1979; Dann 1996 in its assessment of destination image. The five measures relaxing; exciting; arousing; pleasant and enjoyable adopted from Russell (1980) were identified to measure Affective image.

With the background of Ong and Horbunluekit (1997) study cognitive image measures were adapted from and modified. Ratings for the destination image scale are captured using a 5 point Likert-type scale with anchors 1= "Strongly Disagree" and 5= "Strongly Agree", considering Ong and Horbunluekit (1997).

DESTINATION PERSONALITY

According to Aaker's (1997) five dimensional brand personality scale (BPS) Destination personality was measured. The BPS is the most accepted instrument for measuring brand/product personality and various studies (e.g. Siguaw et al., 1999) adopt this scale to capture consumers' perception of brand personality. According to Santos (2004) personality attributes such as "contemporary", "modern", "sophisticated", and "traditional" represents Portugal in the U.S. travel media. Henderson (2000) suggests that the New Asia-Singapore brand consists of six personality characteristics: cosmopolitan, youthful, vibrant, modern, reliable and comfort. Based on the above studies, personality traits, across 3 dimensions, were retained and modified for the final questionnaire and are as follows:

Sincerity (Reliable, Sincere, Intelligent, Successful,, Wholesome); **Exciting** (Exciting, Daring, Original, Spirited) and **Conviviality** (Friendly, Family oriented, Traditional, Modern, Charming) respectively.

Ratings for the destination personality scale are captured using a 5 point Likert-type scale with anchors 1 =“Strongly Disagree” and 5= “Strongly Agree”,considering Aaker’s (1997) study and recent research on brand personality (e.g., Diamantopoulos, Smith, & Grime, 2005). The study also includes multiple dependent measures to assess the criterion validity of the scales. All items are measured using a 5point single item Likert-type scale. Overall destination image evaluation is captured using the attributes Heritage/Cultural, Backwaters/ Sea, Religious, Health & Wellness Adventure & Wildlife with ranks 1 =“Strongly Disagree” and 5= “Strongly Agree”,.

SERVICES OF COCHIN

Services of Cochin is measured using the statements Stay in Cochin has been valuable to me, Have gained a lot of new knowledge and experiences in Cochin, Staying in Cochin is value worth, Price of B&B/Half Board/full board in Cochin is reasonable, Price of Additional offer at Cochin is favourable, Will get more than my money's worth by visiting Cochin, Cost of visiting Cochin are a bargain relative to the benefit I receive with anchors 1 =“*Strongly Disagree*” and 5= “*Strongly Agree*”,

DESTINATION LOYALTY

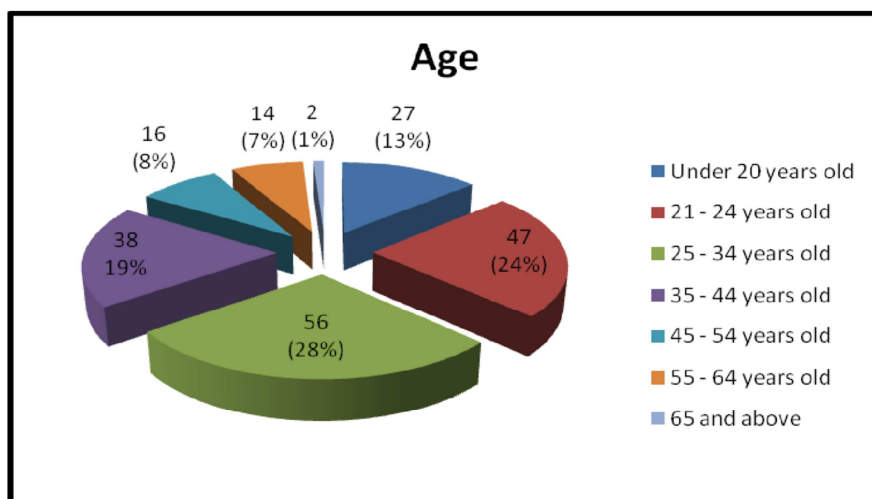
Finally, the measure for Destination Loyalty using the statementsWould choose Cochin again, Will recommend Cochin to my friends and relatives, Will speak highly about Cochin to my friends and relatives, Cochin would be my preferred choice for future vacation, and I am likely to visit Cochin in the near future with 1 =“*Strongly Disagree*” and 5= “*Strongly Agree*”,

DATA COLLECTION AND SAMPLE

Data were collected in Cochin via a personally administered questionnaire. To participate in the survey, respondents were approached randomly on the streets in major tourist spots of the destination. A total of 200 questionnaires were collected from tourists.

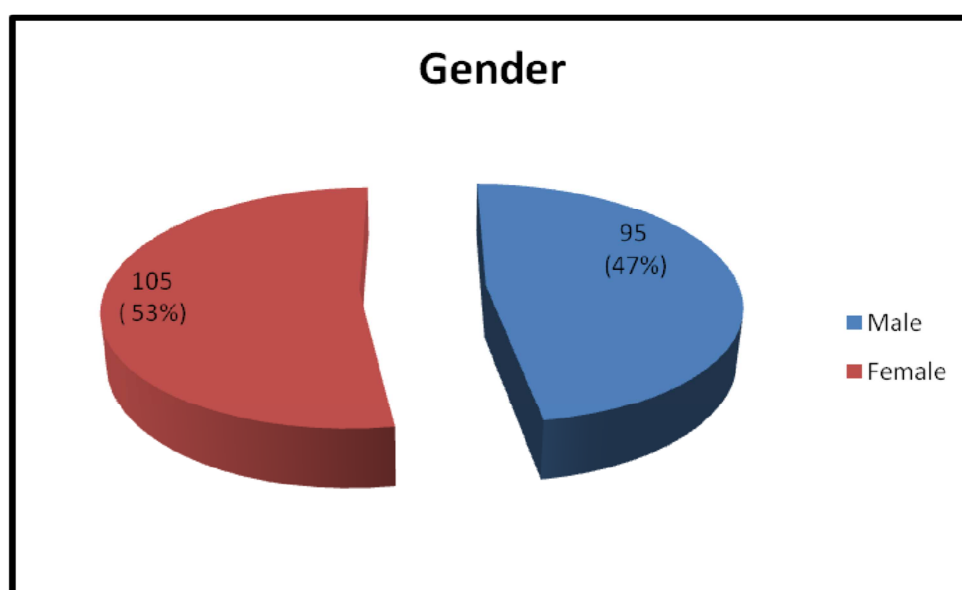
ANALYSIS

Figure 1:- Frequency Distribution of respondents with respect to their Age.



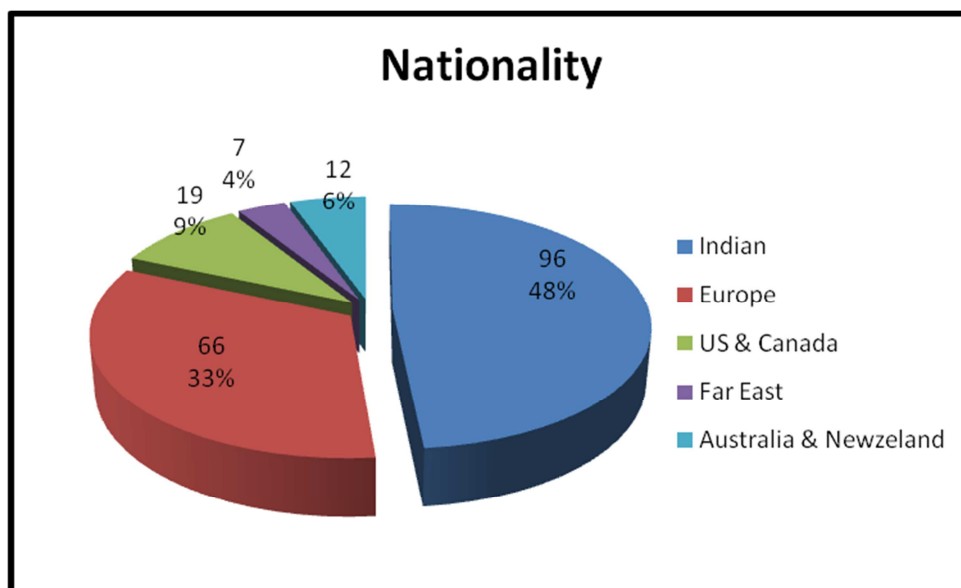
The graphical representation of the frequency distribution of respondents based on their age depicted in fig. 1 shows that 28% (56) belonged to the age group 25 – 34 years old, almost 24% (47) belongs to 21 – 24 years old, 19% (38) belongs to 35- 44 years old, about 13% (27) of the respondents under 20 years old, 8% (16) of the respondents 45-54 years old, 7% (14) of the respondents from 55 – 64 years and 1% (2) of the respondents 65 and above. It is found that maximum 28% (56) out of the 200 respondents at the age group of 25 – 34 years old visited Cochin and minimum 1% (2) 65 and above visited Cochin.

Figure 2:- Frequency Distribution of respondents with respect to their Gender.



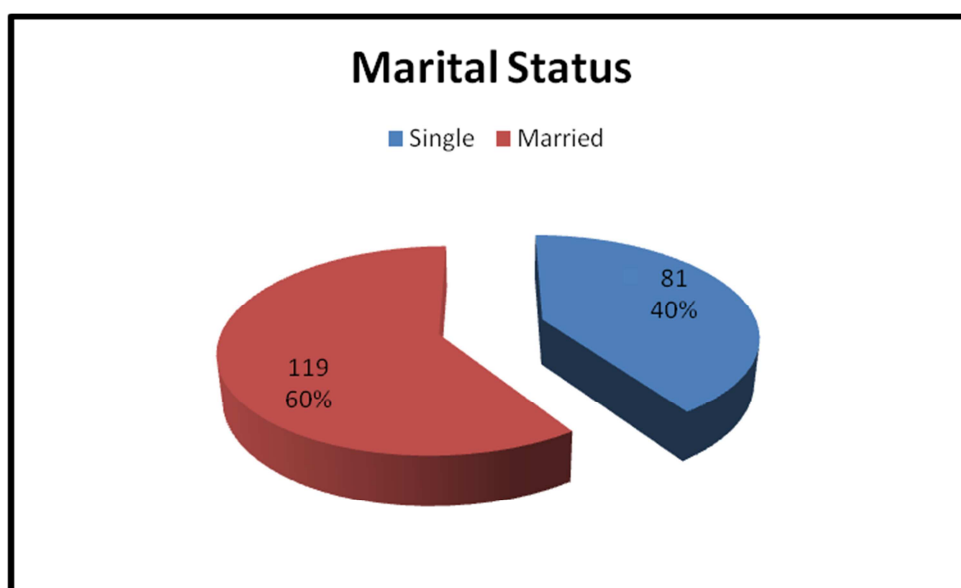
The graphical representation of the frequency distribution of respondents based on their gender depicted in fig.2 shows that 53% (105) are female tourists and remaining 47% (95) are male tourists. From the analysis it is found that there is only a slight variation, an increase of 6% (10) in the number of female respondents compared to men.

Figure 3:- Frequency Distribution of respondents with respect to their Nationality



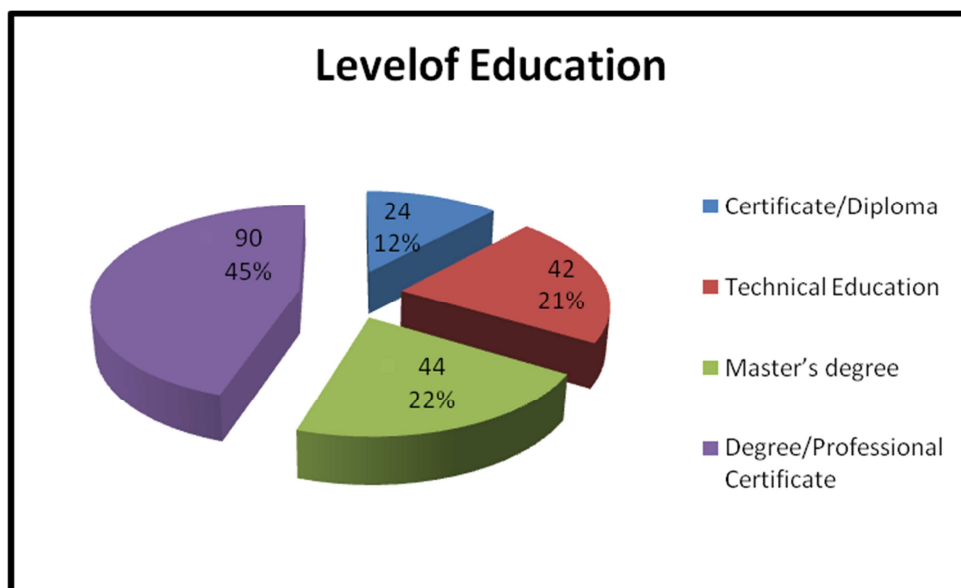
The graphical representation of the frequency distribution of respondents based on their nationality depicted in fig.3 shows that 48% (96) of the respondents are Domestic tourists and remaining 52% (104) are foreigners, which includes 33% (66) tourists from Europe, 9% (19) from US & Canada, 6% (12) from Australia & Newzeland and 4% of the tourists from Far East.

Figure 4:- Frequency Distribution of respondents with respect to their Marital Status.



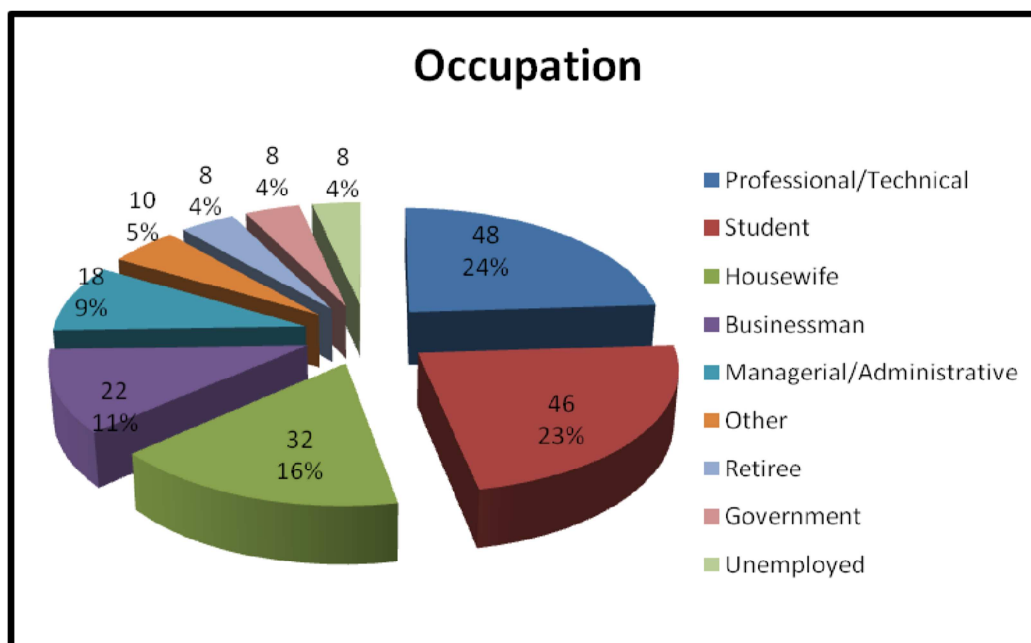
The graphical representation of the frequency distribution of respondents based on their marital status depicted in fig. 4 shows that 60% (119) are married while 40% (81) are single. From the analysis it is found that there is a 20% increase in the number of married visitors when compared to the single ones.

Figure 5:- Frequency Distribution of respondents with respect to their Educational Qualification.



The graphical representation of the frequency distribution of respondents based on their Level of Education depicted in fig.5 shows that 45% (90) have possessed a Degree/Professional Certificate, followed by 22%(44) Masters Degree holders, and 21%(42) has completed technical education while 12% (24) of the respondents possess Certificate / Diploma. It is found that maximum tourists who visit Cochin are well educated and meager number of them is below graduation level.

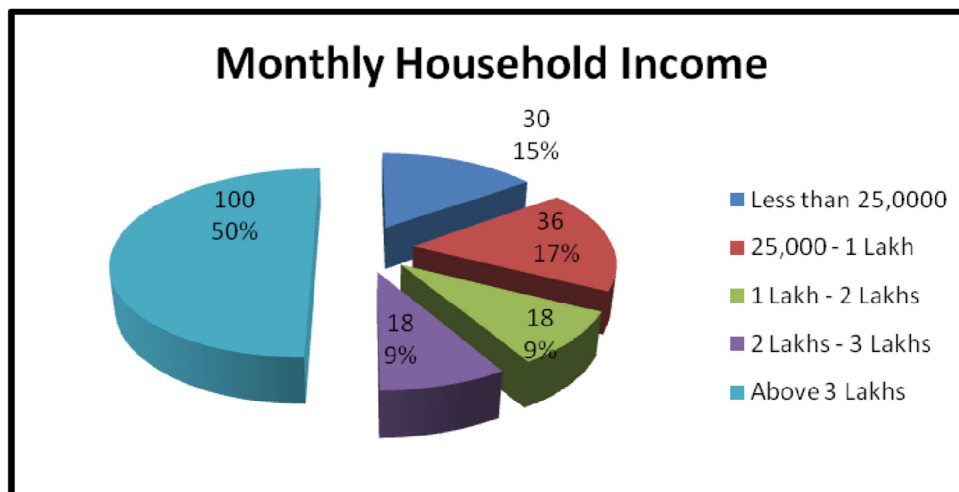
Figure.6:- Frequency Distribution of respondents with respect to their Occupation.



The graphical representation of the frequency distribution of respondents based on their occupation depicted in fig.6 shows that 24% (48) of tourist respondents belong to Professional/ Technical group while 23% (46) respondents are Students, with a slight variation of 1% (2). Similarly 16% (32) of the respondents are Housewife, while 11% (22) are businessman, 9 % (18) belongs to Managerial/ Administrative group, 5% (10) belongs to

others, 4% (8) retiree and 4% Government while only 4% of the respondents who visited Cochin are unemployed.

Figure 7:- Frequency Distribution of respondents with respect to their Monthly Household income.



The graphical representation of the frequency distribution of respondents based on their Monthly household income depicts that 50 % (100) of the respondents' monthly household income is Above 3 lakhs, while 50% of the respondents monthly household income is below 3 lakhs i.e. 9% (18) of the respondents varies from 2 lakhs – 3 lakhs, while 9% (18) from 1 lakh – 2 lakhs. Similarly, 17% (36) of the respondents ranges between 25,000 to 1 lakh and only 15% (30) of the respondents are less than 25,000. So it is found that maximum tourists visiting Cochin has a Monthly household income above 3 lakhs, inferring that they have enough disposable income to spend during their visit to Cochin.

Table.1: Frequency Distribution of Holistic Construct of Sincerity in Destination Personality

Sincerity	Frequency	Percent
Reliable	84	42.0
Sincere	40	20.0
Intelligent	9	4.5
Successful	45	22.5
Wholesome	22	11.0
Total	200	100.0

The best factor which denotes Sincerity in Destination Personality is Reliable (42%)

Table.2: Frequency Distribution of Holistic Construct of Excitement in Destination Personality:

Excitement	Frequency	Percent
Exciting	98	49.0
Daring	30	15.0
Original	57	28.5
Spirited	15	7.5
Total	200	100.0

The best factor which denotes the attribute of Excitement in Destination Personality is Exciting (49%)

Table 3: Frequency Distribution of Holistic Construct of Conviviality in Destination Personality:

Conviviality	Frequency	Percent
Friendly	72	36.0
Family oriented	26	13.0
Traditional	55	27.5
Modern	10	5.0
Charming	37	18.5
Total	200	100.0

The best factor which denotes the Conviviality attribute of Destination Personality is Friendly (36%)

Table.4: Services of Cochin

	N	Mean	Rank
Stay in Cochin has been valuable to me	200	4.00	2
Have gained a lot of new knowledge and experiences in Cochin	200	4.14	1
Staying in Cochin is value worth	200	3.76	4

Price of B&B/Half Board/full board in Cochin is reasonable	200	3.57	6
Price of Additional offer at Cochin is favorable	200	3.60	
Will get more than my money's worth by visiting Cochin	200	3.84	5
Cost of visiting Cochin are a bargain relative to the benefit I receive	200	2.37	3
Valid N (list wise)	200		7
	200		

The descriptive statistics for the overall rating of the “Services of Cochin” is presented in table

which comprises of seven items which shows that “have gained a lot of new knowledge and experiences in

Cochin” rates the highest rank, Rank 1 with a mean value 4.14 and the Second rank followed by Staying in Cochin has been valuable to me” with a mean value of 4.00, “Will get more than my money’s worth by visiting Cochin” with a mean value of 3.84 followed by “Price of additional offer at Cochin is favourable” ranking fourth with a mean value of 3.60 and 3.57 for “Price of B&B/Half Board/full board in Cochin is reasonable” with slight variations in the mean value. While all the above listed items are positive factors, “Cost of visiting Cochin are a bargain relative to the benefit I receive” is a negative item with a mean value of 2.37. From the table it is inferred that the factor “Have gained a lot of new knowledge and experiences in Cochin” is the key factor in pulling the tourists to Cochin, one among the major reasons for creating loyalty towards the destination.

Table 5: Affective Image of Cochin

	N	Mean	Rank
	200	4.15	3
Pleasant	200	4.00	4
Exciting	200	3.84	5
Arousing	200	4.23	2
Relaxing	200	4.53	1
Enjoyable	200		
Valid N (listwise)	200		

The descriptive statistics for “how the tourists feel about Cochin as a vacation destination” on the scale “Affective Image of Cochin” is presented in table 5 which shows that Enjoyable rates the highest rank with a mean value of 4.53, followed by, Relaxing, Pleasant, Exciting and arousing with mean values 4.23, 4.15, 4.00 and 3.84 respectively.

From the table it is inferred that Cochin is considered to be Leisure destination meant for Enjoyment and relaxation.

Table 6: Destination Image of Cochin

	N	Mean	Rank
Heritage/Cultural	200	4.34	2
Backwaters/ Sea	200	4.51	1
Religious	200	3.78	3
Health & Wellness	200	3.66	4
Adventure & Wildlife	200	3.11	5
Valid N (list wise)	200		

The descriptive statistics for “how the perception of tourists about Destination Image of Cochin” on the scale is presented in table 6 which shows that Backwaters rates the highest rank with a mean value of 4.51, followed by, Heritage/Cultural, Religious, Health/Wellness and Adventure & Wildlife with mean values 4.34, 3.78, 3.66, and 3.11 respectively. The table shows that Backwaters/ Sea Contributes highly to the Destination Image of Cochin followed by the Heritage/Cultural aspects.

Table 7: Destination Loyalty towards Cochin

	N	Mean	Rank
Would choose Cochin again	200	3.93	3
Will recommend Cochin to my friends and relatives	200	4.21	1
Will speak highly about Cochin to my friends and relatives	200	4.18	2
Cochin would be my preferred choice for future vacation	200	3.93	3
I am likely to visit Cochin in the near future	200	3.82	4
Valid N (list wise)	200		

The descriptive statistics for the “Destination Loyalty towards Cochin” is presented in table which comprises of five items which shows that “Will recommend Cochin to my friends and relatives” rates the highest rank, Rank 1 with a mean value 4.21 and the Second rank followed by “Will speak highly about Cochin to my friends and relatives” with a mean value of 4.18, “Would choose Cochin again” and Cochin would be my preferred choice for future vacation with an equal mean value of 3.93 followed by “I am likely to visit Cochin in the near future” ranking fourth with a mean value of 3.82. From the table it is inferred that the tourists are highly loyal to Cochin.

Table 8: Destination Image Compared With Monthly House Hold Income

		Sum of Squares	df	Mean Square	F	Sig.
Heritage/Cultural	Between Groups	7.958	4	1.989	3.769	.006
	Within Groups	102.922	195	.528		
	Total	110.880	199			
Backwaters	Between Groups	5.451	4	1.363	2.935	.022
	Within Groups	90.529	195	.464		
	Total	95.980	199			
Religious	Between Groups	9.680	4	2.420	2.975	.021
	Within Groups	158.640	195	.814		
	Total	168.320	199			
Adventure & Wildlife	Between Groups	9.744	4	2.436	2.021	.023
	Within Groups	235.051	195	1.205		
	Total	244.795	199			

From the analysis it is clear that there is relationship with Destination image & Income.

Table 9: Service Quality Compared With Monthly House Hold Income

		Sum of Squares	df	Mean Square	F	Sig.	
Staying in Cochin is value worth		Between Groups	22.257	4	5.564	8.206	.000
	Within Groups	132.223	195	.678			
	Total	154.480	199				
Price of B&B/Half Board/full board in Cochin is reasonable	Between Groups	53.012	4	13.253	12.314	.000	
	Within Groups	209.863	195	1.076			
	Total	262.875	199				
Price of Additional offer at Cochin is favourable	Between Groups	48.693	4	12.173	11.462	.000	
	Within Groups	207.102	195	1.062			

	Total	255.795	199			
Will get more than my money's worth by visiting Cochin	Between Groups	11.906	4	2.976	4.300	.002
	Within Groups	134.974	195	.692		
	Total	146.880	199			
Cost of visiting Cochin are a bargain relative to the benefit I receive	Between Groups	38.769	4	9.692	6.902	.000
	Within Groups	273.851	195	1.404		
	Total	312.620	199			

From the table it is clear that there is relationship with Service Quality & Income.

Table 10: Service Quality Compared With Occupation

		Sum of Squares	df	Mean Square	F	Sig.
Staying in Cochin is value worth	Between Groups	15.054	8	1.882 .730	2.578	.011
	Within Groups	139.426	191			
	Total	154.480	199			
Price of B&B/Half Board/full board in Cochin is reasonable	Between Groups	41.759	8	5.220 1.158	4.509	.000
	Within Groups	221.116	191			
	Total	262.875	199			
Price of Additional offer at Cochin is favourable	Between Groups	36.274	8	4.534 1.149	3.945	.000
	Within Groups	219.521	191			
	Total	255.795	199			
Will get more than my money's worth by visiting Cochin	Between Groups	17.317	8	2.165 .678	3.191	.002
	Within Groups	129.563	191			
	Total	146.880	199			
Cost of visiting Cochin are a bargain relative to the benefit I receive	Between Groups	9.943	8	1.243 1.585	.784	.017
	Within Groups	302.677	191			
Total		312.620	199			

From the table it is clear that there is relationship with Service Quality& Occupation..

FINDINGS AND SUGGESTIONS

The study summaries that destination image, destination personality, destination loyalty and services of cochin has different dimensions which work in conjunction with each other and forms an overall image of the destination there by a sustainable tourism destination. The fact that a destination cannot move towards sustainability and realize its full tourism potential unless it has a favourable image reveled out. The study suggests various marketing strategies for implementation with reference to the findings in order to create a positive image for these sub-tourism dimensions and thereby a sustainable tourism destination.

From the frequency analysis it is clear that both male tourists and female tourists are motivated in large number towards Cochin as a Holiday destination and also the teen aged tourists are more loyal to Cochin than aged ones. Half of the respondents (52%) being foreigners, which includes majority from Europe(33%) followed by US & Canada, (9%), Australia & Newzeland (6%) and Far East(4%) in order to attain a wider and greater impact, technological tools of internet for advertising has to utilized in a more effective way. A sustainable, well planned and designed image promotion campaign with the necessary improvements in identified areas is necessary to enhance Cochin's image. From the analysis it is found that there is a 20% increase in the number of married visitors when compared to the single ones thus packages and promotions should be youth oriented giving consideration to the single community also. The maximum tourists who visit Cochin are well educated and meager number of them is below graduation level of which 24% of tourist respondents belong to Professional/ Technical group while 23% (46) respondents are Students, with a slight variation of 1% (2) followed by the other work groups and based on the monthly income status half of the respondents are belonging to monthly household income above 3 lakhs inferring that they have enough disposable income to spend during their visit to Cochin. The best factor which denotes Sincerity in Destination Personality is Reliable (42%), Excitement in Destination Personality is Exciting (49%) Conviviality attribute of Destination Personality is Friendly (36%) .

The descriptive statistics for the overall rating of the "Services of Cochin" is presented in table which comprises of seven items which shows that "have gained a lot of new knowledge and experiences in Cochin" rates the highest rank, Rank 1 with a mean value 4.14 and the Second rank followed by Staying in Cochin has been valuable to me" with a mean value of 4.00, "Will get more than my money's worth by visiting Cochin" with a mean value of 3.84 followed by "Price of additional offer at Cochin is favourable" ranking fourth with a mean value of 3.60 and 3.57 for "Price of B&B/Half Board/full board in Cochin is reasonable" with slight variations in the mean value. While all the factors of services in Cochin are positive factors, "Cost of visiting Cochin are a bargain relative to the benefit I receive" is a negative item From the study it is inferred that the factor "Have gained a lot of new knowledge and experiences in Cochin" is the key factor in pulling the tourists to Cochin, one among the major reasons for creating loyalty towards the destination.

The Destination Image of Cochin is considered to be Leisure destination meant for Enjoyment and relaxation with Backwaters/ Sea contributing highly to the destination Image of Cochin followed by the Heritage/Cultural aspects. Developing and enhancing the image of backwaters of India and create awareness about this potential through aggressive marketing and advertising is an effective way of sustainable tourism promotion. Package and market India's wide variety of cuisines through brochures, magazines, internet and food festivals and encouraging e- commerce portals for effective marketing support will also enhance the image of cochin as a sustainable tourism destination.

Based on the study it is also inferred that the tourists are highly loyal to Cochin. Through the analysis it is inferred that Service Quality is highly dependent on Occupation and Income. It is also concluded that Destination image and Income are highly related. The ministry should work towards developing a thriving and sustainable tourism industry that did not compromise on the existing biodiversity through the preservation, conservation and protection of the environment and the country's natural and cultural heritage.

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Exploring Data Analytics for Promoting Thiruvananthapuram as a Wellness Tourism Destination

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Abstract

The tremendous technological advances and innovations that we have been witnessing over the last decade have paved the way for an exponential growth in data that is generated. Data now comes from varied sources and in different formats - structured as well as unstructured. Analyzing the data to glean valuable information has benefited many domains tremendously. This paper is an attempt at exploring the usage of Data Analytics in the field of Tourism with a view to ascertain whether it can be used for promoting Thiruvananthapuram as a Wellness Tourism Destination.

Keywords: Wellness Tourism, Healthcare tourism, Thiruvananthapuram, Data Analytics

Main Conference Topic: Economy, Entrepreneurship and Tourism

Introduction

Big Data, Data Analytics, and Business Intelligence are terms that have created waves over the last decade. The primary reason for this is the amount of data that gets generated nowadays. The explosion of data has come about because of the tremendous advances in technology. Analysis of such huge amounts of data provides new insights into past trends and helps in predictions and forecasting. But the traditional techniques and statistical methods are not adequate for crunching this huge amount of data. New techniques are required. This is called Big Data Analytics. This has revolutionized many domains. Tourism domain has not remained untouched by the new Data Analytics Wave.

Thiruvananthapuram, the capital city of the state of Kerala is a major tourism destination. It has good infrastructure and medical facilities. Yet, it does not figure in the top medical tourism destinations in India.

This paper is an attempt at looking at Data Analytics and its usage in the Tourism domain in order to explore whether the stakeholders of Thiruvananthapuram Medical Value Tourism sector can tap into Data Analytics to improve Thiruvananthapuram's chances in attracting Wellness tourists.

Structure of the Paper

In the next section, the methodology used for this study is described. An introduction to Big Data is given in the next section with an explanation of its concepts. This paper then studies some cases where Data Analytics has been used in the Tourism sector across the world. Finally, conclusions are drawn from the study as to whether Data analytics can be used for promoting Thiruvananthapuram as a top Wellness tourism destination in India and to attract Medical Value tourists.

Methodology

The objective of this study is to ascertain whether Data Analytics is a good option for attracting Wellness Tourists to Thiruvananthapuram. This paper approaches the problem using the following methodology:

1. Gather information from the concerned Tourism authorities in Thiruvananthapuram whether Data Analytics is being currently used
2. Review of case studies detailing the use of Data Analytics in the Tourism Sector

Data Analytics – An Introduction

Big Data refers to large datasets – huge amounts of data produced continuously. A major contributor to this explosion in the generation of data has been the growth of internet, in particular social networks. Big Data analytics is one of the fastest emerging fields.

Till recently, too much of data was considered as information overload. But now, every bit of data is considered valuable. The coinage of the term Big Data to represent large datasets can be attributed to Michael Cox and David Ellsworth who used it in their paper titled “Application-controlled demand paging for out-of-core visualization” in the Proceedings of the IEEE 8th conference on Visualization, October 1997; and John R. Masey, Chief Scientist at SGI, who used it in the paper “Big Data and the Next Wave of InfraStress Problems, Solutions, Opportunities”, which was presented at a USENIX meeting in April 1998 [4].

Big Data is characterized by “three Vs”:

- Volume: The enormous amount of data that is generated
- Velocity: The high speed at which data is generated
- Variety: The heterogenous nature of data that gets generated from various sources

Big Data Analytics is the analysis of the large amounts of data that get generated to uncover hidden patterns and correlations. Big Data analytics is used extensively in many domains such as online retailing, manufacturing, healthcare, education, and also by the government. Governments in many countries use Data Analytics for national security purposes.

Everyone on the internet is leaving their foot prints on the various websites they visit. This user trail on the internet has proved to be extremely valuable data which helps in gaining knowledge about the preferences of the user. The social media networks are goldmines of such user preferences. Mining this data helps in predictive modeling and predictive analytics. Predictive analytics use algorithms and machine learning to predict possible user behavior and in tailoring targeted marketing campaigns to attract users. Data Analytics can be used effectively in the tourism sector.

Big Data and Tourism

The world of internet is a veritable goldmine of data for the tourism sector. Airline reservations, Hotel reservations, Restaurant reservations, travel arrangements – all these online either through websites or through apps. The travellers leave their comments and reviews of the establishment and services. There are websites dedicated for user reviews of the hotels and restaurants. Mobile apps have been provided by many travel and tourism service providers. The users are requested to rate their experience after availing the services. Travel blogs and discussion forums are other avenues where travellers express their opinions. The service providers also have feedback mechanisms – online as well as call centers. Call centers are an important source of data and the data can be analyzed to uncover valuable information [1]. The emergence of social networks and its ever growing popularity means that almost every traveller or tourist leaves a data trail on social media. Social media is a source of enormous volume of data when compared to other sources. Sentiment Analysis can be done on data from social media to ascertain the tourist/traveler's sentiment about the visit [2].

The data trail that the users leave while using online services adds up to huge amounts of data for each user or type of user [3]. A picture about user preferences for a particular region can also be obtained from this data.

Since the sources and nature of the data are disparate and heterogeneous, traditional methods, technologies and infrastructure are not equipped to gather this data and to analyze them. A paradigm shift in the approach to analyzing the data is required [6].

The online data that can be gathered come from different sources. Structured data comes from travel management websites, blogs, and so on. But almost 75% of the data is unstructured and is not available at one place. Unstructured data comes from multiple sources and in multiple formats. The sources of such data include social networking websites such as Facebook, micro-blogging sites such as Twitter, other websites which have user-generated content such as TripAdvisor and Quora. The content from these sources vary and can be text, video, audio, photos, and so on.

The greatest advantage that Data Analytics offers is that it takes away guess work from the Tourism Policies and Plans.

Thiruvananthapuram

Thiruvananthapuram is the capital city of Kerala. It is blessed with natural beauty. Thiruvananthapuram is nestled between the Arabian Sea in the West and the Western

Ghats on the East. The beautiful beaches of Kovalam and Varkala, and the beautiful hill station of Ponmudy are in the district of Thiruvananthapuram. It is also home to many other beautiful beaches, backwaters and waterfalls. It is dotted with heritage monuments like palaces, forts, and museums as it used to be the capital of the erstwhile princely state of Travancore.

Because of all these advantages, Thiruvananthapuram has been one of the most sought after tourism destinations – for both international and domestic tourists.

From the data collected from the Kerala Tourism Statistics published by Department of Tourism, Government of Kerala, Thiruvananthapuram accounts for a major share of the tourists visiting Kerala. The foreign tourist arrival to Thiruvananthapuram over the period 2006-2015 is given in Table 1. The table shows that the foreign tourist arrivals to Thiruvananthapuram have been growing every year [7].

Table 1: Tourist arrival to Thiruvananthapuram: 2006 to 2015

Year	Foreign Tourist Arrival to Thiruvananthapuram
2006	151578
2007	193924
2008	234797
2009	176571
2010	204049
2011	224387
2012	242739
2013	268444
2014	289612
2015	310223

Thiruvananthapuram as a Wellness Tourism Destination

Thiruvananthapuram has excellent healthcare facilities and infrastructure. It houses government run Medical Colleges in the areas of Allopathy, Homoeopathy, and Ayurveda. All these three Medical Colleges are considered prestigious colleges. In addition to these, there are many private Medical Colleges too. Hospitals with excellent facilities and reputed doctors are also housed in the district of Thiruvananthapuram.

But, even though Thiruvananthapuram is one of the top destinations for tourists visiting India and also has excellent Healthcare facilities, it is not a top destination for

Wellness tourists. How can the position of Thiruvananthapuram as a Wellness tourism destination be improved? This is where Data Analytics comes into the picture.

The following section details some case studies where Analytics was used in the Tourism sector.

Use of Data Analytics in Tourism – Some Cases

In this section, this paper looks at three case studies of the use of Data Analytics in the Tourism domain.

Case 1: Cuba

Cuba is an ideal case study for this paper. Cuba's healthcare system is considered one of the best in the world. Cuba features among the top healthcare destinations.

To improve the chances of Cuba as a preferred international tourist destination, the Cuban government used the services of a Spanish Analytics company, SocialVane [9]. SocialVane is an analytics platform specifically designed for the tourism domain. SocialVane is now known as MABRIAN – **MAKING BRIGHT ANALYTICS**. MABRIAN specialises in behavioral analytics of tourists [4]. The platform helps the authorities to monitor and help make decisions about what actions need to be taken to attract more tourists.

The objective of the Cuban exercise was to gather data from social networks and analyse the data to identify the problems in government owned hotels. The SocialVane platform was used to:

- Collect information from Social Media about each of their hotels and tourist establishments
- Monitor and collect information from Social Media about mentions of Cuba
- Monitor and collect information from Social Media about mentions of Cuba's competitors
- Categorize the collected information

Almost half of the 3 million tourists visiting Cuba are from Canada. With the restoration of full diplomatic ties between US and Cuba, Cuba expects an addition of 2 million tourists from the US. This would mean that the hotels and other tourist establishments have to be ready to satisfy this increased inflow of tourists.

Case 2: Thailand

Thanathorn Vajirakachorn and Jongsawas Chongwatpol have proposed a framework for applying Business Intelligence to predict the intention of tourists to revisit a festival site [8]. They propose a framework consisting of database, analytics, and visualization layers for the purpose. According to them, the Data Mining techniques that they have employed in their study provides much more insights into the factors that influence the intention of tourists to revisit the festival than the data that could be gathered using survey questionnaires. They validated their framework with a case study of a local food festival in Thailand - a downtown

festival in Pattaya called 'The 5th Walk to Remembrance at Naklua Market', which was held every weekend for a three month period with an average attendance of approximately 2,000 visitors per evening. They used a Data Mining model called CRISP-DM Model with the following phases: business understanding, data understanding, data preparation, modeling, evaluation, and deployment. They used four different prediction platforms: neural networks, stepwise logistic regression, decision trees, and support vector machines. Their study found neural networks performed best for predicting, followed by regression and support vector machines.

Case 3: Red Roof Inn

The US economy hotel chain Red Roof Inn found that having hotels near major airports was hugely advantageous [5]. Using data analytics they found that when flight cancellation rate was around 3%, the number of passengers getting stranded was around 90,000 everyday. Using publicly available data on weather conditions and flight cancellations, they also ran marketing campaigns so that details about their hotels would show up when stranded passengers at airports searched for accommodation nearby. And they were able to achieve an increase of 10% in the business.

Big Data and Medical Tourism

Similar to the trail of data left online by normal tourists, data for Medical Tourism can also be found online. Because of the wide spread availability of internet services, mobile technologies, and social networking applications, wellness tourists post extensive reviews of the healthcare facilities they had been to along with their pros and cons. They give ratings to each facility as well as to the city and the country. Analyzing the data can provide good insights into the preferences of the Wellness tourists. Data Analytics can throw light on the Travel behavior of the tourists. It is called Behavioral Analytics.

Data Analytics for Thiruvananthapuram

For this study, the concerned authorities in charge of tourism in Thiruvananthapuram were contacted. They are keen to improve Thiruvananthapuram's standing as a Wellness Tourism destination. Though they are aware of Big Data and Data Analytics, they have not considered using Analytics for promoting Thiruvananthapuram as a Wellness destination.

Recommendations and Conclusion

The data trail left by Wellness tourists from all over the world on the internet is enormous. The Thiruvananthapuram tourism authorities can tap into this data to learn about the expectations, preferences and habits of the Wellness tourists. This will help in analyzing not only the trends in the Healthcare tourism sector worldwide, but also throw light on what is lacking in Thiruvananthapuram as Wellness tourism destination. Analysis of this data will help in getting a good picture of the expectations of healthcare tourists. This can be used as the input for designing healthcare tourism packages and also to improve and fine tune the Healthcare infrastructure and tourism facilities in Thiruvananthapuram.

Big Data Analytics can help Thiruvananthapuram in improving its standing as a Wellness Tourism Destination.

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Tourism and Economic Empowerment - An Empirical Study on Indigenous Tribes

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Abstract

The tourism sector in the Nilgiris district of Tamil Nadu has grown rapidly due to the massive inflow of domestic and International tourists. Tourism has become one of the major economic contributors in the region enabling significant source of income and employment. In the recent past, plethora of studies have been conducted exploring the impact of tourism in empowering entrepreneurship, enhancement of skill set, economic multiplier effects on local inhabitants, community development, preservation of cultural & ethnicity and many.. Present study is also an attempt to investigate the influence of tourism on improving the economic condition of the local community. The study conducted with special focus on the indigenous tribes in the district of The Nilgiris – hill stations and renowned tourist attractions of Tamil Nadu, located in southern part of India. Tourism development and management with an inclusion of indigenous people ensures the local people to secure economic benefits in a fair and sustainable manner. In these perspectives, the researchers had met 250 respondents from three different groups of tribal community to examine their perception on the influence of tourism sector in their economic prosperity. Based on surveys conducted in 10 tribal hamlets of three different groups, the article presents the level of participation of local people in tourism related activities. The study critically analysis the costs and benefits of tourism to the locals, and argues the need for research in examining the subject related to employment and entrepreneurial opportunities to locals to ensure the quality lifestyle. Considering all, the study concludes with systematic approach to foster tourism sector with active participation of local community to project the Nilgiris as an indigenous tourism destination for larger economic benefits.

Key words: Tourism and Economic opportunity, Entrepreneurship in tourism, Indigenous Tourism, Local community participation, and Tribal Development.

Introduction

In India, as in many of the developing countries, tourism industry has emerged as one of the significant economic drivers and plays predominant role in the development of the country. Tourism believes to be greater economic driver as the industry does not require much capital investment and tourism products can be created locally. It is convinced that “tourism is perhaps the only sector of economic activity in which the principles of free trade still apply.

More important, it is now possible for underdeveloped countries to improve their economies, not by increasing exports via low-cost production, but by tourism” (Naylon 1967, cited in Opperman and Chon, 1997). Harrison points out that developing countries “are anxious to promote economic growth and tourism – especially international tourism – is one means to this end” (Harrison 1992). According to Jenkins (1998), the reasons behind government support for the tourism industry are: Historically, tourism has a higher growth rate than international trade in general; tourism provides hard currency for developing countries; there are no tariff barriers to international tourism; it is a labor-intensive industry; there is often an availability of natural and cultural resources for developing international tourist attractions.

Tourism not only contributes to economic development but also to peace, security, and the preservation of the environment. Harnessing its direct impacts on generation of employment and national income, tourism and travel industry has gained considerable attention even in the third world countries. David de Villiers, the Deputy Secretary General of the World Trade Organization (WTO), wrote that “three of the most immediate and urgent problems that the leaders worldwide will have to address are first, to establish peace, security and stability; second, to deal with poverty and create jobs; and third, to preserve the environment. It is important to note that tourism is directly linked to all three major challenges” (de Villiers 2000, emphasis added). “Tourism can foster global peace by reducing world poverty and promoting cross-cultural understanding” (Mark 2004). Tourism has contributed substantially to the development of many developing countries, and many international donor communities and organizations have focused their policies on tourism development. However, the impacts of tourism are not all favorable. Since the late 1970s criticisms of the non-economic aspects of tourism have started to multiply. The focus of tourism studies has moved from solely economic benefits of tourism to the broader social, cultural, and environmental impacts of tourism (Jenkins 1998: 5). Researchers have drawn on sociology, anthropology, economics, management, and political economy to analyze tourism phenomena, creating tourism studies as an interdisciplinary field of research. Theories and empirical evidence demonstrate both the positive and negative effects of tourism on the local economy, culture, and environment. This research paper is also an attempt to explore the influence, rather an impact of tourism among the local tribes of the Nilgiris district of Tamil Nadu.

Tourism and Economic Empowerment – An overview

Tourism helps to “increase employment opportunities and associated employment income, which may be of prime economic importance to local populations” (Cukier 1998). Through employment, local people can increase their income and living standards, which leads to betterment the quality of life. Instances across the world exemplified the direct influence of tourism in local community development in micro level and poverty reduction in macro level. It has become “increasingly important to communities around the world sustaining the community or particular communities has therefore become an essential element of sustainable tourism” (Richards and Hall 2000). Tourism, especially the rural and cultural tourism, has the effect of empowering a local community through income generation (Bookman 2006). However, “there was a vast body of work that demonstrates that local

communities in Third World countries may reap few benefits from tourism because they have little control over the ways in which the industry is developed, they cannot match the financial resources available to external investors, and their views are rarely heard" (Mowforth and Munt 2003). Others have argued that tourism only serves the economic and political interests of the local elites, particularly in developing countries (Smith 1997). Local residents, particularly the indigenous people, are ignored during the decision-making process in tourism development and they get little benefit from it, while some fare worse, due to their lack of education (Pi-Sunyer et al. 2001, case study in the Maya Periphery, Mexico). Van Broeck (2001) concludes that residents of Pamukkale (South-West Turkey) initially welcomed tourism...they often judged the industry positively because of money and the material well-being that it brought, but other changes aroused ambivalent feelings. Hui and Tsai (2017), investigated Taiwan's indigenous people and their association with tourism industry. The tourism impacts on the tribe, with a negative impact on the environment is the highest, but also brought a positive social and culture impact. Based on the findings, the study suggested the direction for the development of tourism planning in association with indigenous people. Tourism had indeed changed the rural vicinity, including family lifestyles, the social position of women, community bonds, and, to some degree, traditional values and customs. However, some residents fear that increased competition will make the future less lucrative, especially for the family. They are also worried about community integrity. Puijk (2001) argues that tourism in Ulvik (Norway) has many positive effects but that it creates class differences between the rich and poor: "Tourism was profitable but not comfortable" (Puijk 2001). Local communities can cope with the impact of tourism in two ways. Some choose not to engage directly in the tourism industry and business, or interact with tourists, even though they maintain lifestyles drawn from a materialist world created by tourism. They try to hide themselves from the tourist gaze. Others choose to engage in tourism actively by direct involvement in industry as well as with the interaction with tourists (Fagence 2001).

Gluckman (1947) or Balandier (1951) made a contact model in which it is "possible to speak of a transitional touristic social system emerging out of touristic contact" (Nash. 1989 p. 49). In this model, the tourist-host relationship is also in the center of the analysis. The tourists and the hosts, participating in tourism play the most important role. It is challenging to generalize the impacts of tourism on tribals. "Tourism is not a monolith. It is an exceedingly large-scale and diverse industry, operating in a variety of ways under differing circumstances. Necessarily, the difference between the types of tourism and the range of impacts that tourism can have on local communities need to be emphasized (Greenwood 1989. p.171). Valene L Smith differentiates between seven types of tourists: the explorer, the elite tourist, the off-beat tourist, the unusual tourist, the incipient mass tourist, the mass tourist and the charter tourist (Smith. 1989. p.11). While the 'explorer' cause a minimum of impacts on host communities, the charter tourist cause a maximum. The differences between those lie in the frequency of types of tourists and their adaptations to local norms. Smith characterizes the 'explorer' type as follows: "Explorers quest for discovery and new knowledge but in a shrinking planet, their numbers are sharply restricted.

Accepting the aggregate benefits of tourism, Britton (2004) emphasizes the distribution of gains from tourism to the local community. He concludes, "If by 'development' one includes the goal of reducing inequalities and redistributing social goods according to priorities of basic needs, then the distributive aspect of tourism is of central importance" (Britton 2004). "Sustaining the community or particular communities has therefore become an essential element of sustainable tourism. The rationale of sustainable tourism development usually rests on the assurance of renewable economic, social and cultural benefits to the community and its environment" (Richards and Hall 2000). Policies to promote tourism can be good in some ways but bad in others. Therefore, tourism development policies must be studied and implemented effectively in response to the needs of stakeholders, particularly the local community: "Tourism should not be seen as an autonomous field, but as part of a wider comprehensive effort towards the general goals of humanity...its development should be related to its capacity in delivering happiness, which requires careful planning" (Russo et al. 2000). Sustainable tourism must "respect needs and aspirations of the local people" (Singh 2003).

Indigenous people participation in Tourism – a critique

Indigenous tourism is a kind of resource based tourism types, and indigenous culture as the main tourist attraction, in addition to the local tourism development of the beautiful natural landscape and unique style of alien races, tourists to "see indigenous" as very important objective. Weaver points out that the relationship between tourism and indigenous people is long, complex and ambiguous, and therefore there is no clear definition of indigenous tourism.

Many scholars have different definitions of indigenous tourism, Hinch and Butler (1996), pointed out that the indigenous tourism refers to indigenous people directly involved in the tourism industry or business is formed to attract tourists to come as the way of tourism industry with indigenous culture. Ryan and Huyton (2002), defined the "indigenous tourism" as a kind of tourism activity that people are attracted by the aboriginal culture, art performances, celebrations, attractions, historical heritage and customs, and visit the indigenous living areas. Notzke (2004), think that the concept of indigenous / aboriginal tourism can simply refer to indigenous people involved in the tourism industry as tourism business owners, such as hotels, camping, golf courses and casinos, but more generally understood to mean a tourism product is focused on native culture, namely the aboriginal cultural tourism and cultural tourism. Therefore, all kinds of tourism activities with "indigenous culture" as the core resources and characteristics can be called "indigenous tourism". A comprehensive definition of scholars, the so-called indigenous tourism, should use its own indigenous culture and the natural environment, the actual operation and operation of tourism services, to meet the tourists for mixed culture tourism demand. A number of researchers have noted the need for further analysis within the field of resident perceptions, since the findings show many diverse indications of host communities' quality of life and their willingness to participate (Doxey 1975; Murphy 1985; King et al. 1993; Johnson et al. 1994; Lankford 1994; McCool & Martin 1994; Simmons 1994; Williamson & Lawson 2001; Scheyvens 2002). According to several previous studies (Brougham & Butler

1981; Ap 1992; Joppe 1996; Mason & Cheyne 2000; Macleod 2004; Lepp 2008), communities are not homogeneous groups of like-minded people, but instead a collection of individuals with ambivalent or mixed feelings in relation to the perceived impacts they have of tourism. Within this field of research, previous findings reveal that there are little attitudinal studies that have focused on communities either in the pre-development stage or prior to any tourism development (Hernandez et al. 1996; Mason & Cheyne 2000; Harrill 2004; Lepp 2008). Findings show significant level of opposition and negative reactions of suspicion, anxiety and fear locals have towards a proposed plan of tourism development at an early stage. Hence, there is a need and interest for studying feelings, hopes, expectations and concerns of residents that have little or no prior experience with, or knowledge about tourism. The present paper is also an empirical study based on the observation method and the data were collected through structured questionnaire from the local Tribes of the study area (i.e.) The Nilgiris.

Methodology: The main objectives of the study are:

1. To explore the level of participation of tribal groups in tourism related activities in Nilgiris district.
2. To measure the influence of tourism sector in the economic empowerment of Indigenous people.

Scope of the study: Tourism plays vital role in developing the rural parts in terms of providing employment opportunities, developing entrepreneurial skills, maintaining socio-cultural interrelations and preserving local culture and natural resources. The main purpose and scope of the study is to identify the influence of tourism sector among the primitive tribal groups of Nilgiris district in Tamilnadu. The empirical study also explores the level of local people participation and involvement in tourism related activities.

Area of the study: The Nilgiris - one of the oldest mountain ranges, located at the tri-junction of Tamil Nadu, Kerala and Karnataka. Nilgiris is a part of the Western Ghats and Ooty the "Queen of Hill Stations" is the capital town of this Nilgiris district. It has been declared as one of the 14 'hotspots' of the world because of its unique bio-diversity. Rolling grasslands, dense sholas, waterfalls, streams, lakes, cultural background, tribal settlement, vast expanse of tea plantations, interspersed with vegetable gardens, spectacular view points, an amazing variety of flora and fauna, fabulous trekking trails, innumerable heritage sites and it is blessed with plethora natural and cultural resources. For this research paper 10 tribal villages and 3 tribal groups were selected based on convenient sampling method.

Hypotheses and research variables

H0: There is no significant relationship between the influences of tourism industry and overall development of local community people.

H1: There is a significant relationship between the influences of tourism industry and overall development of local community people.

Identified dependent variables of the study such as, "Identity and uniqueness of the indigenous people", "Conservation and development", "Community involvement", "Tourism development forms and approaches", "New income opportunities", "Provides new market to the local products", "Infrastructural accessibility", "socio-economic prosperity, "entrepreneurial enhancement", "culture and historical transition", "sustainment of ecological factors", have been tested with the rank correlation the identify the higher degree of influence factor to enhance the local community.

Questionnaire Construction: The questionnaire for the research have been divided into two parts, the first part deals with the demographic profile of the respondents (Tribes) and the second part of the questionnaire includes the variables pertaining to various dimensions of tourism in local community development. The questions in the second part of the questionnaire were framed in the form of independent statements. These statements are measured through the five point Likert scales mainly to understand the indigenous perceived tourists brought which positive and negative impact to the tribe.

Data collection and Statistical Technique: The present research paper is based on the data collected from all the three primitive tribal groups (PTGs) namely Todas, Kotas, Kurumbas living in Nilgiris district of Tamil Nadu. Primary data were collected directly from the respondent (Tribal people) through questionnaire. The researchers had met 250 respondents from three different groups of tribal community to examine their perception on the influence of tourism sector in their economic prosperity. Scholarly articles, Published research papers, proceeding of conferences, Government records, Journals, Newspapers and websites were used to gather secondary information for this study. The data collected from the above sources were analysed with the help of SPSS - 21 Software. Mean, median, standard deviation correlation and regression have been done with the help of SPSS software. Data were analyzed by using uni-variate, bi-variate and multivariate techniques. Graphical presentations of the results are also presented for the better understanding of the research output.

Area of Study: The Nilgiris is one of the 32 districts of southernmost state Tamil Nadu, and located in the hamlet of lush green Western Ghats. It is surrounded by the Coimbatore District, Kerala State and Karnataka State on the eastern, western and the northern side respectively. The Nilgiris District is a celebrated summer resort for the tourists from across India. Udhagamandalam popularly called, as Ooty is the Queen of Hill Stations in India. The economic activities of this district is accelerated by the visit of tourists to a considerable extent which increase the income capacity of the people engaged many fields. The Nilgiris plateau make up the four vegetation types to be distinguished, viz., the moist ever green forest the dry deciduous forests, the evergreen Montana forest (shoals) and the grass lands and savannas "(Iengerke:1989:24-50) while describing the Nilgiris as a region, Mandelbaum (1989:2) aptly pointed out the people and the terrain of the Nilgiri plateau have long attracted interest because of their unusual characteristics. Throughout three principal periods aboriginal colonial are national the Nilgiri region has constituted a singular and singularly instructive enclave, a distinctive locale as perceived by observers as well as by its inhabitants".

In Tamil Nadu among the 36 scheduled Tribes, the Government of India identifies six communities as Primitive Tribal Groups (PTGs) in The Nilgiris district. They are, Toda, Kota, Kurumba, Irular, Paniyan and Kattu Nayakan.

Among them four PTGs, Todas, Kotas, Kurumbas and Paniyans exclusively live in the Nilgiri District. The other two, Irulas and Kattunayakans live in Nilgiri District and inhabitants are found in other districts of Tamilnadu. The present research is an attempt to understand the selective primitive tribal groups and their involvement in tourism activities. A tribe wise break up of households and their respective populations are given in the table-1.

Table-1

The scheduled tribe population in Nilgiris district (Gol, Census 2011)

Sl. No	Scheduled Tribe	Households	Population			Areas of Inhabitant
		Total	Male	Female	Total	
1	Toda	538	957	1045	2002	Ooty, Kotagiri
2	Kota	102	155	153	308	Ooty, Kundah, Coonoor, Kotagiri
3	Kurumba	1875	3380	3443	6823	Kotagiri, Kundah, Pandalur, Gudalur
4	Paniyan	2490	4898	5236	10134	Pandalur, Gudalur

For the present study, 10 tribal settlements from the first three tribal groups were selected on a simple random survey or sample survey basis in order to assess the impact of tourism in their community development. The chief research tool used is the observation of the anthropological space. The field of research for the present report, 75 toda, 50 kota, 125 kurumba, respondents were observed and contacted at different intervals. Individuals from different age groups were deliberately chosen and their opinions about the present study were taken into consideration.

Data Analysis and Interpretation

The analysis of interview data is an important process (Jennings, 2004) to relate the research gap with the findings. Depending upon the nature of the project, the researcher can draw upon one or more techniques to analyse the data. Different statistical tools have been used for this study to project the significant relationship among the variables. The table below shows the occupational activities of the three selected primitive tribal groups in The Nilgiris. As primary objective of this study is to identify the participation of tribal groups in tourism related activities in Nilgiris district, the output of the statistical data collected through the questionnaire from the tribal respondents clearly indicated that the people are largely benefited out of the tourism and related business. In next to the traditional occupational

activities i.e. Animal husbandry, tourism stands second foremost business and employment provider to them by acknowledging 36 percentage of overall occupational activities.

Table: 2

SI No	Occupational Activities of 3 PTGs	Percentage
1	Animal husbandry near settlements & sale of milk	40.81
2	Traditional Work (smith work, wood work, pottery, iron smith Making shawls, Handicrafts and selling them in the Tourist visiting destinations)	36.19
3	Cultivation (agriculture / horticulture)	14.40
4	Modern employment/ Government job	6.15
5	Miscellaneous activities	2.45
	TOTAL	100

Observations and Discussion: Various observations have been made through to identify the factors influenced to develop the local community. It has been observed that the majority of respondents strongly agreed (86 percent) the statement that dealt about the promotion of employment opportunity to the local community through the development of tourism and allied sectors. The respondents believe (69 Percent) that the tourism activities with an inclusion of Indigenous people will improve the quality of life of the community. They also acknowledge the new innovation and initiatives in the tourism activities around their locality, as they are certain that the tourism and allied segment generate new income to the local community. Most of the respondents strongly agreed (94 Percent) that tourism is a strong economic contributor to their community and it creates a new market for local products. 79 percent of respondents felt that they need to improve their skill through systematic training and they do expect the government involvement and initiatives in the improvement of skill based training to improve their productivity. 82 percent of respondents agree that the tourism sector has got the real potential to contribute towards the improvement of community life and skills of craftsmen.

Descriptive statistics and reliabilities**Table: 3**

Influence of Tourism business * Local community overall development : Cross-tabulation						
		Tourism providing overall community development				Total
		Strongly Agree	Agree	Undecided	Disagree	
Influence factors of Tourism development among the primitive tribal groups	Strongly Agree	15	57	10	0	82
	Agree	53	52	18	5	128
	Undecided	20	8	7	5	40
	Total	88	117	35	10	250

The above cross-tabs indicates that the relationship between the various influence factors of tourism business on overall community development in the local people, and it is clearly projects that there is a strong relationship between the two variables. The dependent variables clearly projects inter-relation among them, since the influence of tourism business has generated much socio-economic impacts among the tribal community in this region. The significant level among the two variables is also achieved; the level of significant has been checked with Chi-Square test:

Table: 4

Chi-Square Tests			
	Value	Diff.	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.508 ^a	6	.017
Likelihood Ratio	16.530	6	.011
Linear-by-Linear Association	.050	1	.824
N of Valid Cases	250		
a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is .64.			

A cross tab of influence factors of tourism business on overall community development among the local people has been analyzed to identify the significant relationship between the impact of tourism business with the development of local community people. Chi square test has been done by assuming the marginal significant level as “0.05”. The output shows that there is a significant relationship and tourism business plays major role in local community development by giving economic opportunities to the indigenous people of the district. Economic gain through employment and micro-enterprise development; Infrastructure gains: roads, water, electricity, telecommunications, waste treatment; Empowerment through engagement in decision making are some the positive impacts has been generated in this region to empower the local community through the intervention of tourism business development. The significance level between influence factors of tourism and the local community development is 0.017(as per Pearson Chi-Square test) and the likelihood ratio is 0.011. Thus, the null hypothesis has to be rejected; the alternative hypothesis,(i.e.) the significant correlation between tourism influence factors and local community development has been accepted.

Reliability analyses (Cronbach’s a) were computed to measure the different attributes of tourism and its impact on community development. With the exception of government involvement in local tourism development, “Adoptability of sustainable tourism business”, “Provides new market to the local products”, “Infrastructural accessibility”, “socio-economic prosperity”, “entrepreneurial opportunities and enhancement”, “culture and historical transition”, “sustainment of ecological factors”, (all a values above 0.70) are some of the factors influenced in community development through the enhancement of tourism and travel activities in the study area. “Active involvement of local people” and “New income opportunities” (M = 3.82) were ranked as the most important strategies used in the total sample to make the tourism business as a best option to enhance the lifestyle of the local people. The high influence factors are shown below table,

Various Influence factors	Mean	SD	Rank
<i>Active involvement of local people</i>	3.85	0.75	1
<i>New income opportunities</i>	3.82	0.63	2
<i>Provides new market to the local products</i>	3.77	0.70	3
Infrastructural accessibility	3.76	0.66	4
Adoptability of sustainable tourism business	3.69	0.62	5
Entrepreneurial opportunities enhancement	3.60	0.64	6
Sustainment of ecological factors	3.59	0.70	7

Note: The top three influenced factor for community development through tourism activities are italicized; higher means indicate higher attached importance (means above 3.00 indicate high importance)

Impacts: In the study of the tribal tourism impact, positive economic impact caused by tourism development, the most important is to "increase employment opportunities", "people income increase", "increase tribal economic income", "the promotion of material welfare and raise living standards", "the increase in local agricultural products sales", "to attract outside investment, improve the public facilities and services". In the aspect of negative economic impact, the most important is "the widening income gap between the rich and the poor are not equal", "the residents need to borrow money to invest (liabilities)" and "traditional production use of resources with tourism development cause conflicts", "the loss of land ownership", "indigenous become working group", and "tourists without farmers are allowed to steal crops". Tourism development caused by the positive social and cultural impact, the most important is "proud of unique culture", "cultural recovery", "the continuation of culture and preservation", "different cultural understanding", "let the outsiders to understand the aboriginal culture", "between the tribe people can work together", "tribal people interact more closely", and "increased leisure facilities and entertainment opportunities" and "enhance local visibility". In the aspect of negative social and cultural impact, the most important is "traditional culture gradually disappear", "the lack of authenticity of culture", "the devolution of culture", "the tribe people interaction reduce and cause conflict", "the attitude of the people turn to the utilitarian, traditional values change", "the traditional activities and ritual become to commercialism" and "life interfere by outsiders", "outsiders do not respect aboriginal cultural life" and "low quality handicrafts, appear to forgery or non-local cultural products".

Conclusion

The study sought to determine whether the adoption of various factors of tourism activities would enhance the lifestyle among the local people or not. It is also discussed whether community participation and involvement could be a potential approach to develop, including the influence of tourism in the development of the local community, in the hill stations of Nilgiris district of Tamilnadu. The inhabitants of Nilgiris are quite sure to maintain their cultural and historic identity along with development of tourism sector to meet the economic need by them apart from the government support. For the residents of Tribal settlement areas, participating in proposals to adopt tourism in their region is perceived as one way of creating more opportunities for them to access the development process. In particular, it allows them to access the decision-making process, maintaining the uniqueness, setting up regulations to manage the adverse effects of tourism sector. This finding leads naturally to the objective of this research which focuses on how local involvement and participation are important for community development. The key finding of this research objective showed that overwhelming response of community involvement helps achieving the desired development of tourism in the local region and simultaneously it brings the economic prosperity to the inhabitants. In addition, another key finding in this research is that the intervention of government is also sought to provide guidelines in terms of, educating the craftsman through proper skill development programs, financial aid to people who willing to start their venture in tourism and allied sector, entrepreneurial assistance program, promotion of tribal and cultural tourism and preference in tourism employment. They do

believe that the above revealed suggestions would bring a long term attachment with the tourism sector for their better livelihood.

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Case Study of Technology Integration towards Blended Learning in a Non-Traditional High School in Illinois, United States

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Abstract

This case study offers a viewpoint from an information technology perspective of a schools transition from a traditional learning environment to a blended learning environment in a non-traditional setting. The blended learning environment changes how a school utilizes technology and aligns school goals to meet the individual needs of all students. Specifically, this paper focuses on the technology integration pathways taken by a non-traditional school.

Keywords: blended learning, technology infrastructure, strategic planning, integration

Main Conference Topic: IT Challenges and Solutions

Introduction

As technology and education progress at a rapid pace, the utilization of resources in both environments creates an extreme focus on all aspects of education to ensure students success. The challenge of technology integration into a school environment can cause a lack of commitment and buy-in by both administration and staff when not integrated and properly aligned to existing goals.

Currently, the integration of technology into educational environments, many times, follows a trial and error approach as educational institutions quickly integrate technology in the hopes for immediate tangible data to support the resources invested. I have been a part of the technology integration into a non-traditional high school environment and will discuss the case study.

I anticipate this case study will help educational institutions better understand the processes involved in successful technology integration. We will call the school where this case study was observed School Alpha.

Literature Review

Educational Technology

From the early slide projectors in the 1870s to the radio, students were hungry for more advanced educational tools. (The Evolution of Technology in the Classroom, 2017). While technology has advanced at a rapid pace since the early days of slide projectors,

educational technology evolves at a slightly different pace than technology in our daily lives. As stated in *Considering the History of Digital Technologies in Education* “While the use of technology over the last 100 years has not resulted in a revolution, several key improvements and advancements in educational access and equity have resulted. (Howard, Katherine, & Mozejko, 2015, p.1).

The Association for Educational Communication and Technology defines educational technology as “the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources.”(Kurt, 2017, para. 1). Utilizing technology to facilitating learning and improving performance presents a challenge to many schools as technology evolves at such a rapid pace. The issue faced by many schools is how to integrate technology in a way that utilizes and builds upon existing resources.

Technology Utilization in Education

Schools understand the importance of technology and how it can play a viable role in student academic growth if properly utilized. One hypothesis states that K-12 educators integrate technology into existing curriculum models without adjusting the models to meet the need of the 21st-century learning environment, the technology itself, the teacher, and the students which in turn resulted in poor student outcomes. (Horn, 2017). If educators integrate technology without adjusting current models, the technology integration is likely to produce an insubstantial and negative result in the educational environment.

“Despite the dramatic differences in resources and abilities from classroom to classroom, school to school, and district to district, it’s possible to integrate technology tools in ways that can impact engagement and learning for all students.” (Person, 2007, para. 14). Understanding the environment that the technology will be utilized is an important first step in identifying the necessary technology to implement. Technology ushers in fundamental changes that are integral to achieving improvements in productivity. When properly integrated, technology is used to support both teaching and students by infusing classrooms with digital learning tools. (Use of Technology in Teaching and Learning, n.d.).

Current Educational Technology Standards

Using and modifying standard integration pathways to tether technology integration towards your specific environment is a solid initial start to integration planning. Furthermore, the integration of technology has prompted the federal and state governments not only to create funding sources for the technology, but also develop technology integration initiatives (Reimagining the Role of Technology in Education, 2017).

The International Society for Technology in Education serves to help educators use technology to solve problems in their educational environment. The ISTE Standards are used as a framework for educators to create an environment to prepare students for the constantly evolving technological landscape. States are beginning to adopt the ISTE standards to better implement and understand how the new digital landscape should be approached in education. (ISTE Standards for Students, n.d.)

Technology Infrastructure for Blended Learning

“According to the International Society for Technology in Education (ISTE), 91 percent of administrators say effective use of ed tech is critical to their mission of high student achievement.”(Koellmer, 2016, para. 1) To fully utilize technology, you need proper technology infrastructure in place to support growing demands. Organizations such as Roadmap 21 offer a clear vision for educational infrastructure planning to help build a roadmap for the 21st-century learner. Roadmap 21 discusses capacity, hardware, support, professional learning, security, and environmental as the key principles for technology infrastructure planning. (Infrastructure, n.d.)

Roadmap 21 states “A clear vision for teaching and learning drives infrastructure planning. As school districts focus on making resources available to support newly aligned teaching and learning goals and methodologies, they must also include funding for appropriate professional learning and educational technologies.” (Infrastructure, n.d, para. 1). Each educational environment is unique and requires the necessary technology infrastructure to accommodate blended learning.

There is not a one size fits all infrastructure plan to implement for blended learning, however, following key principles and recommendations provided by organizations such as Roadmap 21 is a great first step. Planning technology infrastructure to accommodate current and future network scalability should be a primary focus on building robust network infrastructure. Hewlett Packard describes server scalability infrastructure as the key to keeping up with demands and designing to expand as demand increases. (Plan for a Scalable Server Infrastructure, n.d.) While schools work to have the proper accommodations for technology, a primary planning measure should be robust scalability.

Technology-Driven Strategic Planning

The IT strategic plan should outline the mission statement stating what it plans to achieve and how the IT strategy relates to the organization's overall objectives. Often the first step to creating an effective IT strategic plan is to start by reviewing the organization's strategic plan, which helps in identifying the areas where the use of technology can improve operations. (What Is IT Strategic Plan, n.d.). Before the start of a technology implementation or modification, the current strategic plan should be reviewed. In reviewing or creating a technology-driven strategic plan, it is necessary to properly align the current and future technology goals to the overall goals and mission statement of the school.

Because of the approach, addition, and modification of existing goals it is important to understand all stakeholders in question throughout the integration process. Mary Beth Hertz shows the levels of technology integration that have been observed in schools are the levels of sparse, basic, comfortable, and seamless. (Hertz, 2011). Observing the levels of technology integration and understanding the impacts is a necessary step to preclude improper strategic planning.

Statement of Positionality

The case study author and coauthor worked at School Alpha while this case study was produced. Both the case study author and coauthor were part of the technology integration and are significantly vested in the success of the technology implementation.

Implementation and Results

Strategic Planning

The start of the technology integration process began as an observational overview of the existing technology and how it was utilized. School Alpha began the integration process with an overview and changes to its strategic plan. At School Alpha, the new strategic plan set forth a goal for staff that would be initiated by administration in conjunction with the Technology Department. The technology training goal in the strategic plan aimed to both professionally develop the staff as well as create buy-in to the idea of increased technology integration in the classroom. Dr. Karen Beerer states that the classroom teachers in a school system undergoing the digital transition need to learn new skills and pedagogical content knowledge as they evolve their classroom practice. In addition, teachers beginning the digital transition need time to rethink and redefine instructional practices to ensure they are truly building modern learning environments and maximizing their new digital resources. (Beer, 2018).

The current environment at the time was that of a traditional classroom environment for a non-traditional high school at School Alpha. Traditional education is defined as “teacher-centered delivery of instruction to classes of students who are the receivers of information.” (Huson, 2017, para. 2). Traditional education does not place significance on the utilization of technology, but rather focuses on student and teacher interaction. School Alpha’s strategic plan stated actions to provide technology training and support to staff as well as to develop a procedure to monitor the integration of classroom technology.

School Alpha’s new goal of the integration of a more robust and technology-driven professional development allowed the staff to have considerable buy-in as the staff understood their role as a viable stakeholder in the technology integration. “An effective comprehensive plan for professional development should be based on a shared vision developed in a collaborative process carried out by the education partners involved in the implementation and delivery of the plan”. (A Guide to Comprehensive Professional Development Planning, n.d., p. 2).

School Alpha had two import goals to achieve over the next five years as defined in the strategic plan. School Alpha observed the current technology infrastructure in order to utilize existing resources to begin the increased technology integration.

Network Infrastructure Evaluation

A company was hired and performed a technology needs assessment on School Alpha’s current technology infrastructure. The needs assessment allowed for the administrative and technology team to review the technology infrastructure to understand the

status and growth potential of the current technology in place. School Alpha's technology department evaluated the existing wireless infrastructure and bandwidth needed to accommodate this initial integration.

Using comparable tools measurable to the Building Technology Infrastructure for Learning Guide by the U.S. Department of Education, School Alpha determined that they had sufficient bandwidth and wireless infrastructure to integrate the initial addition of portable student devices into select classrooms. The sufficient existing resources were available in part to the E-Rate program. The E-Rate program provided by the U.S. Department of Education is as an FCC program that provides technology infrastructure funding for eligible schools and libraries. The funding is used for wireless infrastructure upgrades to thousands of schools and classrooms across the nation. (Building Technology Infrastructure for Learning, 2017).

Device Implementation

School Alpha's administrative team began by planning the first steps of the addition of portable student devices into select classrooms and the removal of select computer labs. "The leadership team must have a clear plan and act together to ensure the infrastructure is robust enough for immediate blended learning needs, with goals for scalability and future demand." (Blended Learning Implementation Guide 3.0, 2015). The initial batch of portable student devices was introduced into select classrooms that would utilize the devices and provide feedback to help further integration. Observing the different environments at School Alpha, the integration across the building was not a single year implementation but rather a four-year implementation that followed a building needs assessment.

Projected Network Growth

Applying the plan-do-study-act principles, School Alpha studied the initial integration impact of portable student devices in the classroom environments as well as the impact on network infrastructure. ACT Academy describes the plan-do-study-act as "model for improvement provides a framework for developing, testing and implementing changes leading to improvement." (Plan, Do, Study, Act (PDSA) Cycles and the Model for Improvement, n.d., p. 2) Following the plan-do-study-act, School Alpha's Technology Department studied and used a simple mean forecasting method to predict future bandwidth usage with the continual technology integration. The initial impact on bandwidth was manageable with the existing surplus, but future expansion was needed for continuous integration.

Professional Development

Darling-Hammond described Professional Development Schools (PDS) as spaces where prospective teacher and mentor teacher learning becomes experimental, grounded in teacher questions, collaborative, connected to and derived from teachers' work, and connected to other aspects of school change. (Professional Development School, 2018) The implementation over four years allowed for all School Alpha's stakeholders to professionally

develop within the organization to achieve the first steps to a blended learning environment with respect to their technology literacy.

The newly leveraged devices at School Alpha allowed for the administrative team to implement a training platform for the staff to best utilize the devices within the student population. Research by the U.S. Department of Education's Institute of Education Sciences concluded that student achievement could improve by as much as 21 percentile points as a result of teachers' participation in well-designed professional development programs. (Yoon, et al., 2007).

The first smaller integration of devices by School Alpha allowed the administrative team to follow the plan-do-study-act cycle to start the professional development platform that would best suit the current staff needs. A suitable technology integration platform focuses on the needs of all staff members and students. School Alpha observed the success and utilization of the new technology by both students and staff. School Alpha found that the initial integration of portable student devices into a classroom that was managed by a staff member who was undergoing a technology-enriched professional development platform would net the most success for technology utilization through the integration process.

The adjusting educational environment at School Alpha aimed to utilized existing technology while integrating new technology at a building-wide level. Spires and Bartlett have divided the various intellectual processes associated with digital literacy into three categories: (a) locating and consuming digital content, (b) creating digital content, and (c) communicating digital content." (Spires, et al., 2017) All stakeholders at school Alpha participated in professional development aimed to create and strengthen technology literacy for their specific classroom environments.

Network Infrastructure Growth

School Alpha's technology integration followed the plan-do-study-act and continued to put a necessary focus on network infrastructure, specifically bandwidth, as the continued portable student device integration was a heavy bandwidth integration. School Alpha continually had to adjust internet filtering to allow students and staff to best utilize the technology without putting an unnecessary strain on the network resources. "A more nuanced digital divide seems to have surfaced, thanks to the pernicious practice by school districts of overzealous Internet censorship on in-school computer networks and on school-issued laptops and tablets (Anderson, 2016, para. 3).

Following the Children's Information Protection Act, School Alpha implemented a more robust content filtering system to ensure maximum content delivery with minimal impact to educational content accessibility. The ability to filter content not applicable to educational growth to release unnecessary bandwidth usage is a sufficient first step to continue a technology growth pathway. The observation of the educational content bandwidth usage can be used as a viable simple mean forecasting method for future growth and usage implementation. "In 1992 the total Internet traffic per day was 100 GB, soon after one decade later in 2002 it jumped at 100 GB per second, even as in 2014 it arrived at

16,144 GB per second, whereas the prediction for 2019 is expected to be more than 51,974 GB per second.” (Samar, Kechadi, 2016, p.1). Simply increasing bandwidth without proper forecasting of current necessary bandwidth usage is not a viable financial or network scalability solution.

“School districts across the nation are spending significant resources to introduce technology into classrooms, up to \$19 billion nationwide in 2018. Many districts use technology to individualize learning, increase student engagement, and improve equity.” (Lamb, 2018, para. 1). Continuing to align to the goals defined in School Alpha’s strategic plan and following the plan-do-study-act cycle, School Alpha focused on a technology integration pathway across the building to create a one-to-one student device environment.

Conclusion

In response to the integration of technology in a non-traditional education environment, we should focus on the utilization of existing technology resources as well as develop strategic goals to achieve a pathway to a blended learning environment and allow for future expansion. With the current generation of students growing into a technology-rich environment, it is a disservice to partially integrate and not fully utilize new and existing technology to create an appropriate educational setting that fosters the current generation’s technology literacy.

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Sustainable Retrofitting of Urban Transitions through Socio-Technical Regimes: An Assessment of Moradabad City

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Abstract

Rapid population increase, urbanization, and huge exploitation of natural non-renewable resources are causes of great concern when it comes to the wellbeing of the present and future generations of all species on planet earth. The planning and management of existing cities on a large scale, in order to pursue sustainable transitions has led to the emergence of urban retrofitting. More than half a century ago, cities were considered as 'systems'- a collection of well-defined organizations, which closely worked with one another as a tightly knit scheme in order to process their planning and management. However, it is now believed that unlike a system, the cities are changing and far from achieving the state of equilibrium they are conceived as a complex 'meta system' comprising of various sub-systems interdependent on one another. The word retrofit involves larger context of rehabilitation, renewal, reuse to cover notions around a structured sustainable transformative change. There is a growing need for urban retrofitting because even though many new eco cities have been built, there has been very little success in terms of sustainability. This paper explores urban retrofit and sustainable transitions based on the methodology adapted from Engineering and Physical Sciences Research Council (EPSRC, 2009) Retrofit 2050 Project. The research methodology delve into the urban retrofitting sustainable transitions based on socio-technical regimes which comprise of buildings, neighborhood, city-region, and sectorial domains in areas of urban infrastructure. The findings reveal, the city has a strong identity as 'The Brass City' however it requires strategic sustainable transition interventions in areas of services to urban poor, infrastructure upgradation, institutional upliftment, sustainable environment, proper accessibility, and commerce and trade.

Keywords: Urban Retrofitting, Sustainable Transitions, Socio-Technical Regimes, Urbanization, City-Region

Main Conference Topic: Sustainability, Environment and Risk Management

Introduction

The world has never evolved so rapidly, it is the outcome of prolonged urban extension consisting of a town and its neighboring urban growths or two or more physically conterminous towns together with adjoining outgrowths. The constant migration of masses from rural settlements to urban centers is increasing the population density of the cities and making them even larger. The spectrum of developed and developing economies shares the common phenomenon globally. The cities shall accommodate 7 out of 10 people by 2050. Though the urban population is increasing continuously at great extent in larger cities, there are emerging other urban growth nodes that are underscoring the need for adequate attention to smaller cities.

As cities continue to attract people from across the globe, a relevant question still remains to be unattended - are these cities breaking apart beneath the physical and developmental forces? This process of urbanization or unplanned urbanization has been the major cause of several issues. In the developing countries, the cities are a common accommodation for the neo-urban dwellers, and are seen to be bearing the highest impact of it. Rising levels of pollution, population explosion, high cost of living, economic disparity, and increase in crime rates, etc are a few negative consequences of unordered urbanization.

Cities are playing a major role in climate change mitigation and adaptation. Due to the tremendous population growth in urban centers, the focus of the cities is to achieve the broader goals of sustainable development. The source of the most pressing resource depletion and the environmental problems are these cities which also have creativity and innovative potential of providing the solutions.

However, a reform in thinking and taking actions at city-level is required. Where there is a need of scaling up and addressing mitigation and adaptation responses to climatic changes addressing the threats of environmental degradation. Much more coordinated, planned and strategic approach needs to be practiced in order to re-engineer (or 'retrofit') the cities for a more sustainable future. Indeed, in order to understand the points of intervention leading to more appropriate alignment, an extremely systematic approach is to be figured out which addresses all the urban issues at larger scale involving & motivating the stakeholders i.e. Policy-makers, developers and financiers. Moreover, this is a long-term planning activity : this cannot happen over a short period of time. The focus on mitigation and adaptation activities that is impacting the existing built environment of the cities, should move beyond the prevailing strictures of political and bureaucratic cycles, and more conservative thinking, over the next 10–20 years, and beyond, to 2050.

The socio-technical systems changes that are resulting either from increased innovations or from 'disruptive' and radical innovations in the built environment, there is need to focus through social and systemic technological changes that are operating across the city-regional scales, neighborhood and the building. This process of Retrofitting would also include new construction, but it has to be only the 1–2% of overall newly built stock (on an annual basis) – but it will not consider constructing new cities or towns.

Related Work

Urbanization and cities:

While urbanization on one hand is considered as main key engines of growth and development, on the other hand increasing urban population comes up with numerous opportunities and challenges. In the next few years, with the unfolding process of urbanization, most of the African and Asian countries will have an aberrant growth in the urban population in their cities. Whereas it is expected that urban population will increase by 400 million or more and in next 25 years it shall be double the current population in Sub-Saharan Africa. The reason is stimulation of trade and increasing productivity due to agglomeration in the cities. There is economic development and renewed growth because of these geographic and demographic shifts. The cities may grow up with trifling land use, destitute transport connectivity, debilitated labor markets, and catastrophic impacts on the environment, if there is poor provision of infrastructure and feeble institutions. (Selod, Kunt and Roome, 2017).

Key challenges:

Due to numerous urban issues, there exist too many agendas that are to be dealt globally on the priority basis. As per the current urban scenario, cities have already consumed most of the world's resources. A sustainable culture and urban infrastructure forms a valuable support for an eco-labeled product or a "green" building. Every city in the world is at different stage of its development, as many cities in the global south are struggling with the unprecedented population growth and the immigration. Whereas the urban parts of the North have extremely opposite challenges soon after the death of many old industries. There seem to be a common challenge of inequity and segregation prevailing in the cities around the globe. This symbolizes global inequity. The major focus of the cities is on hi-technology measures and services. While none of the municipal authorities or the corporations take sustainability as its target in framing up official strategy. With a thorough analysis of any city's cultural index and pattern a thought to sustainable city can be given. For laying down the urban development foundation, a democratic culture with local roots of sustainability is the utmost requirement.

Urban retrofitting approach:

The development or upgradation of technology is defined as urban retrofitting e.g. for the distribution of energy and its consumption within the existing infrastructure. At city and regional levels, retrofitting is the most common strategy to be adopted for meeting up the emerging challenges and objectives reducing the carbon footprints. In order to bring about a change from retrofitting, it has to be primary "ad-hoc" activity with a broad strategy with integrated efforts for urban and regional development. (Hodson and Marvin, 2016)

International approaches:

'Retrofit 2050'- a programme aimed at providing urban sustainability in the two cities of the United Kingdom, namely Greater Manchester and Cardiff city. It explains the economic as well as environmental benefits of retrofitting at urban level and the importance of urban retrofitting in order to achieve a desirable and sustainable environment, keeping in view the needs of present and future generations. In order to contemplate the impacts on the built environment, the Climate Change Act and the target for 80% reductions in the emissions by 2050. In the UK, as per the facts 35% of emissions are from the buildings and industries each, which accounts for almost 2/3rd of the total carbon emissions. While the residential and non-residential sectors contribute 23% and 12% respectively. (Committee on Climate Change, 2010).

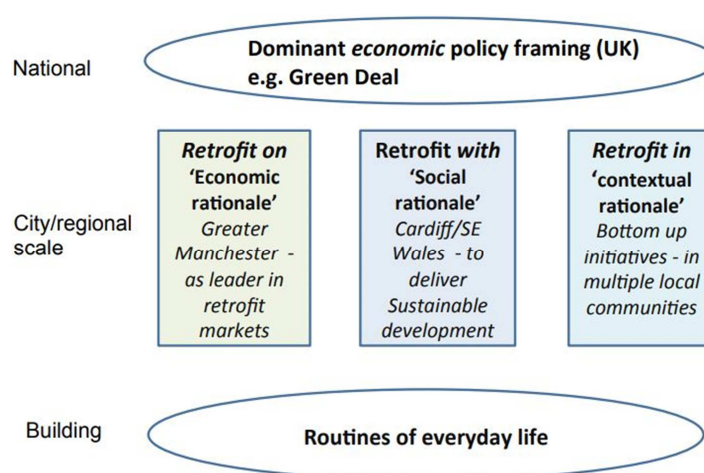


Figure 1: Inclusive Retrofit Agenda

This idea of 'urban retrofitting' or re-engineering has gained prominence in recent years within research and policy agendas. (Sustainable Development Commission, 2010).

Lessons learned:

The cities are under constant dynamic transition around the inclusion issues due to the challenges around public governance, administration, public participation, infrastructure and service delivery systems. The issues around inclusion is becoming central to any planning and development as its one of the core principles around sustainability. The sustainability issues around financial systems, functional and processes at different tiers of governance require an integrated approach with the aid of innovative technological solutions. The environmental eco-system of urban inequality is very complex and thus requires an urban retrofit approach which essentially cuts across the critical dimensions of energy, economy, consumption, governance and among other aspects of urban infrastructure and socio-technical aspects at city level.

Research Methodology

A mixed approach was adopted in the research study which consisted of qualitative and quantitative analysis at zonal level for the evaluation and assessment of various parameters influencing the city dynamics. The research used reconnaissance, road inventory, volume count survey and research survey questionnaire also interviewed 51 daily commuters on the corridor, 25 shop owners and 11 tourists/visitors in the delineated region. In this research, data was collected from primary and secondary sources depending on the availability of the data.

Case study

General profile of the city:

Moradabad is called as 'Brass City' and is one of the oldest cities of the state of Uttar Pradesh. It is well known for its "Brass Artisanry". Now it also comes under Urban Minister 100 Smart City Mission as one of the 98 Smart Cities. Moradabad is one of the important cities in Uttar Pradesh, well known for its brass industry. It was established under the reign of Mughal Emperor Akbar as the head office of Chaupala Pargana. Lately, it was named Moradabad on the name of Mughal Emperor Shah Jahan's son Murad Bux.

Location layout:

Moradabad city is located in western U.P. with the coordinates 28°21' to 28°16' Latitude North and 78° 4' to 79 Longitude East. It is surrounded on its east by Rampur district, on the west by Jyotiba Phule Nagar district, on the north by Bijnor district and on the south by Budaun. The city has good connectivity by rail and road from the other parts of India. It is connected to Delhi by the National Highway 24. It also serves as Northern Railway's Divisional Headquarters, on Amritsar and Howrah main line. The river Ganga flows in south west of the city and Ramganga flows in the north east part of the city. The city lies on the National Highway and the main railway line attracting industrial and commercial development. This brings the transportation of raw material or manufactured goods at ease. (District Census Handbook Moradabad, 2011).

Population – District*	3322461 persons
Urban population-District*	1573623 persons
City Population (Municipality)	887871 Persons
Slum population-City	430159 persons
Average Literacy Rate	57 %
Decadal Growth Rate	25.22%

Source: Census 2011

Figure 2: District level indicators, Moradabad

Demographic profile:

The total slum population of Moradabad city as per 2011 census was 430159, which was 48.44% of total city population. Total number of households was 86031 and the average household size was 5. As per DUDA, the latest BPL estimates were available for 1996, since

no BPL survey has been undertaken after that year. The total BPL population in 1996 numbered 342,950 and total number of BPL households was 68,590.(District Census Handbook Moradabad, 2011).

Indicators	
Total Slum Population	430,159
Average Household Size	5
Total Number of Households	86031
Total BPL Population	3,42,950
Total Number of BPL Households	68,590

Source: DUDA Report 2013 and UHI program survey report 2012, Moradabad

Figure 3: Urban Slums in Moradabad

Socio-economic profile:

Moradabad city's economy is based primarily on small scale and cottage industries, commerce and trade, which include sugar mills and a distillery, pulp & paper, pharmaceutical and chemical industries. All over the district, over 15,000 small scale industry units are spread with greater concentration in the urban areas, especially Moradabad & Sambal. This city is famous for brass metal handicrafts. A large number of artisans in Sambal are engaged in home manufacturing of handicraft articles made of bone and horn. During Mughal period Moradabad was a major centre for minting silver and copper coins as currency. Many artisans immigrated from Lucknow, Jalesar and Agra also exist here in quite a numbers. The British took the art to foreign markets in early 19th century; this was the blooming period of brassware industry. In 1980s various products like EPNS, metal ware of iron sheet, glass ware and aluminum artworks also got introduced to the existing art industry of Moradabad. Powder coating, lacquering, and electroplating, etc are a few new technologies which found their way to the industry. Moradabad is among the 90 Minority Concentration Districts (MCDs) 3 in the country. The district has been identified as backward with unacceptably low levels of either socioeconomic or amenities indicators or both and they are in urgent need of focused attention. (District Census Handbook Moradabad, 2011).

Delineated zone - Zonal analysis

From the large physical boundary of the entire Moradabad Master plan, there were several compelling factors that led to create a smaller study area within the overall master plan. Once the size of the study area to limit the study area's size, then it was necessary to determine its general location. Should the project focus on the congested parts of the city or the newly developed ones? How should the decision be made? After the selection of general

location for the study area, exact geographic boundaries of the study area were to be determined.

- i. Limiting the size: - A retrofitting plan was to be developed that help people reduce efforts in commuting from one place to another and other physical stresses levied on them due to improper existing physical infrastructure. At over 3.5km stretch near Railway Junction and Bus Terminal, it especially required the focused efforts making it manageable somehow. The project was supposed to be completed within a stipulated time of one year and with a limited budget. The ultimate scale of the project decides the time required for the data collection and its manipulation. Several other important components of the project – most notably ground-trothing prioritization results by analysing aerial photos and extending retrofitting prioritization efforts to the individual land parcel level – were much more labour intensive.
- ii. Selecting a general location: - The first strategy for the selection of location for the project consisted of running the GIS data through an initial, large-scale prioritization scheme. Based on those results, a zone of highest-congestion ranking in the core of the city and weak portion was chosen as the study area. The second strategy involved some external factors such as needs of people, rather than through a computational analysis of the GIS data for the selection of the study area. Both these approaches had a few strengths and weaknesses.
- iii. Delineating specific boundaries: -

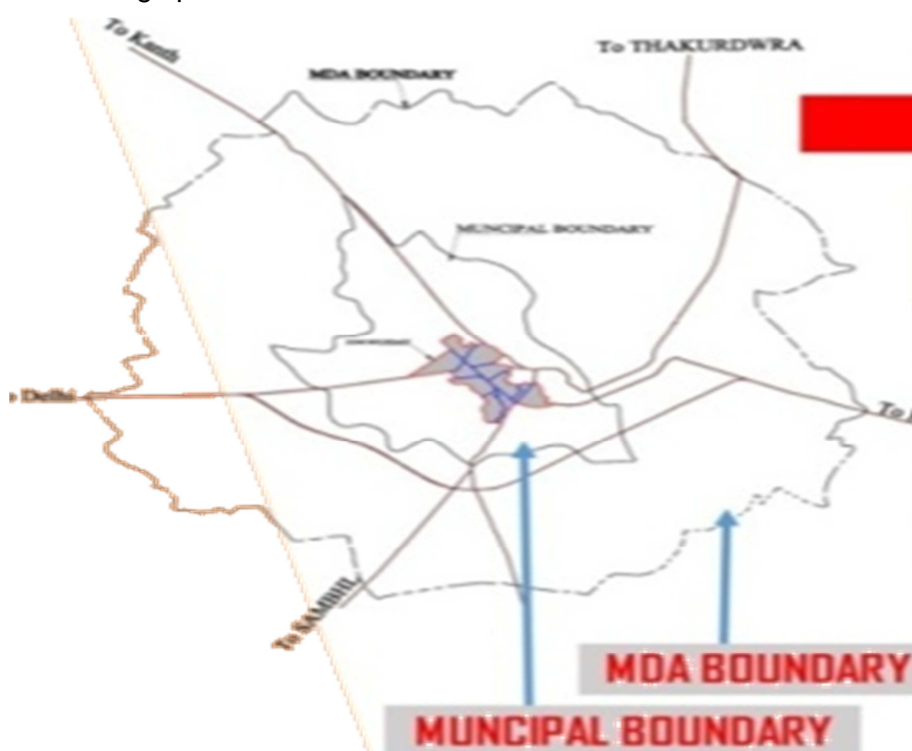


Figure 4: Delineated Region and Moradabad Municipal Boundary

After the selection of study area from the core area of the Moradabad city, the definite boundaries were to be delineated. The 11 adjoining ward boundaries defined by Nagar

Nigam Moradabad were selected and framed as area of intervention . The goals and objectives of this project centre retrofitting the selected area.

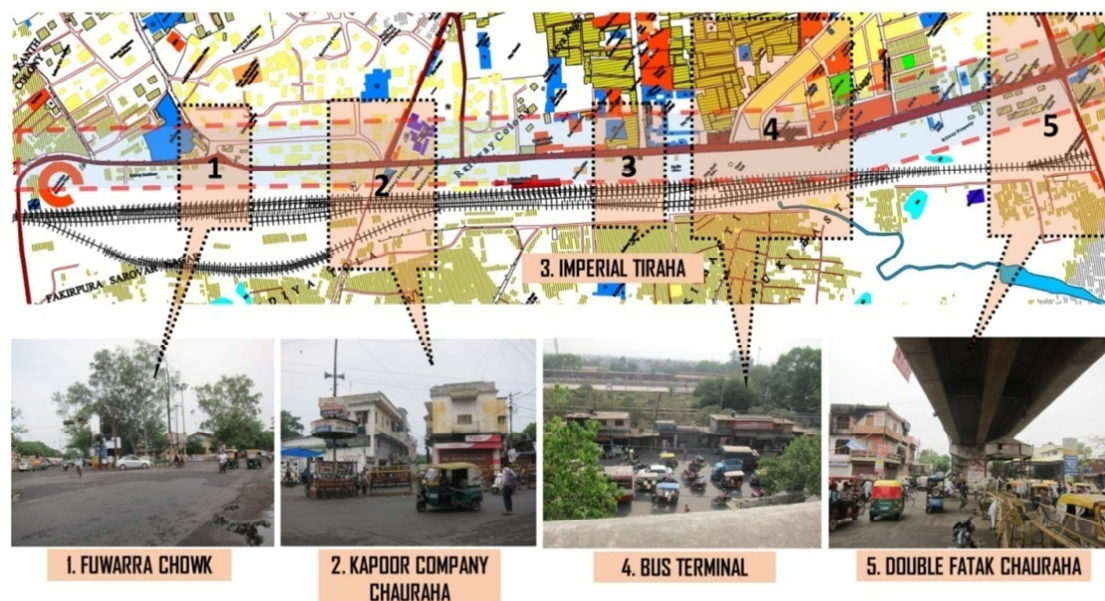


Figure 5: Land use Pattern along the Corridor 3

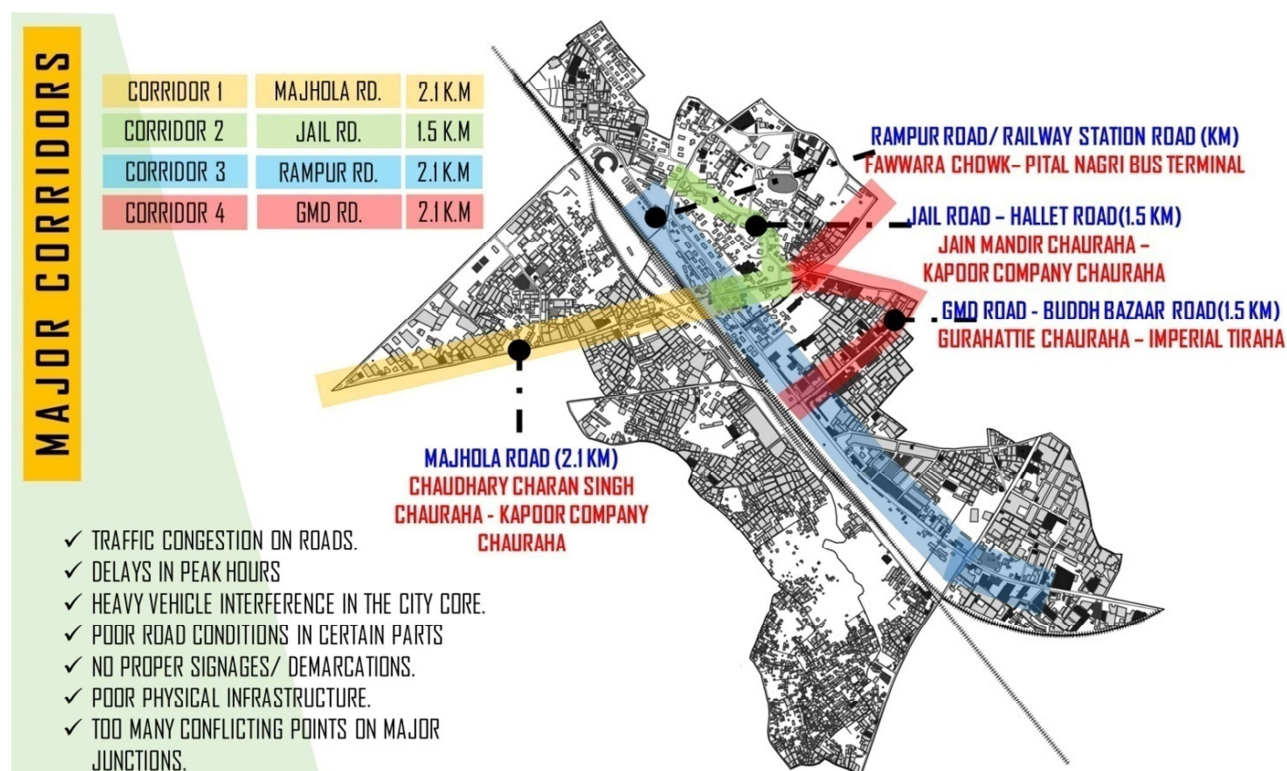


Figure 6: Major Corridors of the Delineated Region

Research findings & Results

In the sample for the delineated area of the Moradabad core city, four major corridors were identified and analyzed on the various parameters where 51 daily commuters were interviewed. The sample consists of 11, 10, 20 and 10 daily commuters from the corridors 1, 2, 3 and 4 respectively who participated in the research questionnaire survey. The results from the research survey questionnaire are peak hour traffic, encroachment on the roads, no Auto/Taxi pick-up and drop-off points, no proper demarcations/signage and haphazard movement of traffic. The reconnaissance survey shows that there is traffic congestion on roads during the peak hours, poor condition of roads in the central part of the city and too many conflicting points in the city core due to the interference of heavy vehicles leading to delays and poor level of service for the commuters.



No Auto/Taxi pick-up and drop-off points



No Auto/Taxi pick-up and drop-off points



Excessive number of auto-Rickshaws



Undefined Entry/Exit points at Railway station and Bus Terminal

Visual Survey of Corridor 3 of Moradabad City Core Area

(Traffic Congestion, No Parking Bays & Haphazard movement of Traffic)

Source: Krati Agarwal

Traffic Characteristics

The maximum number of automobiles on the major corridors are the 3-wheelers i.e. Auto rickshaws and E-rickshaws occupying the major portion of carriageway (haphazard movement, unorganized parking & random pick-up drop-off) and also one of the main causes of congestion. These 3-wheelers are highly unavoidable as they serve as the most important connecting link between the city core and the other areas of the city at a very affordable cost. Then follows the 2-wheelers, 4-wheelers and the heavy vehicles. The movement of heavy vehicles from the city core is because of the inter-state bus depot which also unstabilizes the traffic movement in the peak hours.

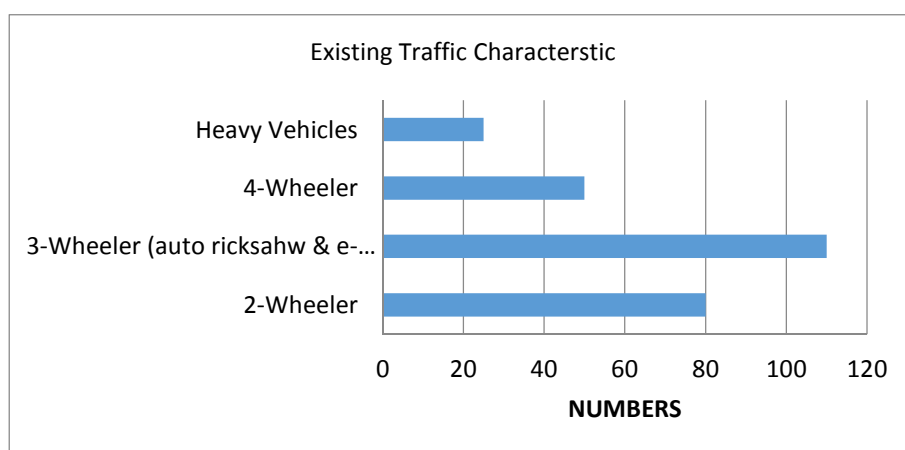


Figure 7: Existing Traffic Characteristic

Road Inventory

The road inventory survey reveals that the carriageway width is extremely less with encroachments by shops and hawkers on sides, no medians, footpaths, street furniture, no bus/auto stops and pedestrian crossings even in the prime locations of the city are portraying the poor picture of physical infrastructure. Absence of drop-off, pick-up points and improper designs of Entry/Exit of the city railway station becomes a matter of concern with respect to smooth mobility of commuters. This helps in the most accurate and detailed profiling of the existing conditions.



Figure 8: Existing Street Section

Traffic Volume Count

The volume count survey helps in drawing the inferences from the data collected about the pattern of movement of vehicles on the particular corridor with respect to time. The typical movement pattern of traffic, in all the major corridors was analyzed, shows a number of clear peaks. The morning peak has a lean flow of traffic followed by afternoon peak, after which there is a new late evening peak. In the morning there is a sharp peak for short duration and it immediately drops down to the lowest point. On the other hand, afternoon peak is of a wider character unlike the morning peak.

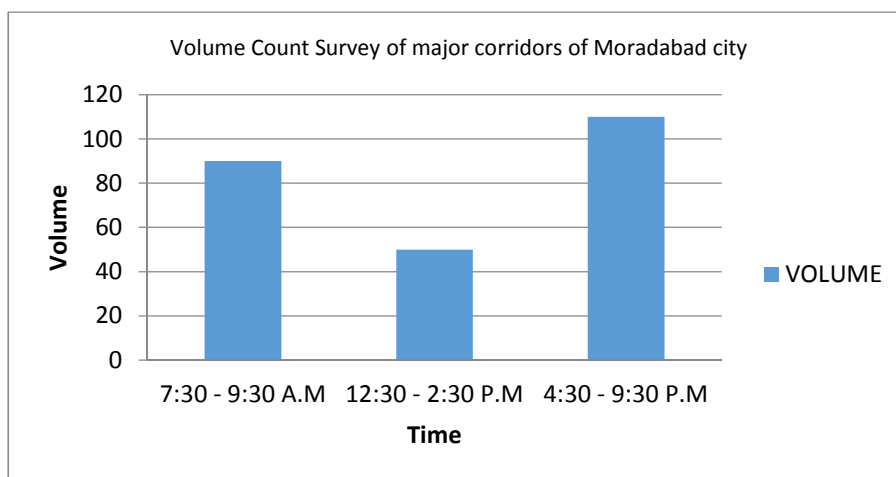
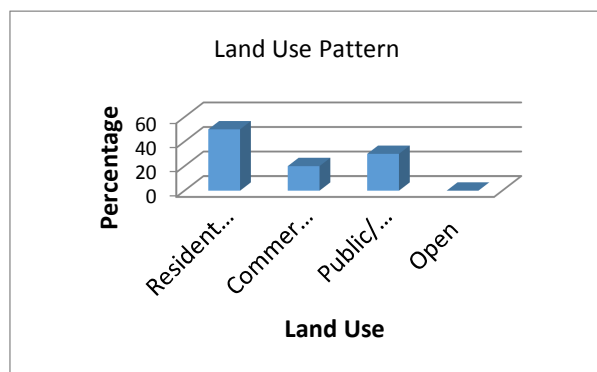


Figure9: Existing Traffic Volume Count on the Major Corridors

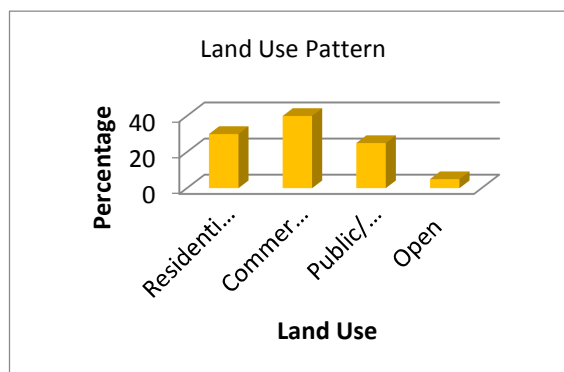
Land Use Pattern

The survey conducted to analyze the land use pattern of the selected corridors clearly portrays that along all the major corridors there are hardly any lung spaces (open space) and having being the core city area, its highly congested and lack basic sense of hygiene with extremely poor infrastructure. Most of the corridors have concentrated commercialized development leading to encroachment on the roads, unorganized short-term/ long-term surface parking becoming a reason for unwanted congestion during peak hours. Most of the busiest junctions had too many conflicting points interrupting the flow conditions which need to be resolved in order to curb out urban mobility issues. Corridor wise analysis was done to figure out the existing land use pattern along the selected corridors in the delineated region. And as per the samples collected, it implies that there isn't any open space whereas residential and commercial sectors occupy the major part of the zone.

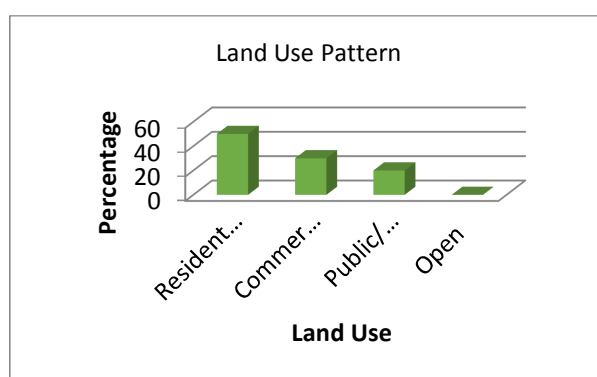
Corridor 1



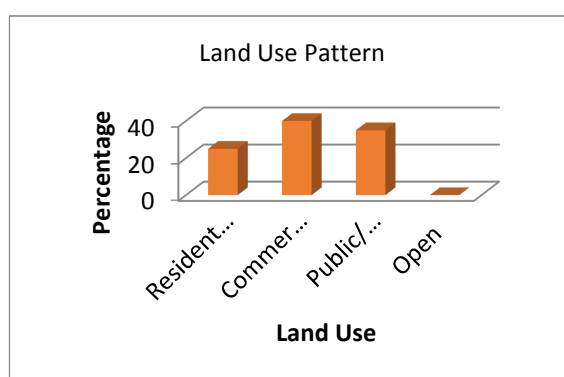
Corridor 2



Corridor 3



Corridor 4



Conclusion

The findings reveal, the city has a strong identity as 'The Brass City' however it requires strategic sustainable transition interventions in area of services to urban poor, infrastructure up gradation, institutional upliftment, sustainable environment, proper accessibility, and commerce and trade. A growth development strategy for the city, based on transit oriented development is required meeting the demands of the present in a way that promotes sustainable environment. On a large scale, the planning and management of the existing city is required in order to pursue sustainable transitions. The study of existing settlement pattern along the main corridor identifying the scale of issues, constraints, challenges and opportunities which are directly associated to the spatial development. A series of citizen engagement measures has to be incorporated while planning and executing the retrofitting strategies with a strong administrative support and attention towards the current prevailing issues.

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Brief biographies of the authors

Krati Agarwal

Krati Agarwal is an architect and urban planner having 2 years of work experience. She has done post graduation in urban and regional planning. Currently she teaches in Amity school of architecture and planning, Amity University Mumbai at graduate level.

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Aurobindo Ogra

Aurobindo Ogra is the Programme Coordinator for Masters in Sustainable Urban Planning and Development (MSUPD), University of Johannesburg. He has more than 16 years of international professional experience and his research interest areas include: sustainable urban planning, infrastructure development, urban management and governance, smart cities development, urban environmental management, and industrial parks planning and development. He currently teaches Sustainable Urban Infrastructure and Smart Cities Development at postgraduate level.

Sustainable Globalization and Climate Change – A Review of the Impact on Sustainable Tourism in Developing Countries

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ABSTRACT

This paper reviews the implications of sustainable globalization and climate change and its impact on sustainable tourism development in developing countries. Tourism is a major contributor to the GDP of developing countries like India by generating foreign exchange revenue and creating employment. In the context of developing countries, tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities is more critical. Tourism is highly vulnerable to climate change and the contribution of tourism to climate change is also evident in developing countries. The rapid climatic changes due to globalization results in extreme weather events, disease transmission, deterioration of environmental quantity and quality and are all predicted to hit hardest those in developing countries and as well as people living in geographically vulnerable areas. The impacts will be crucial in increasing insurance costs and safety concerns, water shortages, biodiversity loss and damage to assets and attractions at destinations, among others. The research shows that globalization induced changes in the environment necessitates new policies and guidelines for sustainable tourism development in developing countries. The paper also provides a case study of impact of climate change in tourism sector in Kerala state of India in the context of Nipah virus infection and monsoon floods.

Key Words: Sustainable Globalization, Climate Change, Sustainable Tourism in developing Countries

Introduction

Globalization describes a process by which national and regional economies, societies, and cultures have become integrated through the global network of trade, communication, immigration and transportation. Globalization is defined as “the rapid expansion and integration of business activities across borders in response to dramatic technology and government policy changes in the latter part of the 20th century”. Sustainable globalization represents a breakthrough and a fundamental transformation in how people approach doing business in a global world in the 21st century.

Globalization and Climate Change

The correlation between globalization of international markets and environmental degradation is studied by many researchers. Issues like Global warming, ozone layer depletion, the loss of biodiversity, the depletion of natural resources, the widespread deforestation and desertification are examples of global environmental deterioration that emerged and worsened while the process of globalization accelerated. Developing countries are more vulnerable to climate change due to their economy relying more heavily on climate-reliant activities like agriculture and tourism. Climate change is considered as a global environmental problem. The strong relationship between climate change and development is also recognized by IPCC in its Fourth Assessment report by stating that “the distribution of impacts and vulnerabilities is still considered to be uneven, and low-latitude, less-developed areas are generally at greatest risk due to both higher sensitivity and lower adaptive capacity; but there is new evidence that vulnerability to climate change is also highly variable within countries, including developed countries”. Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased [1]. If climate change is the key process in the natural world impacting on sustainable development, then globalization is the parallel process in the human world, creating both opportunities for, and barriers to, sustainable development.

Globalization and Sustainable Tourism Development

Travel & Tourism is considered as an important economic activity in most countries around the globe. According to World Travel and Tourism Council, the total contribution of Travel & Tourism to GDP was 10.4% in 2017, and is forecasted to rise to 11.7% of GDP in 2028. In 2017, the total contribution of Travel & Tourism to employment, including jobs indirectly supported by the industry was 9.9% of total employment. This is expected to rise by 2.5% pa to 11.6% in 2028[2].

Improvement in global mobility and ease of travel, increased awareness of new destinations, technological advancements and economic growth due to globalization are acting as catalysts for tourism industry worldwide. There has been significant increase in the international tourism arrivals(inbound tourists)as globalization deepens over the years. International inbound tourists (overnight visitors) are the number of tourists who travel to a country other than that in which they have their usual residence, but outside their usual environment, for a period not exceeding 12 months and whose main purpose in visiting is other than an activity remunerated from within the country visited. Figures 1 and 2 depict the growth of international inbound tourists in the world and India from 1995 to 2016[3].



DataSource: World Development Indicators

Figure 1:International inbound tourists (world) from 1995 to 2016



DataSource: World Development Indicators

Figure 2: International inbound tourists (India)from 1995 to 2016

Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities will be sustainable in nature. The principles of sustainability refer to the environmental, economic, and socio-cultural aspects of tourism development. There must be a suitable balance established between these dimensions to guarantee its long-term sustainability. Sustainable tourism should make optimal use of environmental resources that constitute a key element in tourism development, maintaining essential ecological processes and helping to conserve natural heritage and biodiversity. Achieving sustainable tourism is a continuous process and it requires constant monitoring of impacts, introducing the necessary preventive and/or corrective measures whenever necessary. Sustainable tourism should also maintain a high level of tourist satisfaction and ensure a meaningful experience to the tourists, raising their awareness about sustainability issues and promoting sustainable tourism practices amongst them [4].

Globalization induced Climate Change and Tourism - Case Study on Impact of Nipah and Flood in Tourism Industry of Kerala, India

Kerala state in India is popularly known as „God“s Own Country“ and is one among the favourite tourism destinations in India. Travel and tourism accounts for 10% of Kerala“s gross state domestic product and is generating 25% of employment in the state. Inflow of domestic tourists to Kerala grew by 11.4% to 147 lakh tourists in 2017 while foreign tourist arrivals (FTA) grew by 5.2% to 10.9 lakh tourists. Total foreign exchange from the tourism sector last year grew by 8.3% to Rs 8,392 crore, while the total revenue from tourism grew by 12.6% to Rs. 33,384 crore. Two of the major causes which adversely affected the tourism industry of Kerala in 2018 were the Nipah Virus outburst in May and the unprecedented floods during July – August. The industry is still struggling to survive from these setbacks.

Although, globalization helped the flow of information, goods, capital, and people across political and geographic boundaries, it also enabled the spread of Viruses from one country to another and resulted infectious diseases to rapidly spread around the world[5]. The Nipah virus was first detected during a major infectious disease outbreak in Malaysia in 1998-99 and a closely related Nipah virus has emerged in Bangladesh/India region in 2001. A Nipah virus outbreak was reported in Philippines in 2015. The first Nipah case was reported in Kerala in May 2018 and the outbreak was in Malappuram and Kozhikod districts and 17 people died because of the disease. The timely efforts of Government of Kerala helped to control the spreading of disease to more areas in the State. People were advised to avoid travels to Nipah affected districts. The period from mid of May to July end is usually an off-season for Kerala“s tourism sector. The major tourist inflow during this period is from West Asian countries and tourists are coming to enjoy the Monsoons and for medical treatments, as these are the best months for Ayurvedic treatment in Kerala. Most of the hotel bookings in the Nipah affected districts and nearby districts especially Wayanad (one of the main tourism destinations in Kerala) were cancelled and some countries advised their citizens to avoid travel to Kerala. This resulted in huge loss for tourism sector in Kerala.

Kerala witnessed massive floods during June- August in 2018 and the floods have killed

more than 400 people in the State. All most all tourism destinations in Kerala were adversely affected by the flood. The backwater tourism destinations in Alappuzha districts and hill stations in Idukki and Wayand districts faced major environmental challenges including waste accumulation, landslides, destruction of Ghat roads etc. Estimate is that the loss in tourism business in the state could be as much as Rs. 2,000 core. There have been complete cancellations for August, September and October. Unfortunately, the health advisories released have been misinterpreted by certain sections of the media and it gives the impression that Kerala is unsafe. Some of the resorts in the hilly areas witnessed 90% cancellations for August and September with very weak enquiries coming in for forward bookings.

The researchers carried out an exploratory study in Wayanad and Idukki districts of Kerala to analyze the impact of floods on tourism in these districts. The major findings were

- There was more than 50% reduction in the business.
- It took almost three months post the floods for most resorts in Idukki/Wayanad to start receiving enquiries for tourist visits. But even now, as compared to previous years, most of these enquiries are not getting converted into bookings.
- Now the situation is slowly getting better and that strong efforts are being made by tour operators, hoteliers, and transport operators.
- Even after the floods, several alerts about poor weather in Kerala had kept the tourists away from the state, as they did not want to take any risks following the floods.
- Kerala Tourism has also taken the help of various travel and lifestyle bloggers, who were invited to experience the “post flood” Kerala. Some of these bloggers have a huge number of followers and through them, trying to spread the word that Kerala is safe and ready to welcome tourists.

The tourism industry in Kerala is slowly and strongly recovering from the impacts of these two unparalleled issues.

Conclusion

The influence of globalization on international markets has resulted on economic growth and employment generation. Meantime, there is an increase in environmental degradation and climatic changes. The faster rate of climate change due to the impacts of globalization poses an environmental reality that no nation can afford to overlook. The rapid changes in climate are unfavorably affecting the tourism destinations which are ecologically more sensitive. New strategies to be developed to cope up with the climate change issues for sustainable tourism in developing countries in the deepening globalization scenario.

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Table.1: Frequency Distribution of Holistic Construct of Sincerity in Destination Personality

Sincerity	Frequency	Percent
Reliable	84	42.0
Sincere	40	20.0
Intelligent	9	4.5
Successful	45	22.5
Wholesome	22	11.0
Total	200	100.0

The best factor which denotes Sincerity in Destination Personality is Reliable (42%)

Table.2: Frequency Distribution of Holistic Construct of Excitement in Destination Personality:

Excitement	Frequency	Percent
Exciting	98	49.0
Daring	30	15.0
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Table 3: Frequency Distribution of Holistic Construct of Conviviality in Destination

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Friendly	72	36.0
Family oriented	26	13.0
Traditional	55	27.5
Modern	10	5.0
Charming	37	18.5
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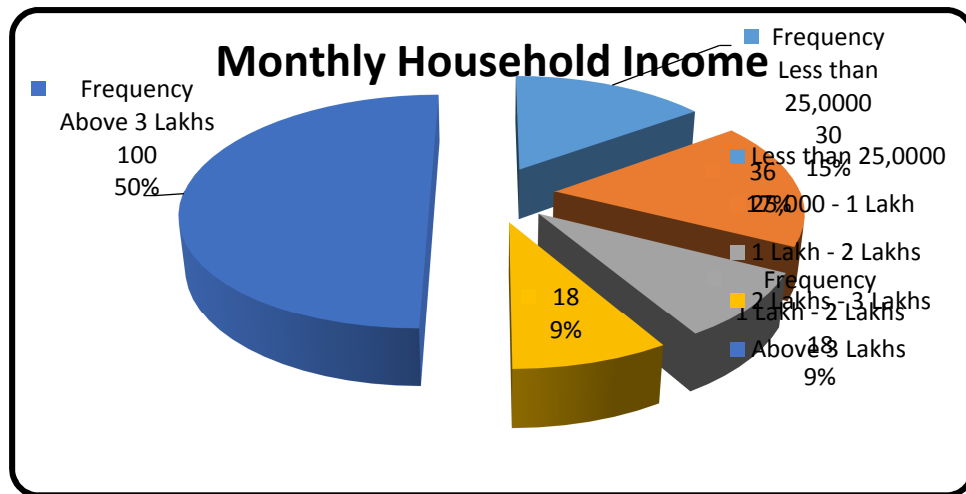
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Table.4: Services of Cochin

	N	Mean	Rank
Stay in Cochin has been valuable to me	200	4.00	2
Have gained a lot of new knowledge and experiences in Cochin	200	4.14	1
Staying in Cochin is value worth	200	3.76	4
Price of B&B/Half Board/full board in Cochin is reasonable	200	3.57	6
Price of Additional offer at Cochin is favorable	200	3.60	5
Will get more than my money's worth by visiting Cochin	200	3.84	3
Cost of visiting Cochin are a bargain relative to the benefit I receive	200	2.37	7
Valid N (list wise)	200		

The descriptive statistics for the overall rating of the “Services of Cochin” is presented in table which comprises of seven items which shows that “have gained a lot of new knowledge and experiences in Cochin” rates the highest rank, Rank 1 with a mean value 4.14 and the Second rank followed by Staying in Cochin has been valuable to me” with a mean value of 4.00, “Will get more than my money’s worth by visiting Cochin” with a mean value of 3.84 followed by “Price of additional offer at Cochin is favourable” ranking fourth with a mean value of 3.60 and 3.57 for “Price of B&B/Half Board/full board in Cochin is reasonable” with slight variations in the mean value. While all the above listed items are positive factors, “Cost of visiting Cochin are a bargain relative to the benefit I receive” is a negative item with a mean value of 2.37. From the table it is inferred that the factor “Have gained a lot of new knowledge and experiences in Cochin” is the key factor in pulling the tourists to Cochin, one among the major reasons for creating loyalty towards the destination.

Figure 7:- Frequency Distribution of respondents with respect to their Monthly Household income.



The graphical representation of the frequency distribution of respondents based on their Monthly household income depicts that 50 % (100) of the respondents' monthly household income is Above 3 lakhs, while 50% of the respondents monthly household income is below 3 lakhs i.e. 9% (18) of the respondents varies from 2 lakhs – 3 lakhs, while 9% (18) from 1 lakh – 2 lakhs. Similarly, 17% (36) of the respondents ranges between 25,000 to 1 lakh and only 15% (30) of the respondents are less than 25,000. So it is found that maximum tourists visiting Cochin has a Monthly household income above 3 lakhs, inferring that they have enough disposable income to spend during their visit to Cochin.

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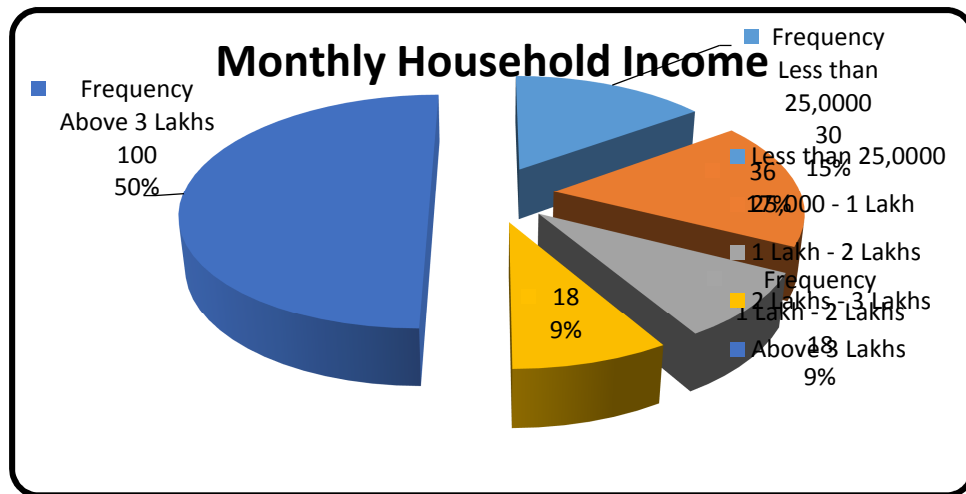
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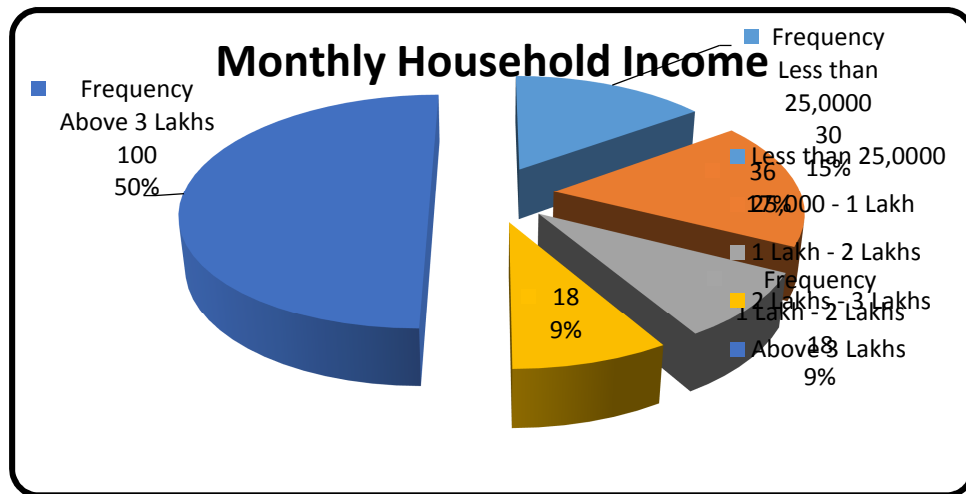
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Cost of visiting Cochin are a bargain relative to the benefit I receive	200	2.37	7
Valid N (list wise)	200		

The descriptive statistics for the overall rating of the “Services of Cochin” is presented in table which comprises of seven items which shows that “have gained a lot of new knowledge and experiences in Cochin” rates the highest rank, Rank 1 with a mean value 4.14 and the Second rank followed by Staying in Cochin has been valuable to me” with a mean value of 4.00, “Will get more than my money’s worth by visiting Cochin” with a mean value of 3.84 followed by “Price of additional offer at Cochin is favourable” ranking fourth with a mean value of 3.60 and 3.57 for “Price of B&B/Half Board/full board in Cochin is reasonable” with slight variations in the mean value. While all the above listed items are positive factors, “Cost of visiting Cochin are a bargain relative to the benefit I receive” is a negative item with a mean value of 2.37. From the table it is inferred that the factor “Have gained a lot of new knowledge and experiences in Cochin” is the key factor in pulling the tourists to Cochin, one among the major reasons for creating loyalty towards the destination.

Figure 7:- Frequency Distribution of respondents with respect to their Monthly Household income.



The graphical representation of the frequency distribution of respondents based on their Monthly household income depicts that 50 % (100) of the respondents' monthly household income is Above 3 lakhs, while 50% of the respondents monthly household income is below 3 lakhs i.e. 9% (18) of the respondents varies from 2 lakhs – 3 lakhs, while 9% (18) from 1 lakh – 2 lakhs. Similarly, 17% (36) of the respondents ranges between 25,000 to 1 lakh and only 15% (30) of the respondents are less than 25,000. So it is found that maximum tourists visiting Cochin has a Monthly household income above 3 lakhs, inferring that they have enough disposable income to spend during their visit to Cochin.

Table.1: Frequency Distribution of Holistic Construct of Sincerity in Destination Personality

Sincerity	Frequency	Percent
Reliable	84	42.0
Sincere	40	20.0
Intelligent	9	4.5
Successful	45	22.5
Wholesome	22	11.0
Total	200	100.0

The best factor which denotes Sincerity in Destination Personality is Reliable (42%)

Table.2: Frequency Distribution of Holistic Construct of Excitement in Destination Personality:

Excitement	Frequency	Percent
Exciting	98	49.0
Daring	30	15.0
Original	57	28.5
Spirited	15	7.5
Total	200	100.0

The best factor which denotes the attribute of Excitement in Destination Personality is Exciting (49%)

Table 3: Frequency Distribution of Holistic Construct of Conviviality in Destination

Conviviality	Frequency	Percent
Friendly	72	36.0
Family oriented	26	13.0
Traditional	55	27.5
Modern	10	5.0
Charming	37	18.5
Total	200	100.0

Personality:

The best factor which denotes the Conviviality attribute of Destination Personality is Friendly (36%)

Table.4: Services of Cochin

	N	Mean	Rank
Stay in Cochin has been valuable to me	200	4.00	2
Have gained a lot of new knowledge and experiences in Cochin	200	4.14	1
Staying in Cochin is value worth	200	3.76	4
Price of B&B/Half Board/full board in Cochin is reasonable	200	3.57	6
Price of Additional offer at Cochin is favorable	200	3.60	5
Will get more than my money's worth by visiting Cochin	200	3.84	3
Cost of visiting Cochin are a bargain relative to the benefit I receive	200	2.37	7
Valid N (list wise)	200		

The descriptive statistics for the overall rating of the “Services of Cochin” is presented in table which comprises of seven items which shows that “have gained a lot of new knowledge and experiences in Cochin” rates the highest rank, Rank 1 with a mean value 4.14 and the Second rank followed by Staying in Cochin has been valuable to me” with a mean value of 4.00, “Will get more than my money’s worth by visiting Cochin” with a mean value of 3.84 followed by “Price of additional offer at Cochin is favourable” ranking fourth with a mean value of 3.60 and 3.57 for “Price of B&B/Half Board/full board in Cochin is reasonable” with slight variations in the mean value. While all the above listed items are positive factors, “Cost of visiting Cochin are a bargain relative to the benefit I receive” is a negative item with a mean value of 2.37. From the table it is inferred that the factor “Have gained a lot of new knowledge and experiences in Cochin” is the key factor in pulling the tourists to Cochin, one among the major reasons for creating loyalty towards the destination.

Table 5: Affective Image of Cochin

	N	Mean	Rank
Pleasant	200	4.15	3
Exciting	200	4.00	4
Arousing	200	3.84	5
Relaxing	200	4.23	2
Enjoyable	200	4.53	1
Valid N (listwise)	200		

The descriptive statistics for “how the tourists feel about Cochin as a vacation destination” on the scale “Affective Image of Cochin” is presented in table 5 which shows that Enjoyable rates the highest rank with a mean value of 4.53, followed by, Relaxing, Pleasant, Exciting and arousing with mean values 4.23, 4.15, 4.00 and 3.84 respectively. From the table it is inferred that Cochin is considered to be Leisure destination meant for Enjoyment and relaxation.

Table 6: Destination Image of Cochin

	N	Mean	Rank
Heritage/Cultural	200	4.34	2
Backwaters/ Sea	200	4.51	1
Religious	200	3.78	3
Health & Wellness	200	3.66	4
Adventure & Wildlife	200	3.11	5
Valid N (list wise)	200		

The descriptive statistics for “how the perception of tourists about Destination Image of Cochin” on the scale is presented in table 6 which shows that Backwaters rates the highest rank with a mean value of 4.51, followed by, Heritage/Cultural, Religious, Health/Wellness and Adventure & Wildlife with mean values 4.34, 3.78, 3.66, and 3.11 respectively. The table shows that Backwaters/ Sea Contributes highly to the Destination Image of Cochin followed by the Heritage/Cultural aspects.

	N	Mean	Rank
Would choose Cochin again	200	3.93	3
Will recommend Cochin to my friends and relatives	200	4.21	1
Will speak highly about Cochin to my friends and relatives	200	4.18	2
Cochin would be my preferred choice for future vacation	200	3.93	3
I am likely to visit Cochin in the near future	200	3.82	4
Valid N (list wise)	200		

Table 7: Destination Loyalty towards Cochin

The descriptive statistics for the “Destination Loyalty towards Cochin” is presented in table which comprises of five items which shows that “Will recommend Cochin to my friends and relatives” rates the highest rank, Rank 1 with a mean value 4.21 and the Second rank followed by “Will speak highly about Cochin to my friends and relatives” with a mean value of 4.18, “Would choose Cochin again” and Cochin would be my preferred choice for future vacation with an equal mean value of 3.93 followed by “I am likely to visit Cochin in the near future” ranking fourth with a mean value of 3.82. From the table it is inferred that the tourists are highly loyal to Cochin.

Table 8: Destination Image Compared With Monthly House Hold Income

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.958	4	1.989	3.769	.006
Heritage/Cultural Within Groups	102.922	195	.528		
Total	110.880	199			
Between Groups	5.451	4	1.363	2.935	.022
Backwaters Within Groups	90.529	195	.464		
Total	95.980	199			
Between Groups	9.680	4	2.420	2.975	.021
Religious Within Groups	158.640	195	.814		
Total	168.320	199			
Between Groups	9.744	4	2.436	2.021	.023
Adventure & Wildlife Within Groups	235.051	195	1.205		
Total	244.795	199			

From the analysis it is clear that there is relationship with Destination image & Income.

Table 9: Service Quality Compared With Monthly House Hold Income

	Sum of Squares	df	Mean Square	F	Sig.
Staying in Cochin is value Between Groups worth	22.257	4	5.564	8.206	.000
Within Groups	132.223	195	.678		
Total	154.480	199			
Price of B&B/Half Board/full board in Cochin is reasonable Between Groups	53.012	4	13.253	12.314	.000
Within Groups	209.863	195	1.076		
Total	262.875	199			
Price of Additional offer at Cochin is favourable Between Groups	48.693	4	12.173	11.462	.000
Within Groups	207.102	195	1.062		
Total	255.795	199			
Will get more than my money's worth by visiting Cochin Between Groups	11.906	4	2.976	4.300	.002
Within Groups	134.974	195	.692		
Total	146.880	199			
Cost of visiting Cochin are a bargain relative to the benefit I receive Between Groups	38.769	4	9.692	6.902	.000
Within Groups	273.851	195	1.404		
Total	312.620	199			

From the table it is clear that there is relationship with Service Quality & Income.

Table 10: Service Quality Compared With Occupation

	Sum of Squares	df	Mean Square	F	Sig.
Staying in Cochin is value worth	15.054	8	1.882	2.578	.011
Within Groups	139.426	191	.730		
Total	154.480	199			
Price of B&B/Half Board/full board in Cochin is reasonable	41.759	8	5.220	4.509	.000
Within Groups	221.116	191	1.158		
Total	262.875	199			
Price of Additional offer at Cochin is favourable	36.274	8	4.534	3.945	.000
Within Groups	219.521	191	1.149		
Total	255.795	199			
Will get more than my money's worth by visiting Cochin	17.317	8	2.165	3.191	.002
Within Groups	129.563	191	.678		
Total	146.880	199			
Cost of visiting Cochin are a bargain relative to the benefit I receive	9.943	8	1.243	.784	.017
Within Groups	302.677	191	1.585		
Total	312.620	199			

From the table it is clear that there is relationship with Service Quality& Occupation..

FINDINGS AND SUGGESTIONS

The study summaries that destination image, destination personality, destination loyalty and services of cochin has different dimensions which work in conjunction with each other and forms an overall image of the destination there by a sustainable tourism destination. The fact that a destination cannot move towards sustainability and realize its full tourism potential unless it has a favourable image reveled out. The study suggests various marketing strategies for implementation with reference to the findings in order to create a positive image for these sub-tourism dimensions and thereby a sustainable tourism destination.

From the frequency analysis it is clear that both male tourists and female tourists are motivated in large number towards Cochin as a Holiday destination and also the teen aged tourists are more loyal to Cochin than aged ones. Half of the respondents (52%) being foreigners, which includes majority from Europe(33%) followed by US & Canada, (9%), Australia & Newzeland (6%) and Far East(4%) in order to attain a wider and greater impact, technological tools of internet for advertising has to utilized in a more effective way. A sustainable, well planned and designed image promotion campaign with the necessary improvements in identified areas is necessary to enhance Cochin's image. From the analysis it is found that there is a 20% increase in the number of married visitors when compared to the single ones thus packages and promotions should be youth oriented giving consideration to the single community also. The maximum tourists who visit Cochin are well educated and meager number of them is below graduation level of which 24% of tourist respondents belong to Professional/ Technical group while 23% (46) respondents are Students, with a slight variation of 1% (2) followed by the other work groups and based on the monthly income status half of the respondents are belonging to monthly household income above 3 lakhs inferring that they have enough disposable income to spend during their visit to Cochin. The best factor which denotes Sincerity in Destination Personality is Reliable (42%), Excitement in Destination Personality is Exciting (49%) Conviviality attribute of Destination Personality is Friendly (36%) .

The descriptive statistics for the overall rating of the "Services of Cochin" is presented in table which comprises of seven items which shows that "have gained a lot of new knowledge and experiences in Cochin" rates the highest rank, Rank 1 with a mean value 4.14 and the Second rank followed by Staying in Cochin has been valuable to me" with a mean value of 4.00, "Will get more than my money's worth by visiting Cochin" with a mean value of 3.84 followed by "Price of additional offer at Cochin is favourable" ranking fourth with a mean value of 3.60 and 3.57 for "Price of B&B/Half Board/full board in Cochin is reasonable" with slight variations in the mean value. While all the factors of services in Cochin are positive factors, "Cost of visiting Cochin are a bargain relative to the benefit I receive" is a negative item From the study it is inferred that the factor "Have gained a lot of new knowledge and experiences in Cochin" is the key factor in pulling the tourists to Cochin, one among the major reasons for creating loyalty towards the destination.

The Destination Image of Cochin is considered to be Leisure destination meant for Enjoyment and relaxation with Backwaters/ Sea contributing highly to the destination Image of Cochin followed by the Heritage/Cultural aspects. Developing and enhancing the image of backwaters of India and create awareness about this potential through aggressive marketing and advertising is an effective way of sustainable tourism promotion. Package and market India's wide variety of cuisines through brochures, magazines, internet and food festivals and encouraging e- commerce portals for effective marketing support will also enhance the image of cochin as a sustainable tourism destination.

Based on the study it is also inferred that the tourists are highly loyal to Cochin. Through the analysis it is inferred that Service Quality is highly dependent on Occupation and Income. It is also concluded that Destination image and Income are highly related. The

ministry should work towards developing a thriving and sustainable tourism industry that did not compromise on the existing biodiversity through the preservation, conservation and protection of the environment and the country's natural and cultural heritage.

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Concerns for Environment in Sri Guru Granth Sahib Ji

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Introduction

Environment is derived from the French word “Environner” which means to encircle or surround.¹ Word "environment" is most commonly used describing "natural" environment and means the sum of all living and non-living things that surround an organism, or group of organisms. Environment can also be defined as the “sum total of all the conditions and influences that affect the development and life of organisms.”² Environment includes all elements, factors, and conditions that have some impact on growth and development of certain organism. Environment includes both biotic and abiotic factors that have influence on practical organism. Abiotic factors such as light, temperature, water, atmospheric gases combine with biotic factors (all surrounding living species). Environment often changes after some time and therefore many organisms have ability to adapt to these changes. However acceptance range is not the same with all species and exposure to environmental conditions at the limit of a certain organism's acceptance range represents environmental stress. Earth is the third planet of solar system. Its temperature, distance from sun, presence of water and air are the certain factors which make life possible on earth.³

The variety of life on Earth, its biological variety, is commonly referred to as biodiversity. The number of species of plants, animals, and microorganisms, the enormous diversity of genes in these species, the different ecosystems on the planet, such as deserts, rainforests and coral reefs are all part of a biologically diverse Earth. Proper conservation and sustainable development strategies attempt to recognize this as being integral to any approach. In some way or form, almost all cultures have recognized the importance of nature and its biological diversity for their societies and have therefore understood the need to maintain it. Yet, power, greed and politics have affected the precarious balance.

The climate is changing. The earth is warming up, and there is now overwhelming scientific consensus that it is happening, and human-induced. With global warming on the increase and species and their habitats on the decrease, chances for ecosystems to adapt naturally are diminishing.

Many agree that climate change may be one of the greatest pressures facing the planet. Recent years show increasing temperatures in various regions, and/or increasing extremity in weather patterns.

There is a serious worry that the earth may no longer be a sustainable bio system. Although human beings are seen as the most gifted life form on earth, yet they are

¹ Environmental Studies, Ritu Bir, page 1, Vayu Education Of India, New Delhi, 2009

² Environmental Biotechnology, Bimal C. Bhattacharyya, Rintu Banerjee, page 1, Oxford University Press, 2007

³ Environmental Studies, Ritu Bir, page 4, Vayu Education Of India, New Delhi, 2009

answerable for almost all the ecological damage done to the planet. To understand environment from Guru Granth Sahib's perspective, first we have to understand the philosophy of Guru Granth Sahib. Guru Granth Sahib is a religious scripture written by different divine masters, prominent saints (Bhagats) and some others spiritual poets from the Indian subcontinent. The different authors whose writings are included in the scripture lived between twelfth to the seventeenth century and belonged to different faiths and classes/strata of society. This scripture is also called Adi Granth (Adi means original & Granth means scripture) to differentiate it from another Scripture written by the tenth Sikh Guru.

The uniqueness of Sri Guru Granth Sahib is that this is the latest of the main religious scriptures from the Indian sub-continent and this is the only known scripture that contains the novel writings from the masters of a major faith known as Sikhism. The fifth Sikh Guru, Arjan Dev compiled the first edition of Sri Guru Granth Sahib at Amritsar, the spiritual center of the sikhs. Besides the hymns that he wrote himself, he collected the hymns of the first four Sikh Gurus and a number of other saints/spiritualists with similar philosophy and thus compiled the first edition of Sri Guru Granth Sahib which at that time called Adi Granth. The volume was written by Bhai Gurdas under the direction of Guru Arjan Dev. In 1706, the tenth Sikh master, Guru Gobind Singh, while staying at Damdama Sahib recompiled Sri Guru Granth Sahib with the help of a close associate Bhai Mani Singh by adding hymns of the ninth Sikh Guru, Guru Teg Bahadur, the father of Guru Gobind Singh, and ordered his followers to regard the scripture as the eternal Guru. After that the scripture is called Sri Guru Granth Sahib (Guru means teacher or guide, Granth means a holy book,).Guru Granth Sahib contains compositions of six Sikh Gurus (the first five Gurus and the ninth Guru), seventeen saints/Bhagats (Kabir, Farid, Namdev, Ravidas, Beni, Trilochan, Jaidev, Sundar, Parmanand, Sadna, Ramanand, Dhanna, Pipa, Sain, Soordas, Bhikhan, Mardana); poets Balwand & Sata and eleven Bhattas or poets of the Sikh Gurus (Mathra, Jalap, Harbans, Talya, Salya, Bhal, Kulh Sahar, Nal, Kirat, Gayand, Sadrang). The scripture in its customary form has 1430 pages. Sri Guru Granth Sahib is a treasure of divine knowledge, mysticism and a guide to a spiritual living for all human beings. The hymns help us with unwavering belief in God. The most unique feature of this scripture is that it contains a universal message of spiritual living for the whole human race. The Guru Granth Sahib is a sacred scripture of the world and is the Eternal Guru of the Sikhs, many world class philosophers and holy men consider it a unique treasure and a noble heritage for all humankind. Thus the Guru Granth Sahib incorporates all of the features to place it alongside the world's greatest scriptures. Besides, this is the only scripture which in spite of its interfaith nature was dictated, edited, proof-read, and signed for authenticity by the founders of the faith in their life time.

Sri Guru Granth Sahib declares that the idea of human beings is to achieve a peaceful state and to be in harmony with the earth and with all of God's creation. It seems, however, that humans have drifted away from that ideal. According to the Sikh scriptures, humans create their surroundings as an indication of their inner state. Thus, the increasing emptiness of the earth reflects a spiritual emptiness within humans.

INTERDEPENDENCE

Sikhism is very much concerned with the relationship between people and the environment. Sikhs believe that an understanding of the sacred relationship between humans and the environment is necessary for the health of our planet, and for our continued existence. In Sri Guru Granth Sahib Ji, man and material world are no more seen as external to each other, but being involved in a mutually dependent relationship, reciprocally conditioning the life of each other. Guru Nanak stresses this kind of inter-dependent relationship in his first composition 'Japu Ji';

‘Pavan guru paani pita, Maata dharat mahat,
Divas raat do-e daaee daa-ia, Khelai sagal jagat’⁴.

Means that Air is a crucial force, Water is the progenitor, the enormous Earth is the mother of all, Days and Nights are nurses, fondling all creation in their lap.

Sri Guru Granth Sahib declares that the idea of human beings is to be in harmony with all creation and that human dominion is to be rejected. The Sikh Gurus recognized human accountability towards the material world and its phenomena. So, the importance of Air, Water and Earth to life are emphasized over and over again in the Sri Guru Granth Sahib. The earth is referred to as the mother and as such requires our respect. Great care needs to be taken to make sure that no damage occurs to it while the Sikh is going about his or her daily life. The pollution of these three elements is against the principles laid down by the Gurus. The Sikh Scriptures stress the importance of the biotic components of environment in the hymn:

Pavan paani dharati aakas ghar mandar har bani.⁵

Means air, water, earth and sky are God's home and temple - holy places which need to be protected and looked after. The Sikh Gurus showed the world, the way to appreciate the interdependence of living beings and their environment and the way to nurture this interrelationship. All their constructions adhered to this principle. They built many Gurdwaras surrounded by large pools, which supported marine life, especially fish. This was clearly a sign to live in harmony with environment rather than in conflict with it. Guru Har Rai, the seventh Sikh Guru developed Kiratpur Sahib as a town of parks and gardens. Located on the banks of tributary of the Sutlej, he planted flowers and fruit bearing trees all over the area. This created a healthy environment, attracting beautiful birds to the town and turning it into a pleasant place to live in.

GURU GRANTH SAHIB AND NATURE

Nature, a major component of our environment, is a great saintly teacher because it enables the spiritual seeker to be in touch with vital Reality. God is revealed through His All-powerful artistic nature. As pointed out in Gurbani, everything seen is God in action. The

⁴ Sri Guru Granth Sahib Ji 8

⁵ Sri Guru Granth Sahib Ji 723

Sikh scriptures are full up with examples about the interrelationship of the Creator and Nature.

Nanak sach daataar sinaakhat kudaratee.⁶

Nanak says that True One is the Giver of all; He is revealed through His All-powerful Creative Nature.

Outabhuj chalat keeaa sir karatai bisamaad sabad dhekhaaidaa.⁷

Means that The Supreme Creator created the play of Nature; throughout the Word of His Shabad, He stages His unbelievable Show. Sri Guru Granth Sahib Ji places a great deal of spiritual importance on the lessons we can learn directly from the Nature. One can learn true selflessness; real renunciation and sacrifice form it. According to Sri Guru Granth Sahib Ji; 'Earth teaches us patience and love. Air teaches us mobility, Fire teaches us warmth and courage; Sky teaches us equality and progressiveness, Water teaches us purity and cleanliness'.

HARMONY WITH NATURE

Sikhs consider that the material world and its phenomena (Nature), like all formation, is a manifestation of God. Every creature in this world, every plant, every form is a demonstration of the Creator. Each is part of God and God is within each element of creation. God is the cause of all and He is the primary connection between Himself and all the existence.

Jo antar so baahar daykhhu avar na doojaa ko-ee jee-o.

gurmukh ayk darisat kar daykhhu ghat ghat jot samo-ee jee-o.⁸

Means that God is within. HE sees Himself outside as well; there is no one, other than Him. By divine prompting look upon all existence as one and undifferentiated; the same light penetrates all life. And "The Creator created himself ... And created all creation in which He is obvious. You yourself the bumble-bee, flower, fruit and the tree. You yourself the water, desert, sea and the pond. You yourself are the big fish, tortoise and the Cause of causes. Your form cannot be known." Sri Guru Granth Sahib Ji stresses the significance of living in harmony with Nature. It opposes the thought that the struggle of the human race is against Nature and that human domination lies in the notion of "harnessing" Nature. The objective is harmony with the eternal—God—which implies a life of harmony with all existence. The history of the Gurus is full of stories of their love for animals, birds, trees, plants, rivers, mountains and sky. Many Sikhs, though not all, also have a strong custom of being vegetarian. A simple life – a life that stresses mastery over the self rather than mastery over Nature.

⁶ Sri Guru Granth Sahib Ji 141

⁷ Sri Guru Granth Sahib Ji 1037

⁸ Sri Guru Granth Sahib Ji 599

HARMONY WITH EARTH

Sri Guru Granth Sahib Ji emphasises the meaning of various aspects of Nature and declares the Earth as Dharamsaal (a place for moral action).

raatēe rūtēe thītēe vaar. pavan paanēe agnee paṭṭaal.

tis vich Dhartēe thaap rakhee Dharam saal.⁹

Means GOD created Night and Day, seasons and time, So also Air, Water, Fire and the Nether Regions, Amidst these has He fixed the earth, the place for moral Action.

By this depiction of the world (earth) as a place for honesty and purity, Sri Guru Granth Sahib Ji insists that we relate with others with equality and fairness. Sri Guru Granth Sahib reveals that real peace can only be found when desire and greediness are subdued and diminished. This will only happen when the individual realizes that God is found in all the elements including water, earth and the woods and he stops harming these elements merely to satisfy his material greediness.

saant paavahi hoveh man seetal agan na antar Dhukhee.

gur naanak ka-o parabhoo dikhaa-i-aa jal thal taribhavan rukhee.¹⁰

Means that a man can have peace when his mind will be soothed and cooled; the fire of desire shall not burn within him. The GOD has revealed HIMSELF to Nanak in the three worlds, in the water, the earth and the wood.

CONCERN ABOUT THE WORLD SOCIETY

According to Sikhism, environmental concerns must be viewed as part of the broader issue of human growth and social justice. Many environmental problems, particularly the misuse of environmental resources in developing nations, are due to the poverty of large parts of the population. Therefore an integrated approach is necessary. Sikhism emphasizes the main reason for humanity as the harmony with all life. Striving for a life of harmony, therefore, also implies a life of supporting individual rights and environmentalism—a life that works against injustice toward anybody and anything. The tenth Guru in 1699 founded the Order of the Khalsa, whose members practice the spiritual discipline of Sikhism and are committed to ensure the safeguarding and prevalence of the World Society. Over the last three centuries, Sikhs have stood up for the rights of the exploited and the disenfranchised even at the cost of their own lives. The Khalsa vision towards the World Society is:

hun hukam ho-a miharvaan daa.pai ko-ay na kisai ranjaandaa.

sabh sukhaalee vuthee-aa ih ho-aa halaymee raaj jee-o.¹¹

⁹ Sri Guru Granth Sahib Ji 7

¹⁰ Sri Guru Granth Sahib Ji 617

¹¹ Sri Guru Granth Sahib Ji 74

Means that hence forth such is the Will of God: No man shall force another; No person shall take advantage of another. Each individual has the absolute birthright to seek and pursue happiness and self-fulfillment. Love and persuasion is the only law of social unity. The Khalsa have opposed any force that has threatened the freedom and dignity of human beings. For the Khalsa, justice requires the participation and inclusion of all in obtaining and enjoying the fruits of God's creation. Justice achieved through supportive effort is desirable. The ideal for the Khalsa is to strive for justice for all, not merely for themselves.

INTEGRATED APPROACH TO SUSTAINABILITY

In Guru Granth Sahib a concern for the environment is part of an integrated approach to life and nature. As all formation has the same origin and end, humans must have consciousness of their place in creation and their relationship with the rest of creation. Humans should conduct themselves through life with love, concern, and justice. Becoming one and being in harmony with God implies that humans endeavour to live in harmony with all of God's creation. A true Sikh is for individual human rights, the environment and justice for all.

A human body consists of many parts; every part has a distinct name, location, and function, and all of these are dependent upon each other. In the same way, all the constituents of the universe and the earth are dependent upon each other. Decisions in one country or continent cannot be overlooked by people in other countries or continents. Choices in one place have measurable consequences for the rest of the world. It is part of the same system. Sri Guru Granth Sahib Ji assures that the entire creation is inter-related mutually supporting one another.

Any solution to the problem of the environment must be sensitive to women's concerns, and must include women as equals. Piecemeal solutions to environmental problems will merely focus, for example, on limiting population growth through family planning measures, which often end up abusing women's rights, and should be rejected on those grounds alone. Sri Guru Granth Sahib Ji contains important lessons on this. Guru Nanak and other Sikh gurus advocated equal opportunity for women and took steps to implement this. Community-based sharing of resources is another practice prevalent in Sikhism, which can be adopted worldwide to share scarce resources with special emphasis on recycling and avoidance of wastage.

CONCLUSION

Life, for its very existence, depends upon an abundant nature. A human being needs to derive nourishment from the earth and not deplete, exhaust, pollute, burn, or destroy it. Sikhs believe that an awareness of that sacred relationship between humans and the environment is necessary for the health of our planet, and for our continued existence. A new "environmental ethic" dedicated to management and wise use of the resources provided by a bountiful nature can only arise from an honest understanding and dedicated application of our old, tried and true spiritual heritage. Such an integrated approach to current environmental crisis can lead to everlasting sustainability of life on mother earth. What needs is an effort not only from the society but also from every individual one including myself so that this planet which we consider as a Mother can be saved from the increasing polluting environment.

Comprehending Racial and Ethnic Inequities as Factors Which Impact Generational Wealth and Social Capital in Wisconsin

Belinda Jo Sain Cronin

Abstract

This paper is looking at Comprehending Racial and Ethnic Inequities as Factors Which Impact Generational Wealth and Social Capital in Wisconsin from a personal view of the author with a focus study dimension.

From her observations the pervasive practices in ethnic and racial disparities, particularly in education, follow a distinct pattern. African American, American Indian, Latinos/Hispanics, and Southeast Asian Americans underperform academically, relative to Whites and other Asian Americans. There are several ways that these disparities are accentuated for each group. Latinos/Hispanics are generally represented as immigrants or children of immigrants and their native language is not English. African Americans face large discipline gaps with a disproportionate number receiving behavioral sanctions. While there is less information on American Indians and Southeast Asian Americans, what is readily available suggests that they are influenced by similar factors that influence African Americans and Latinos/Hispanics. Moreover, the study suggests to embrace an understanding of racism in all nations.

Introduction

Melissa Healy, a writer for the Racine Journal Times, opens her article with a powerful statement “The nation’s psychologists want us to talk about race. Not in the hushed confines of a therapist’s office, but in classrooms, church basements, and workplace.”

Perhaps as a person of mixed race African, European, Native American and French Canadian Indian, I am generally prone to pondering and contemplated bouts in which I zealously entertain a few of my nerdy passions. While in a self-induced stupor that I refer to as my internal “Headspace,” I often journey into the issues of race and ethnicity across the world and the political posturing on the state, national and international levels.

I am currently reminded of the song, by Stephen Stills and The Buffalo Springfield Band (1966) “For What It’s Worth.” It was as I recall, an anthem for the turbulent times in which people were questioning all the lies, the fallacy of the melting pot, the rules and challenging the status quo. Today and some 52 years later, the lyrics speak as clearly now as they did then!

“There’s something happening here

But what it is ain’t exactly clear

There’s a man with a gun over there

Telling me I got to beware

There's battle lines being drawn
 Nobody's right if everybody's wrong
 Young people speaking their minds
 Are getting so much resistance from behind
 Are getting so much resistance from behind
 It's time to stop
 Hey, what's that sound?
 Everybody look...
 What's going down?

Discussions

Entering 2019 is truly a blessing for me given the number of friends and family members that I have witnessed depart for the "milky way, " and I am reminded by a fellow activist, "remember compromise is more than a word, it is a call for action." The battle still rages and the war is still on...

Race and poverty in conjunction with their overall societal impact has resulted in a highly complex and multifaceted system of cyclical concerns across the world. This paradigm results in a continuum of reduced educational achievement and diminished financial stability that facilitates greater poverty substandard existence and increased failure in the United States and many other countries.

The goal of this study is to examine the racial and ethnic inequalities with the economics of generational wealth and social capital of people of color in America namely the Midwest state of Wisconsin.

Generational Wealth

Wealth that is passed down from one generation to another

Also known as Family Wealth/Multigenerational Wealth/Legacy Wealth

Communities of color find themselves overwhelmed, exhausted, frightened and under siege. Racial inequality, its effects and generational wealth render these segments of society in constant jeopardy and on verge of collapse.

In spite of the end of legal segregation and the appearance of many successes, communities of color still face numerous hurdles with reference to education, incarceration, financial security, and health disparities. Poverty and Race based policies have continued to pose significant obstacles, which reduce the overall access to finances. Access to civil service jobs, home mortgages, labor union memberships, excellent schools and many other pathways are limited. The absence of these options reduce the assets in these poverty

stricken and racially segregated communities thus creating a multitude of potentially hazardous liabilities which perpetuate a sizable wealth gap which continues to grow today.

Compared to the United States, Wisconsin has a slightly higher current net worth (12% higher in 2000). This measure suggests that Wisconsin, on average has done better than the rest of the United States in generating wealth over the past 50 years. Property wealth and wealth connected with stocks, bonds and other investments is marginally higher than U.S. averages.

Generational Wealth is something the Black community doesn't have readily available access to. It isn't something they have because they don't commonly own land or business, nor were they taught how to do successfully obtain wealth and pass it on to future generations. They had limited financial literacy that reduced the propensity for entrepreneurship. Access to certain areas for housing were limited due to redlining, which blocked them from moving and acquiring homes that could increase in value.

70% lose wealth by second generation

90% Lost by third generation

Social Capital

The networks of relationships among people who live and work in a particular society, enabling that society to function effectively.

As pervasive as it actually is, social capital is often times unclear and very arduous to convey. The broad impact of racial inequity, whether intentional or unintentional, has resulted in an intricately woven and imbalanced web of concerns and deceit. The very nature of this paradigm has resulted in limited educational achievement and lifestyle success in America. In Wisconsin specifically, poverty is just as important a factor as race.

As social capital impacts the various relationships among people who live and work together in any given society, this enables those connected persons to live their lives and function effectively within its various institutions. When one has the luxury of knowing where and how to access the assets, connections they have in life, there's something mentally reassuring that empowers oneself to reach for higher goals and strive for greater personal achievement and even familial stability. The clothes you wear, where you reside, resources that are available and of course the quality of your education all make a huge difference.

As Verashni Pillay states, "It's the fact that you can reference the right music or literary joke, that your superior education afforded you, earning you an in with the boss. It's a familial culture of success and an environment that is conducive towards it."

Communities of color find themselves overwhelmed, exhausted, frightened and under siege. Racial inequality, its effects and generational wealth render these segments of society in constant jeopardy and on verge of collapse.

Wisconsin is the third highest state in the United States for Social Capital ranking. However, Wisconsin only ranks 18th for education quality.

The least educated States (Least to worst)

- 5) Nevada
- 4) Arizona
- 3) Alaska
- 2) Louisiana
- 1) New Mexico

Educational progress scores come out every two years and according to the NAEP, National Assessment of Education Progress, average test scores for African-American children in Wisconsin 2004 were either the lowest or just above the lowest in the country, depending on the year and category. These results remain consistent yet today.

UWM has struggled for years to change the trajectory of students who don't make it to graduation. Only 21% of African-Americans who enroll full-time at UWM graduate in six years. The number for white students is 24 percentage points higher. Even with a mission of educating all students who want to earn a degree, the freshman class in fall 2016 had just 199 black students out of a class of 3,104, and many did not return for a second year.

This overall trend was masked by considerable variation across the state. In 29 Wisconsin counties, poverty was below the state average in 2016, while 42 counties had poverty rates not significantly different from the state average. Only one county had a substantially statistically higher poverty rate-Milwaukee, at 17.5 percent. While the overall poverty rate in Wisconsin rose from 9.7 to 10.8 percent from 2015 to 2016, the comparable change in Milwaukee County was from 16.3 to 17.5 percent.

Larger counties such as Milwaukee can be broken down into subcounty areas because of the high population amount. Milwaukee specifically has eight subcounty areas where poverty ranges from 8.4 to 38.2%.

From data gathered nationwide, it is clear that people of color -Blacks, Hispanics, and other racial/ethnic groups- frequently have a higher poverty rate than White Non-Hispanic Americans. In the state of Wisconsin, people of color only make up a small fraction of the total population.

There has been recent attention on racial segregation in both Milwaukee and Racine counties. In particular this includes lackluster economic, educational, and social outcomes for black children in Wisconsin. Furthermore, the large racial differences in incarceration rates reflects that people of color are not faring well in the state of Wisconsin.

Childhood poverty rates are reflected in anyone under the age of 18. In 2016, the national poverty rate was 10.8% for childhood poverty. However, those in minority groups, specifically Black and Hispanic, were nearly 2- 3x higher than this national average.

For Low Income Students in the 2014-2015 school year, there was only a graduation rate of 77.3% vs the Wisconsin state average of 88.4%. The national average, 83.2%, isn't much lower than Wisconsin's state average of high school graduation rate.

As of 2016, gaps in the national dropout rate between Whites and Blacks are beginning to merge as they draw closer to the national average around 10.0%. However, the Hispanic dropout rate is still higher than both at nearly 20.0%.

Looking at college preparation, the graduating class of 2017 in Wisconsin had an average ACT composite score of 20.5 which was lower than national average composite score of 21.0.

Joyful

Blessed are those who find wisdom, those who gain understanding, (Proverbs: 3:13)

Be strong and courageous! Do not be afraid or discouraged. For the Lord your God is with you wherever you go. (Josh. 1:9)

Trust in the Lord with all your heart, and lean not on your own understanding;

In all your ways acknowledge Him, And He shall direct your paths. (Proverbs 3:5-6)

The lyrics of "Do Something" by Matthew West reminds us of this

If not us, then who?

If not me and you?

Right now.

Well, it's time for us to do something.

If not now, then when?

Will we see an end

To all this pain?

It's not enough to do nothing.

It's time for us to do something.

John Mayer Lyrics:

One, two, one, two, three

Me and all my friends

We're all misunderstood

They say we stand for nothing and

There's no way we ever could

Now we see everything that's going wrong

With the world and those who lead it

We just feel like we don't have the means

To rise above and beat it

So we keep waiting (waiting)

Waiting on the world to change

We keep on waiting (waiting)

Waiting on the world to change

It's hard to beat the system

When we're standing at a distance

So we keep waiting (waiting)
Waiting on the world to change

Now if we had the power
To bring our neighbors home from war
They would have never missed a Christmas
No more ribbons on their door
And when you trust your television
What you get is what you got
Cause when they own the information, oh
They can bend it all they want

That's why we're waiting (waiting)
Waiting on the world to change
We keep on waiting (waiting)
Waiting on the world to change

It's not that we don't care
We just know that the fight ain't fair
So we keep on waiting (waiting)
Waiting on the world to change

And we're still waiting (waiting)
Waiting on the world to change
We keep on waiting (waiting)
Waiting on the world to change

One day our generation
Is gonna rule the population
So we keep on waiting (waiting)
Waiting on the world to change
No we keep on waiting (waiting)
Waiting on the world to change
We keep on waiting (waiting)
Waiting on the world to change
Waiting on the world to change
Waiting on the world to change
Waiting on the world to change.

Conclusion

The pervasive practices in ethnic and racial disparities, particularly in education, follow a distinct pattern. African American, American Indian, Latinos/Hispanics, and Southeast Asian Americans underperform academically, relative to Whites and other Asian Americans. There are several ways that these disparities are accentuated for each group. Latinos/Hispanics are generally represented as immigrants or children of immigrants and their native language is not English. African Americans face large discipline gaps with a disproportionate number

receiving behavioral sanctions. While there is less information on American Indians and Southeast Asian Americans, what is readily available suggests that they are influenced by similar factors that influence African Americans and Latinos/Hispanics.

I am not a political leader, nor do I have any political aspirations. I simply want people everywhere to understand how critically important it is to have a seat at the world's table and full voting rights. In our respective countries, diligence is essential for embracing the diversity and multicultural nature of all community participants. Rich, poor, LGBTQI, young, old, white, black, brown, yellows and redskins of the native people. We all belong; cultivating and constructing our dreams collectively.

The identification of equitable resources; solar energy, abundant clean air and water, healthcare, high achieving schools, globalization, sustainability and community empowerment is only a small part of the bigger picture. Parenting skills from birth, apprenticeship training, coding and tech. skills for all, community centers, landscaping and agricultural areas, healthcare and nutrition are also included in this picture.

The infrastructure for successful community design has to be planned with long-term goals in mind to grow and sustain future generations. In order to reach this successful community design, one must first tackle the obstacle of understanding racism. A first step can be to embrace an understanding of racism in our respective nations.

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Brief Biography of Author

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Her main fields of interest include diversity, equity, and multicultural related topics and ethnicity.

The Rockers of Post-Modern Period: Tracing the Subcultural Features of Contemporary Café Racers

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Subcultures are an integral part of our society, which are least identified and emphasized as a catalyst for social change. Rockers, mods, skinheads and teddy boys are some of the subcultures which were evolved during the post-world war II period in Britain during 1950s and termed as subcultures by the Birmingham school of cultural studies. The phenomenon of subcultures then depicted the middle class and working-class differences. Through the usage of materials, style and symbols, it expressed their resistance towards the existing inequalities of the society. One among such subcultures, which exist today, however with the minimal resemblance of the British model, is the Rockers, who carry forward the café racer culture. Café racer culture which was evolved around Ace café in London during the mid-20th century was a group of rockers who rode café racer model bikes and were influenced by rock music and camaraderie, and speed and races while enroute. The motivations of early subcultures have changed in course of time. The production and modification of similar kind of café racers are still happening with the Royal Enfield Company through its model Continental GT. Although these makes are influenced by the British café racer's and speed focused design, its present consumers are little aware of the legacy these bikes carries and the roles they could possibly play in the contemporary society. This research therefore takes a stance to interfere and interpret the function and activities of contemporary café racer clubs in India, and explicate whether and how the contemporary café racers bring forward the legacy of the 'rocker' subculture. It also explores the motivations of young bikers for the purchase of café racers and deliberates the contextual changes in the contemporary subcultures. The imperial materials for this research will be collected through semi structured in-depth interviews conducted among the café racers, club admins and the dealers in India, which will be thematically analyzed to suggest the findings. The inattention towards Asian subcultures in the subcultural studies will be addressed through this research. The theoretical contribution is pivotal to the post-modern school of subcultural studies as it contemplates the contemporary façade of subcultures.

Creating Virtuous Cycles in Sustainable Tourism System

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The growth of tourism has become one of the defining characteristics of the last 50 years. With over 1.3 billion people travel internationally each year, with billions more traveling within their own country, tourism has major impacts on not only economic, but social and environmental aspects of life on Earth. While there are examples of tourism contributing to the sustainable development goals, it is true that tourism can have negative impacts on destination communities. Ensuring that travel is sustainable and that travelers travel responsibly is a high priority.

Tourism can be conceptualized as a complex adaptive system. Why ? Tourism involves a great variety of independent actors, from accommodation providers to tour operators, from travelers to destination marketing organizations. And tourism adapts as conditions change. For instance, the tourism industry has adapted as air travel has become more accessible to markets and it has adapted as the sharing economy – with Airbnb and Uber – have entered the system.

Systems thinking tells us that Virtuous Cycles – positive feedback loops – can support sustainability. In this presentation, we'll explore examples of virtuous cycles. This paper will examine three positive feedback loops that businesses and destinations can implement to support their sustainability efforts. At the macro-level we'll examine virtuous cycles in marketing and development; at the micro-level we'll look at virtuous cycles that can be created between consumers and communities.

Tourism and the “Dry Law” in Kerala – Exploring the nexus between tourism and alcohol

Toney K. Thomas, Paolo Mura, Aiwa Romy

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On the 24th of August 2014 the state of Kerala announced that alcohol will be progressively banned through different phases, with a plan of implementing a complete ban by 2025. The ban was eased in July 2017; yet, it sparked heated debates about its impacts on the tourism industry, which highlighted the strong nexus between alcohol and tourism. Despite animated discussions continued online for months after the announcement of the ban, there have not been studies assessing the impact of the ban on tourism/tourists. Through a thematic analysis of online texts published on TripAdvisor, this paper explores tourists' perceptions and opinions of the implementation of the “Dry Law” in Kerala. Moreover, this work also investigates whether the ban discouraged potential tourists to visit Kerala. Overall, our analysis reveals that the ban did not discourage potential tourists to visit Kerala, although many regarded the possibility of having moderate amounts of alcohol on holiday as pleasant. Importantly, our study also contends that the narratives about the “Dry Law” produced and propagated online were often representative of political structures of power, which linked tourism to alcohol irrespective of the real impact of the ban on tourism.

Keywords: Alcohol; Ban; Dry Law; Kerala; India

Conservation Volunteer Travel - A Phenomenological Exploration

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Service based tourism is emerging as a niche tourism market with tourist who would like to make their tour different by doing differently. Voluntourism, a form of socially responsible Special Interest Tourism, in which the tourist volunteer in the destination they visit and contributes significantly to the nature and local communities as a part of his or her travel. Volunteering while holidaying is a popular trend among tourists which is understood as the most responsible and ethical way of travel. There are a number of NGOs like WWOOF (World Wide Opportunities on Organic Farms) and travel firms which promote volunteer tourism in the country. They stand as a mediator between host firms and Travelers who wish to volunteer. This paper explores the phenomenon of conservation volunteer travel which is a subset of Volunteer tourism. This research study is based on the lived experiences of Volunteers at 'Sadhana Forest', an NGO in Pondicherry working with the theme of afforestation. The study examines the perceptions and expectations of voluntourist over conservation volunteer travel. A participant observation by volunteering at Sadhana Forest for two weeks was used as the primary method of data collection for the study. Field notes were prepared and the interactions with volunteers were recorded. With the objective of understanding the traits of conservation volunteer travel, the recorded data were transcribed and analyzed on the grounds of hermeneutic phenomenology. The results of the study throw light on the Volunteer experience and choice to take conservation volunteer travel, altruism factors and goodwill travel trends.

Keywords: Voluntourism, Conservation Volunteer Travel, Special Interest Tourism.

Role of Consumers in Environmental Sustainability in context of sustainable development goals

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Sustainable Development Goals or the SDGs is a very important international agenda that nations need to jointly come together to address the imminent need for Sustainable Development in the world. It is a holistic actionable path that strives to ensure a world free from all the challenges presently faced globally. Sustainable Development Goals that encompass a set of 17 global goals is of great meaning and implication for societies in various spheres – political, economic, social, technological etc. Liberalisation of many economies and Globalisation has allowed the world to move into becoming a closer intertwined or interconnected little world. Practices in one country, in no time can now be disseminated to the farthest countries as well, due to the development in Information and Communication Technologies (ICTs) and globalisation of businesses.

This paper will examine the concept of Sustainable Development, its need and relevance for the present times, both at global level and at the level of the nation, namely, India. The set of Sustainable Development Goals and attainment of these goals will be examined from a consumer behavior perspective. The present scenario of the role of consumers in contributing towards building an environmentally sustainable world and the critical need for disciplining of consumers to fit to a global world order attuned to meeting the goals of Sustainable Development will be examined. The paper will attempt to put forth possible solutions and action paths that businesses and consumers need to observe as mantras to work judiciously towards achievement of an Environmentally Sustainable world.

Key words - Sustainable Development Goals (SDGs), Environmental Sustainability, Consumer Behaviour

Individual social responsibility among business graduates - An empirical enquiry.

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The study focuses on to individual social responsibility among business graduates. Though serious research is done on the business and groups, there is hardly any study conducted on the dimension of social responsibility of business graduates as they prepare themselves for industry. An early intervention, based on the research would greatly help to have serious follow up and further academic intervention to improve the social responsibility of individuals at an early stage of their preparedness for taking up responsible positions at corporate level.

Most of the perspectives in the field of Social responsibility address the so-called corporate or organizational level of analysis (Bondy and Starkey 2012 ; Carroll and Shabana 2010). Here the study focuses on to relations between businesses and the external environment and tend to forget the individuals in it. Focus thus goes for process and fund management and it is collective in its nature.

The paper will also focus on the influence of Personal Social Responsibility (PSR) of management students on Intention to Volunteer on Social Projects. The paper also tries to understand how ethical belief of the students, influence the PSR and the Intention to Volunteer.

Here in the current study the self-reporting individuals will be focused more where social responsibility scale will be used. The measurement of social responsibility is challenging for a researcher. Several scales have been developed to measure the social responsibility, but each has tended to capture a single specific aspect of social responsibility and to have limited generalizability (Peterson and Seligman 2004). Most researchers rely on Berkowitz and Lutterman's (1968) revised Social Responsibility Scale or Starrett's (1996) Global Responsibility and Responsibility of People scales. A scale developed by Veronica Thomas of Kent State University, and Jennifer Wiggins Johnson is the scale used for the study (2009).

The data will be collected using a survey online from final year management students studying in an autonomous college under MG University in Kerala. 400 students representing various regions of the country would participate in the study. The data will collected in two waves: 200 participants in wave one, first year students, and the remaining 200 participants in wave two, second year.

The study is important since the management graduates will be adorning the decision making roles in corporates. The study on ethical beliefs and PSR of the students will give valuable feedback to the leaders of management institutions to tailor programs that can instill social values and responsibility among the future management professionals.

Case Study: Approach to a GREEN Brand Strategy

Mriganka Ghosh

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While a majority of western companies have developed their own websites as a means of net visibility, this has still been a challenge in several developing economies. This study uses a Hypothetical company to demonstrate the value of branding. Following this blinded data of existing companies in India is used to substantiate effects of Branding on the various aspects of the bottom line in the form of Market Retention and Sales. Conclusions could help other companies develop branding in areas related to sustainability to see increased awareness and as a result, revenue.

Disaster management as logistics and as discourse

Roby Rajan

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The increasing frequency with which cyclones, tornados, typhoons, and tsunamis are striking different parts of the world has given rise to a response policy that is broadly determined within the parameters of the discipline of disaster management. This paper approaches disaster management from two contrasting perspectives: as a logistical exercise that is set in motion posterior to the disaster, and as a discourse that determines responses triggered by the disaster. By comparing and contrasting the two approaches, the paper hopes to shed light on some of the underlying assumptions of disaster management and point to possible alternative ways of responding to disaster.

Water resource management, preserving heritage and ancient wisdom

Madhav Deo Saraswat, Vishesh Sahai

Scindia School, Gwalior, India

This study describes the initiatives of The Scindia School, Gwalior, India in the areas of community service and development, social inclusion and environmental sustainability; with special emphasis on water resource management, preserving heritage and ancient wisdom.

For decades, The Scindia School has been engaged in the above mentioned initiatives, and has seamlessly merged them in the curriculum and ethos of the school under one umbrella known as 'Service'. Briefly, The School has gone beyond the precincts of the fort and has built infrastructure in schools & villages at different locations in the country to promote the cause of education; empowered women for income generation via skill development and by

providing a market for their products; built greenhouses in dry and arid regions and promoted the importance of health and sanitation in poverty-stricken villages.

One of school's key efforts in the last decade or so has been around water resource management, preservation of heritage and ancient wisdom of the Gwalior fort. The Scindia School is located on top of Gopachal Parvat, inside the concrete wall of sand stone surrounding the Old Fort which was built several centuries ago. About half a dozen water ponds were dug at strategic locations inside the Fort, to cater to the needs of those residing inside the Fort at that time – strong evidence of ancient wisdom. We still have those water storing ponds along with the then prevalent drainage systems, very much in place. Due to increasing demand of the available fresh water supplies for human needs, evaporation, runoff as well as human induced alterations of water flow regimes and irregular & scanty monsoon, fresh water scarcity became a real threat. The threat was not only for the human population but its ecological consequences particularly on fresh-water biodiversity were disturbing. Hence the amalgamation of benefits of preserving heritage and sustainability became the driving force behind our endeavour.

In the last ten years we have worked towards creating ways to save water via rain water harvesting, recycling waste water, tree plantation, drip-irrigation, sewage treatment plant, interconnection of all the ponds by re-energizing the connecting channels and utilising RO waste water.

In the last measured data (2016), approximately 174 .74 lakh litres + Chamer pond has been conserved and used for the maintenance of our campus. The work done over the last ten years at The Scindia School, Gwalior has immensely helped in water conservation and water resource management. The 160 plus acres campus is greener than ever before, inviting a variety of flora & fauna over the years. We have about 50-55 species of birds, and a variety of plants and trees due to proper management and implementation of our natural water resources. Due to proper resource management, we have been able to create a self-sustaining green campus in a rain deficit region.

Can Wind and Solar Satisfy the Energy Needs of the Future Global Society

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In any discussion of Sustainable Globalization the topic of energy needs is a major consideration. Important in that consideration is the current public perception of non-renewable versus renewable energy sources. This perception is largely framed around the current dependence on fossil fuels versus the emergence of wind and solar energy. This paper explores the possibility of wind and solar energy (renewable) replacing fossil fuel energy (non-renewable) in the future based on technological and societal factors.

Debates about renewable versus non-renewable energy have existed since at least the early 1970's. In order to stabilize the CO₂ concentrations in the atmosphere, it is important replace fossil fuel energy sources with carbon-free energy sources. Wind and solar energy are the primary sources that could be used to reduce CO₂ levels. Clearly enough solar radiation reaches the Earth's surface each day to meet global energy needs. Likewise the Earth's daily wind power is also sufficient to meet global energy needs. The question is not based on technological but rather societal considerations. What will be the cost? What will be the visual impact? How can we store the energy when the sun does not shine and the wind does not blow?

Recent developments address the topic of energy storage for the wind operations. Hydroelectric batteries associated with a wind farm in southern Germany is being built by German firm Max Boegl Wind AG and General Electric Renewable Energy. The simple concept involves pumping water to a storage facility on a hill during sunlight hours and then releasing the water through a penstock connect to a hydroelectric turbine at the base of the hill once the sun goes down. This hydroelectric battery concept could be couple with solar farms and requires a couple hundred meters of elevation difference between the storage facility and the hydroelectric turbine.

Promoting STEM Education in a rural setting - Experiences and challenges from schools across Kerala

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Lack of awareness of the rapid innovations in STEM related fields and heavy emphasis on mere completion of the mandated syllabus among school authorities are creating a disparity between rural and urban approach towards STEM Education. Rapid advances in telecommunications and information dissemination provide us ample opportunities to be used appropriately to overcome the current state of affairs. An exception is Atal Tinkering Lab, an excellent example lead by Indian Government that promotes STEM activities in schools. The Choice School is an early recipient of ATAL Tinkering Lab and experiences learned are discussed. This paper also touches upon the efforts made by the authors to improve this situation across rural Kerala over a period of two years by addressing school children and panchayath bodies through scientific lectures, demonstrations and awareness classes. Obstacles faced and lessons learned are summarized and recommendations suggested.

Use of the Roman script (with diacritics) in teaching Indian languages

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One of the leading lights of the Indian freedom movement, Netaji Subhash Chandra Bose, proposed the use of the Roman script for Indian languages, during his Presidential address to the Indian National Congress in 1938. However, in his day, there were many arguments against the wholesale adoption of the Roman script, and some are still valid. However, a partial acceptance of the Roman script (which is of course already under way) in limited domains (such as pedagogy), can have many benefits, such as helping:

- 1) Diasporic Indians learn their ancestral languages
- 2) Migrants in India working outside their traditional homes to adapt to the local languages
- 3) Speakers of minority languages (and endangered languages) preserve their traditions,
- 4) Modern Indians access their classical literature
- 5) To simplify the task of evolving new notation (in software programs, or for music)

Some difficulties exist, but none that cannot be resolved by consensus. In the common transliteration schemes, there is often some overlap between:

- 1) Symbols used to represent Sanskrit sounds, and symbols reserved for sounds absent in Sanskrit but used in modern languages
- 2) Symbols used to represent Indic sounds, or to represent Arabic sounds, which become ambiguous when used for the Urdu language

The development of computer fonts have now made it possible to overrule many of the early objections to the use of the Roman script – namely that it is not phonetic, and cannot adequately capture the range of sounds that are to be found in Indian languages. Previous attempts at Romanization have included the Lambert method of using an extension of the International Phonetic Alphabet. A survey of the history of Romanization in India, the current challenges and the wide-ranging prospects for the future will be discussed.

Bucking the Trend- International Enrollment at UW Parkside- New Models

**Abey Kuruvilla, Tammy McGuckin, Troy Moldenhauer, University of Wisconsin-
Parkside, USA**

This study examines international enrollment trends in the US over the last five years and compares them with trends at UW Parkside, a small mid-western university located in Kenosha, Wisconsin. This Study shows an upward trend at UWP while the national trends are negative. The study then presents several models that have contributed to this trend and describes processes at UWP for in-boarding international partnerships – the primary driver of this trend. It also identifies several areas for future growth and improvement.

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