Annex 3.7

Documentation of the AWMISET database system

FAO/GOVERNMENT OF ITALY COOPERATIVE PROGRAMME

Federal Democratic Republic of Ethiopia

Ministry of Water Resources

Food and Agricultural Organization of the United Nations

Project: Strengthening national water monitoring capacities, with emphasis on agricultural water management (GCP/GLO/207/ITA)

AWMISET

Documentation of the Agricultural Water Management Information System of Ethiopia (Web based Database)

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1. Background

Since the 1970s, much effort has been devoted at international level to develop a methodology for monitoring the evolution of water resources management, global access to water sources and basic sanitation facilities.

A major effort in gathering and systematizing existing initiatives has been made by the UN World Water Assessment Programme (WWAP), whose World Water Development Report (WWDR) gives an authoritative picture of the state of the world's freshwater resources, aiming to provide policy- and decision-makers with a comprehensive understanding of the state of the world's water management. A network of 24 UN agencies and other international organizations has provided data.

One of such data collection efforts for monitoring the water sector is AQUASTAT, FAO's global information system on water and agriculture. It collects analyses and disseminates data and information by country and by region. Its aim is to provide users interested in global, regional and national analysis with the most accurate, reliable, consistent and up-to-date information available on water resources and agricultural water management.

AQUASTAT is the only source with systematically collected data. However, AQUASTAT being designed as a global information system it does not always provide adequate detailed information for within-country use or for basin level use.

This project will contribute to sustainable water resources management, in particular agricultural water management, due to a better knowledge of the water resources situation through improvement of the national water monitoring capacities and water knowledge base. It is specifically aimed at analyzing the status of the water resources as well as measuring the performance and impact of water-related initiatives in a number of selected countries, preferably located in the same river basin. It targets the national capacity to integrate data and information from various sources to meaningful tools to support decisions concerning water policies and water resources management by designing and implementing web based database.

2. Scope of the System

The scope of the system is to develop a user-friendly Agricultural Water management (water resources and water use) Monitoring web based database system (web application), supported by adequately performing water data processing and GIS software.

Objective of the system

The primary objective of the system is to develop a website that provides information about the country's water resource and water use. Therefore the system is expected to:

- Provide an organized data (output information) based on a criteria selected, to the visitor of the site
- Digitalize the irrigated area map and show the location of the water resources and use.
- Help the government bodies to add, update and delete some of the data from any corner of the country using a secured user access based on their privilege
- Automate the current manual data to be accessible for all beneficiaries
- Export raw data from the data base using excel file type
- Display automatic cropping pattern tabular information based on the selected year
- Display the country profile and water resource profiles based on the river-basine and region

1. References

- Project document titled on "***Strengthening national water monitoring capacities, with emphasis on agricultural water management"***
- ***AQUASTAT***
- **MoWR** website
- **GIRWI** Project document

2. Definitions and Abbreviations

Power users: A person who is adding or/and updating a data.

Visitor: any internet user who access the web site.

Webmaster: In general a person who utilizes the overall task of the system.

Users: A person who access the site as a Visitor, Power User or Webmaster

Capacity: The size of a storage device to hold a data for processing or storing purpose.

Database Server: A SPECIAL DELIVERY computer that can store a large amount of data that is more than the capacity of 10 or more computers.

Graphical User Interface: It is an interface that will visualize the real world in a graphics mode, which can be easily understood by users.

Platform: It is a system that can operate all resources (parts) of a computer.

Query: A user's need that the system can provide.

This system/ The system: - used to identify or replace our system online Ethiopian Agricultural Water management Monitoring System

System: It is an invisible sequence of instructions, computerized method of data processing and data storing to perform a given task.

Sub-system: is characterized by the services it provides to other sub-systems.

System Installation: Loading the system to a computer to make it useable by a user.

DBMS: Database management System

WH: Water Harvesting

Architecture: The organizational structure and associated behavior of a system.

AQUASTAT: (Aqua- water, Stat- Statistic) FAO's global information system on water and agriculture

FAO: Food and Agriculture Organization of the United Nations

MoWR: Ethiopian Ministry of Water Resource

GIRWI: Global Initiative for Rationalizing Water Information and Monitoring System

GIS: Geographic Information System

Login: to enter into the system you type your username and password to perform a certain task on the system.

Module (sub-system): system developers divide the system into manageable pieces to deal with complexity and this sub-system has there own functionality dependently or independent of other sub-systems.

Multi-user environment: it is an environment where many users use a system.

Node: Any computer that provides or needs a service.

Platform: It is a system that can operate all resources (parts) of a computer.

RDBS: Relational Database management system

Service: is a set of related operations that share a common purpose.

Account: is a username and password of a user

Algorithm: is an English phrase that is model for coding or implementation.

Implement: encoding the system to the computer with a computer understandable language.

Program Execution: is the simply the application (system) running on computer.

3. Requirements Specification

3.1 Problem definition

The only source with systematically collected data is AQUASTAT, FAO's global information system on water and agriculture. It collects data for a number of variables related to water resources, agricultural water use and management, with an emphasis on countries in Africa, Asia, Latin America and the Caribbean. However, AQUASTAT being designed as a global information system it does not always provide adequate detail or country-specific information for within-country use or for basin level use. Also, the quality of the information in AQUASTAT is not at the same level for all countries, mainly due to lack of capacity and appropriate tools in countries to collect relevant information as well as lack of tools to retrieve the appropriate information when needed.

3.2 Proposed system

The proposed system is an effective way of a computerized data keeping and data processing approach for the country (water resource and water use) water monitoring capacities, with emphasis on agricultural water management system that will

- Giving information and make available an online entering and updating the required data (Irrigation site, Livestock, Water harvesting, Soil and water conservation and Cropping pattern data)
- Provide a geographical information for the registered irrigation site;
- Make easy the data processing and data retrieval of the irrigation site and cropping pattern information;
- Ease of automated storage.

3.3 Functional requirements

The new system will register any information about the irrigation site and its attributes (such as location, river basin…) Therefore the system is expected to perform the following tasks;

- Providing up-to-date information on the website about the available irrigated area, cropping pattern, water resources and water use in the river basin and Region
- Analyzing incoming information about irrigation area and cropping pattern to the system;
- Providing a geographical map of the irrigation area.
- Displays the geographical information of a irrigation site;
- Identify providing fallacy information and prompt the user for action;
- The system shall respond with appropriate report to queries from visitor;
- Export raw data from the data base using Excel file type

3.4 Nonfunctional requirements

The Non-Functional Requirements defines the overall qualities or attributes of the system and the workflow is performed concurrently with the other core workflows. The following requirements will become available in the system:

3.4.1 User interface and human factors

A user should be familiar in using an Internet explorer and Microsoft Windows so that it will not be difficult to use the system, there will be special training for the stakeholders who can add and update the system. The system is a web based system it can be used by two or more users at the same time and the system will provide information to the users as requested according to its functionality. The user should have the ability to add and update the data.

The system has a mechanism to validate input (entering a data) therefore users can not make minor (simple) mistakes (like entering in a data without Name of irrigation scheme) while using the system as a result they will be prompt to correct there mistakes. The only input device that the users will use is the keyboard and the output device can be the monitor (screen) or a printer which is an optional.

3.4.2 Security issues

There are restrictions the system provides for **power users** that are used to protect vital information from unauthorized users i.e. a **power users** must provide his own account while entering his/her information and when he/she wants to modify the data he/she must log in by his/her account. Concerning viruses and worms around the internet a 3rd party will handle them which mean the computer where this system will run (Tele server) must have an anti-virus installed on it, which is the best way to handle the worms and the viruses around the internet.

Physical security is an important issue for our system so that any information might not be lost permanently however in most cases servers (a place where the system resides for usage) must be put in a secured place or in a locked room.

3.4.3 Resources and management issues

The webmaster should make backup every week on a CD or Hard disk so that no lose of data will occur during a week, the backup data that can be seen by the webmaster is responsible for the backup as well as for system maintenance.

3.4.4 Performance Characteristics

Given that the system is a website the response time to display information for a required input depends on the computer where the system runs (resides) and the speed of internet telex server; For the computer the system will run with an excellent performance with the recommended computer machine and concerning the system it should display the required information for a visitor with in a maximum of 30sec.

The response time of the system for any event or action taken by visitor's can be improved by reducing competition for resources, reducing blocked time using a dedicated Data Base (DB) server.

3.4.5 Error handling

Before trying to see how the system response to input errors there are some general properties to consider:

Input type: Entering invalid types will often cause an error message. For example, if the input in Equipped area is less than Actual irrigated area.

Input length: For character (alphanumeric) inputs, entering a few or too many characters will often bring out an error message.

Boundary values: Every numeric data type has boundary values and sometimes these values represent special cases. The integer zero for example is the boundary between positive and negative numbers.

Forcing error messages to occur is the best way to get error code to execute. The system should either appropriately respond to bad input or it should successfully prevent the input from ever getting to the system in the first place. The only way to know for sure is to test the system with a battery of bad inputs. There are many factors to consider when testing error code. Perhaps the most important is to understand how the system responds to erroneous input. I try to identify three different types of error handlers:

Input filters can be used to prevent bad input from ever getting to the system under test. In effect, bad inputs are filtered by, for example, a graphical user interface, and only legal inputs are allowed past the interface.

Input checking can be performed to ensure that the system will not execute using bad input. The simplest case is that every time an input enters the system, I will insert an IF statement to ensure that the input is legal before it is processed; that is, IF the input is legal, THEN process it, ELSE display an error message. During this first attack, it is my goal to ensure that I see all such error messages.

Exception handlers are a last resort and are used to clean up after the system has failed as a result of processing bad input. In other words, bad inputs are allowed into the system, used in processing, and the system is allowed to fail. The exception handler is a routine that is called when the system fails. It usually contains code that resets internal variables, closes files, and restores the ability of the software to interact with its users. In general, some error message is also displayed.

3.4.6 Quality Issues

The system can be available for 24hrs a day so that the visitors can see in the work time or in the night time depending on the computers ability to stay on and see the available information and the power users can add or update their data. The system will trap faults that are raised by the user of the system and the rest of the faults can be handled by the

operating system (Windows). Before I explain about the quality of the system in responding to a failure let me mention the layers of applications (systems):

Top level application: this application have no direct relationship with the computer hardware and have no direct access to the hardware, thus they don't have the ability to restart a system unless they are forced by the bottom level application. E.g. Microsoft Word, PowerPoint, this system

Middle level application: These applications have some relationship with the computer hardware (devices) but not completely. E.g. C++, Visual Basic.

Bottom level application: These applications have direct access to the computer hardware and have the right to do any action on the hardware. E.g. Microsoft Windows, Linux

And this system belongs to the top level application there is no maximum acceptable time for restarting the system after a failure unless there is a request from the bottom level application.

The system will work in most computers that are available in to day's market and works on the Internet Explorer Browser, MozilaFirefox, Opera, and Google Chrome which are commonly used in many contents. One more thing about the reliability of the system is the system will be first well tested before it is released for use.

3.4.7 System Modification

The system is a modularized (divisional of jobs) system which means the system works with many sub-systems and sub-sub-systems. The parts of the system that are likely candidates for later modification are the following:

Registration Subsystem: this is chosen because when power user will be adding a new record about the irrigation site from any computer that is connected with the internet by giving his/her accounts information (user name and password) to the server.

View Information Subsystem**:** this sub system might change while the technology of the viewing of maps and information are updated our system subsequently updates its way of viewing.

While changing there are other sub-sub-systems that should be changed simultaneously,

the above are main sub systems which indicates the main parts of the system. And modification will be made only on the subsystems not on the other subsystems and this modularity helps the system to be easily modified.

3.5 System models

3.5.1 Scenarios

Scenario name: Registering Users

Participating actor: Power user, Webmaster

Flow of events

1. The power user connects to the internet.
2. Opens the irrigation site's, cropping pattern or any registering page.
3. Enters the required data into the form.
4. The system will update the data into the database.
5. It will be displayed on the irrigated area, cropping pattern or other page within a specific period of time.

Scenario name: Searching information

Participating actor: Visitor, Power user, Webmaster

Flow of events

1. The actors connect to the internet.
2. Opens the information searching page.
3. Select the type of information they want to search from the menu.
4. Type in a search key into the search text box and click a button.
5. The system will display information.

Scenario name: View information

Participating actor: Visitor, Power user, Webmaster

Flow of events

1. The actors connect to the internet.
2. Browse the site.

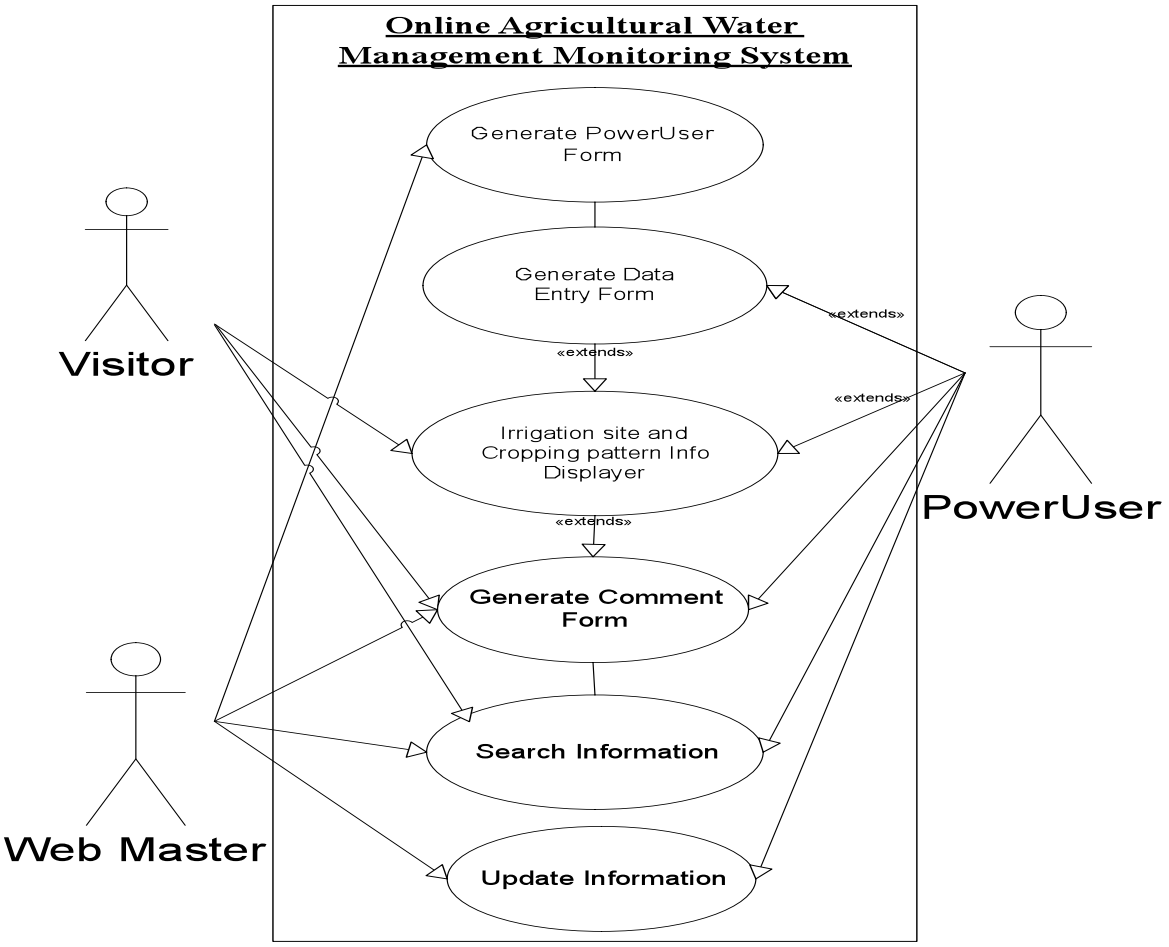
Scenario name: Controlling and organizing the information on the web site

Participating actor: Webmaster

Flow of events

1. The web master connects to the internet.
2. The web master checks the information send by the visitors.
3. The information organizes and will be ready to be signed when there is any required modification on the pages.

3.5.2 Use case model



Use case diagram for Agricultural Water Management Monitoring System

Use Case Description

Use case name	Generate Power User Form
Participating actors	Web master
Entry condition	The actors connect to the web site via the internet and select the link to activate the registration form.
Flow of events	1. The actors fill their user name and password in the registration form. 2. The actors click"Log in" button

Exit condition	The system will display the power user information from the database so that they can add or update the user information and send their information on a secured page.

Use case name	Generate Data Entry Form
Participating actors	Power User
Entry condition	The actors connect to the web site via the internet and select the link to activate the form.
Flow of events	1. The actors fill their user name and password in the as request in the given text boxes 2. The actors click "Login" button. 3. If the password and username is correct the system will display the form
Exit condition	The system will register the information to the database so that they can send their information on a secured page by using their user name and password.

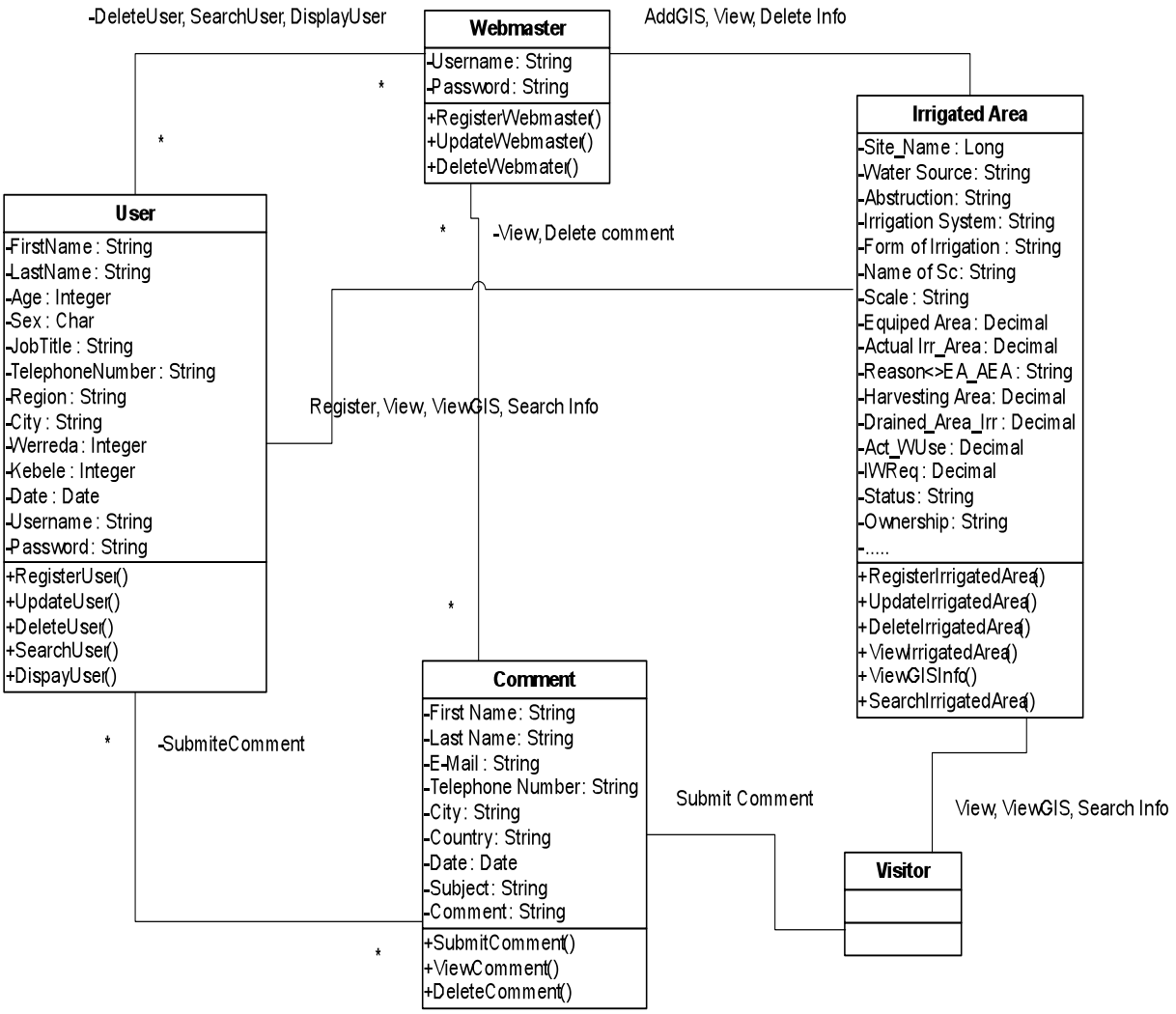
Use case name	Generate Comment Form
Participating actors	Visitor and Power User
Entry condition	The Visitor/Power User connects to web site via the internet and selects the Comments link to activate the comment form.
Flow of events	1. The actor User fills their comment form. 2. The actor clicks "Submit" button.
Exit condition	The system will save the information to the database after notifying the user that his/ her comment has been send.

Use case name	Update Information
Participating actors	Power User and Webmaster
Entry condition	The actors connect to the site via internet and click searching link.
Flow of events	1. Enters user name and password 2. The system displays the pages.

	3. From this page the webmaster can update the website and the Power user can update their information.
Exit condition	The system displays if the information is available.
Special requirement	The entered text must exist in the database.

Use case name	Search Information
Participating actors	Visitor/Power User, and Webmaster
Entry condition	The actors connect to the site via internet and click searching link.
Flow of events	1. The system will respond by presenting the available information lists and search tool. 2. The actors will type a key word and click the search button. 3. The system will search the information from the database.
Exit condition	The system displays if the information is available.
Special requirement	The entered text must exist in the database.

3.5.3 Object model



Object model of Agricultural Water Management Monitoring System

3.5.4 Data dictionary

There are four refined classes that should be implemented in the system.

A. Webmaster: has only two attributes, username and password and the operations that are performed in this class are Login (Public) polymorphic, registering webmaster (Private), updating webmaster (Private), and Delete webmaster (private)

In this class the operation register webmaster() can be accessed by a web master who has an account, and that webmaster can give an account to another if required webmaster and both have the same right to access like the first webmaster.

B. Power Users: has 14 attributes, First name, Last name, Age, Sex, Region, Job title, City, Woreda, E-mail, Telephone Number, Date, Username, Password. The actions performed in this class are Login user (public) Polymorphic, Register user (Private), Update (Private), Delete user (Private), Search user (Private), Display user(Private).

C. Irrigate area: has more than 23 attributes, Site-Code, Name_Of_Sc, Ownership, Form-Irrigation, Water Source, Abstraction, Harvested_Area, Funding Agency, Investment (Etb), Construction-Yr, Implementing Agency, Wua_Members, Male-Exc-Mem, Fem-Exc-Mem, Annual-Fee, Payment-Basis, Planned Ben, Actual Ben, Status...

The operations performed in the class Irrigated area are Register Irrigated area (Private), View Irrigated area (Private), View GISInfo (Private) Update Irrigated area (Private), Delete Irrigated area (Private), search Irrigated area (Private).

D. Comment: has only 9 attributes which are First name, Last name, E-mail, Telephone number, City, Country, Date, Subject, Comments. The operations are Submitte comment (Private), View comment (Private), and Delete comment (Private).

3.5.5 Dynamic models

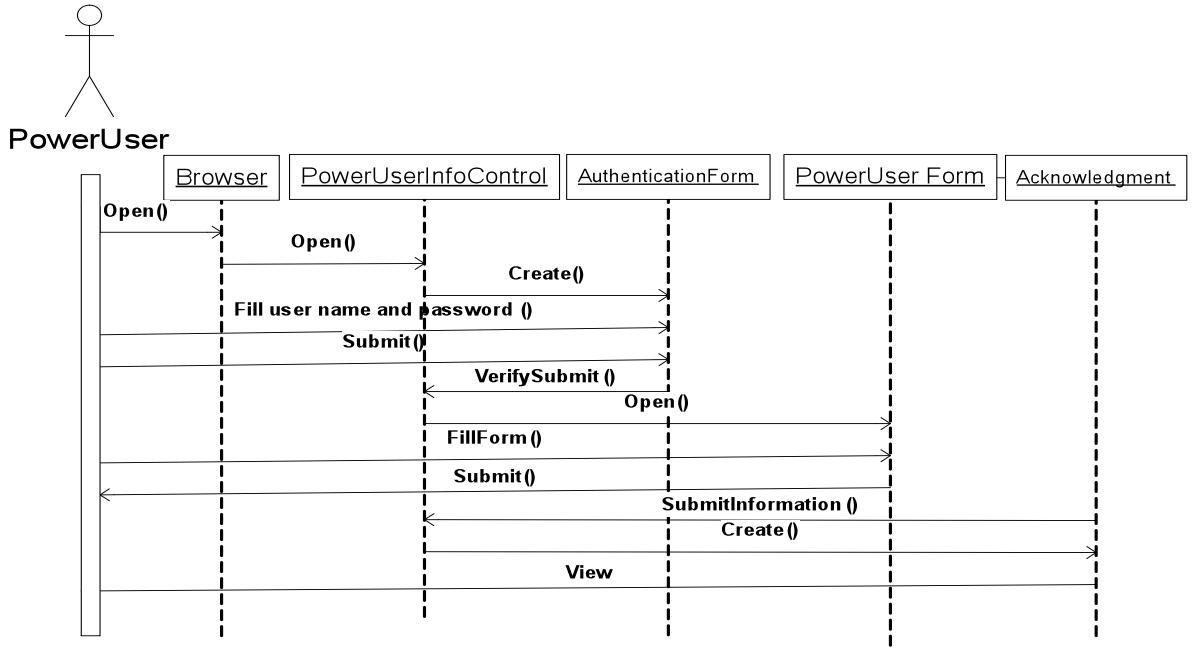


Fig.1 Sequence diagram of the generate power user form use case.

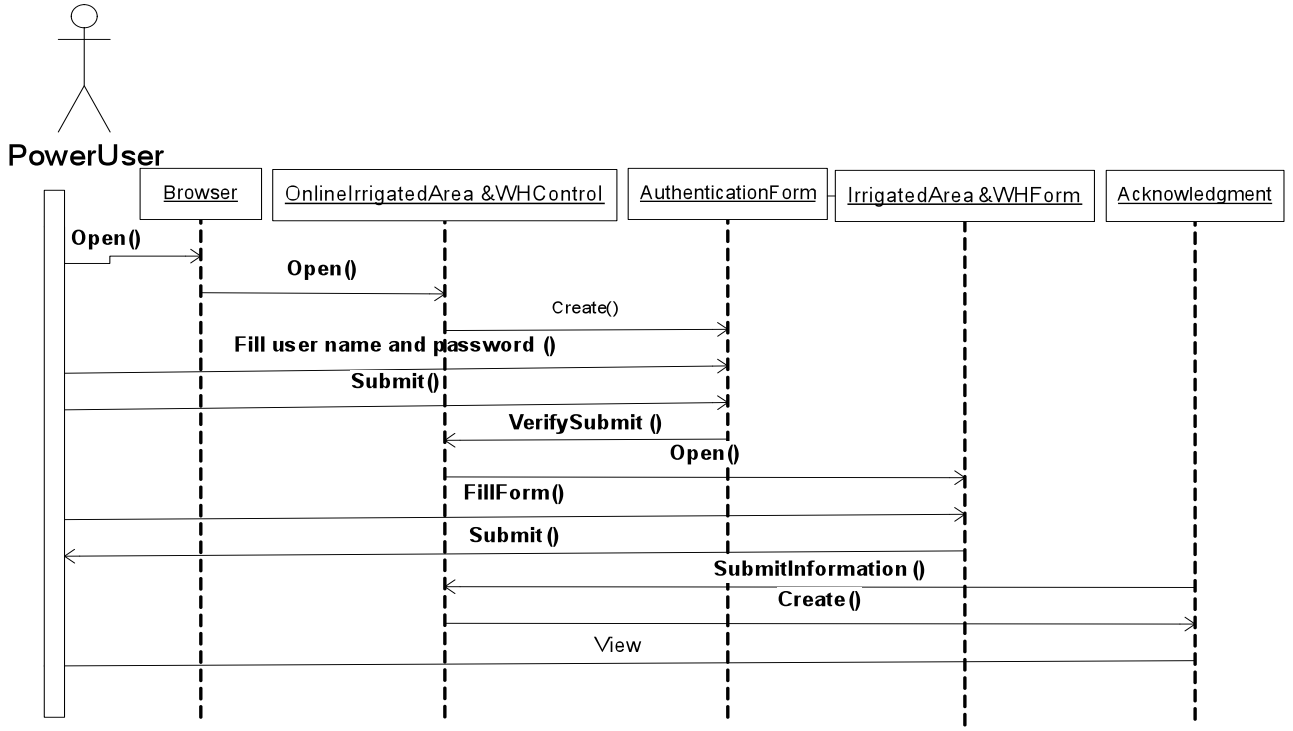


Fig.2 Sequence diagram of the generate irrigated area and WH form use case.

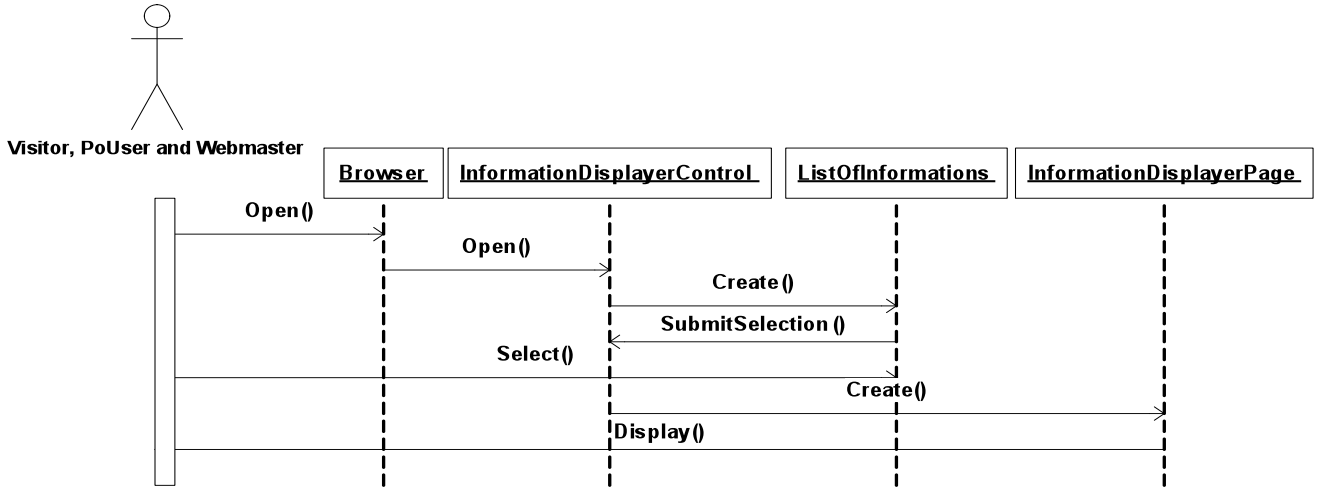


Fig.3 Sequence diagram of the irrigated area information display use case.

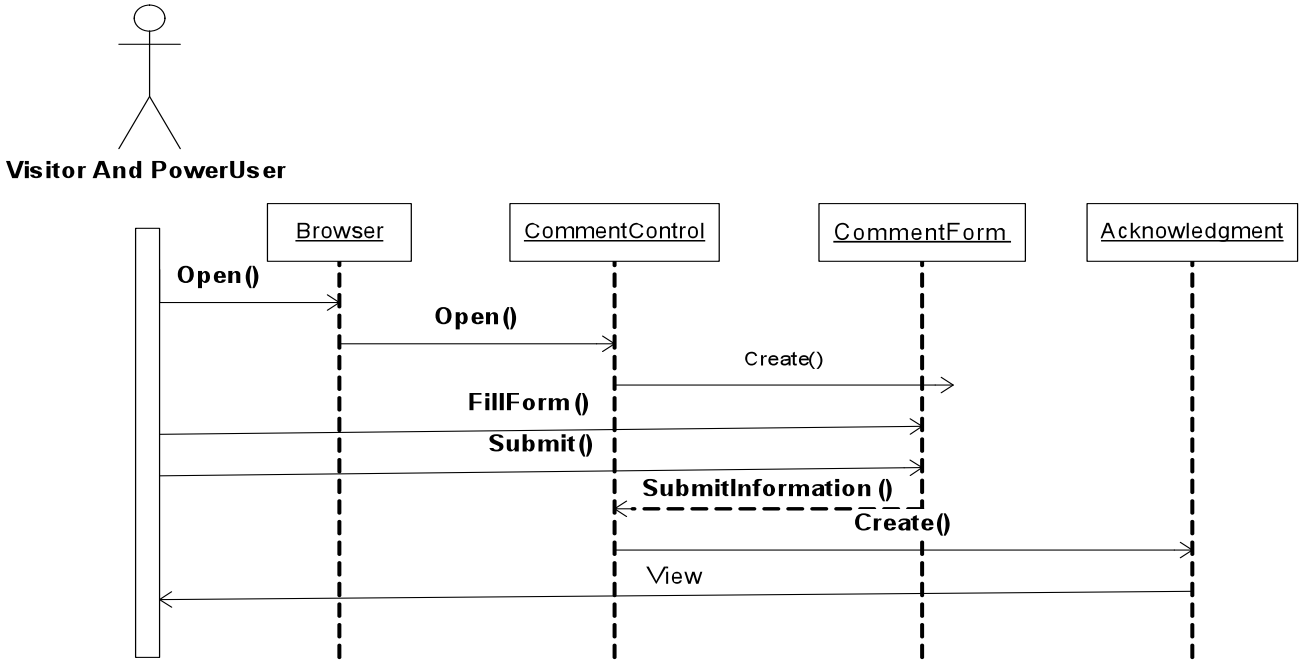


Fig.4 Sequence diagram of the generate comment form use case.

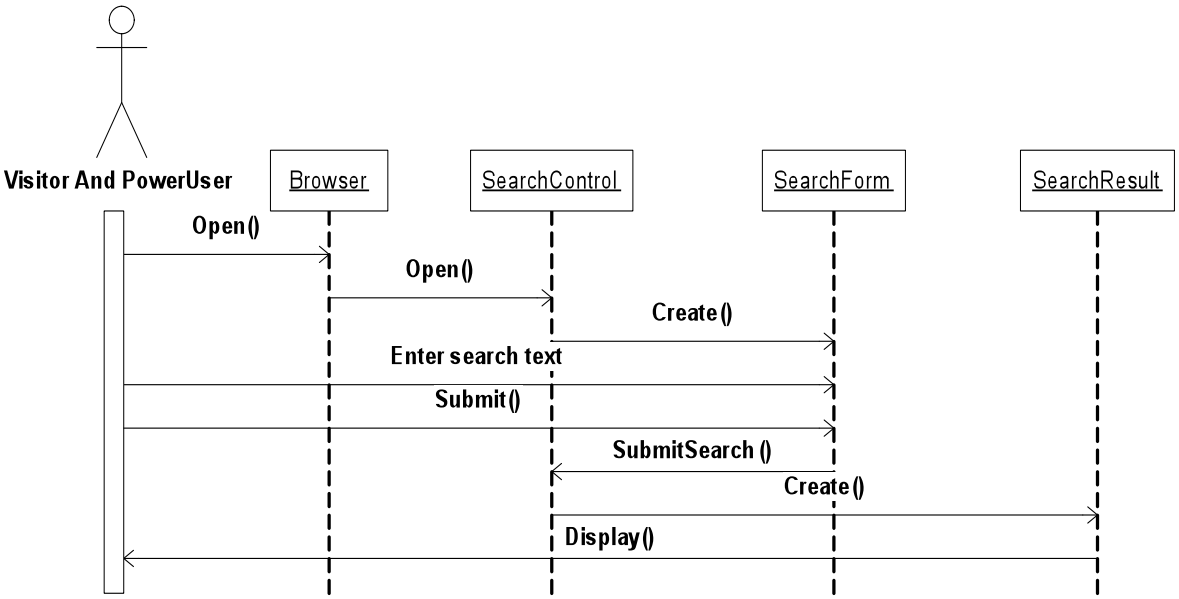


Fig.5 Sequence diagram of the search information use case.

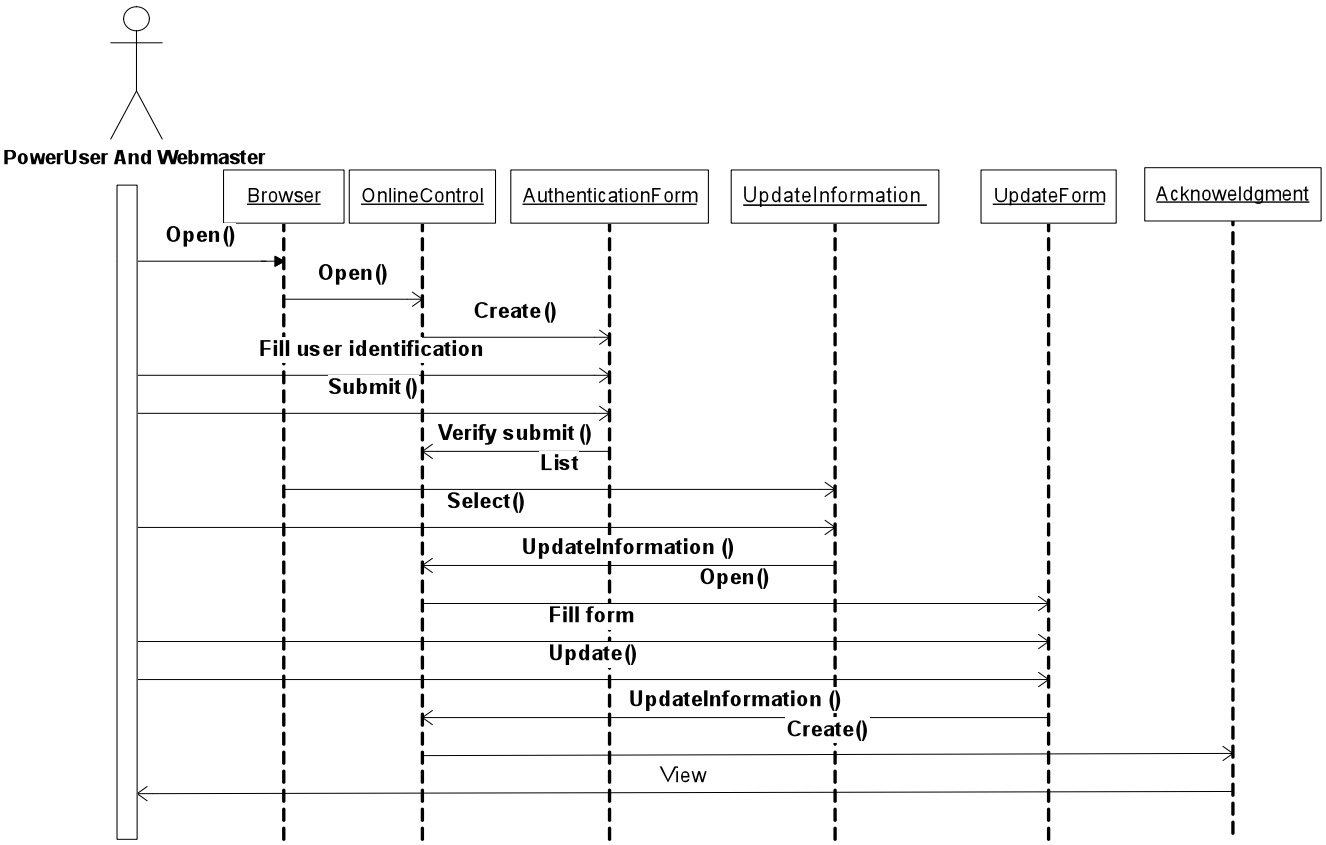


Fig.6 Sequence diagram of the update information use case.

4 System Design

4.1 Trade-offs

The system will give timely response to events or actions taken by visitors. This can be improved by reducing competition for resources, reducing blocked time using a dedicated Data Base (DB) server.

In the design trade offs I choose among different ways to implement the analysis with the goal to minimize execution time, memory and other measures of cost and where to put the operations identified in the requirement analysis in the object model. For a computer with basically good memory i.e. above 128MB the response time will be much faster, but for below 128MB the processing of images and graphics the system will display the required information by a user with a large amount of time. So considering this case the objects are limited to increase the response time for an action triggered by users and as a result, the processing and retrieving image will be very fast. If the memory tends to be very small and the capacity of the computer is also very small with small free space the system will not work efficiently i.e. the data to be processed by the system will be extremely very slow. Nevertheless, the computer's memory is very small but if the capacity of the computer has a very large free space the system will function better and the response time of the system will also be excellent.

4.2 System Decomposition

This system is being designed using an incremental approach, which will help it to be developed correctly.

4.3 Overview

The architecture of the online agricultural water monitoring management (water resource and water use) system is broken into significant sub-systems with a client/server architecture relationship. The system can be implemented by 8 main modules (sub-systems).

Registering Users: sub-system is responsible for registering Power users, and checking the entered information for correctness.

Registering Irrigated area: sub-system is responsible for registering water

resource and water use and checking the entered information for correctness.

Updating data: this sub-system is responsible for updating the information of the water resource and water use, and user's information.

Searching data: subsystem is responsible for searching irrigated area with different way of searching methods to users.

Viewing Irrigated area: sub-system is responsible for providing well organized information with a standard format about the required Irrigated area to users.

Comments: this sub-system sends comments which send by the visitors for the system and validating the comments where they are correct comments

Visualization: this sub-system is responsible for displaying the geographical data of the Irrigated area to the user.

Logging User: this sub-system is responsible for validating to login in to the system

4.4 Sub-System Decomposition

As mentioned above there are 8 main sub-systems of the system; and their decomposition is as follows:

5.4.1 Registering Users: the main responsibility of this sub-system is to generate a form for different users and accommodate other subsystems. This sub-system is decomposed of three subsystems

A. ***Registering User Interface:*** its responsibility is to provide the registering form to the user to enter his/her information.

B. ***Registering controller:*** this subsystem's responsibility is to validate the entered data on the form, if there is no error it should send it to the database provider i.e. the next subsystem layer and if there is an error inform the user which data entry is wrong.

C. ***Registering user data:*** its main responsibility is to accept user's entries from the controller and update the table of the users.

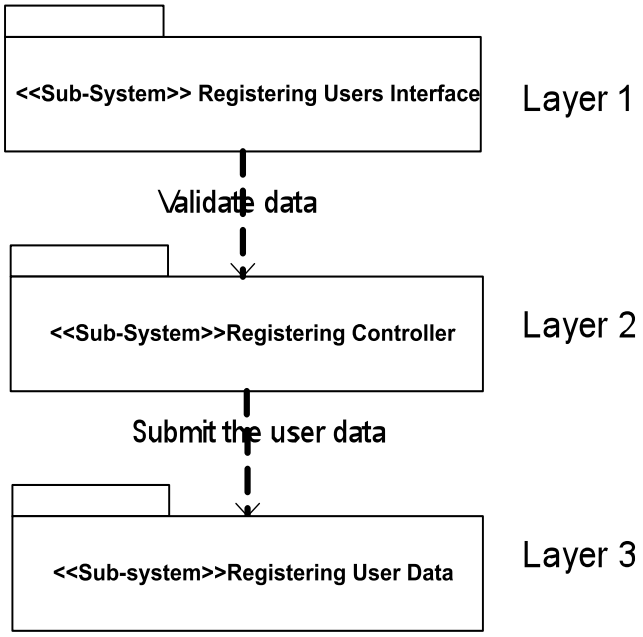


Fig.1 Sub-System Decomposition of Registering Users, dashed arrows indicate dependencies between sub-systems.

5.4.2 Registering Irrigated area: sub-system is responsible for registering Irrigated area and checking the entered information for correctness and stores it in the table. It is composed of three sub-systems.

A. ***Registering Irrigated area Interface:*** its responsibility is to provide the registering form to the user for entering Irrigated area information.

B. ***Registering Irrigated area controller:*** this subsystem's responsibility is to validate the entered data of Irrigated area on the form, if there is no error it should send it to the database provider i.e. the next subsystem layer and if there is an error inform the user which data entry is wrong so that the user can correct it.

C. ***Registering Irrigated area data:*** its main responsibility is to accept Irrigated area entries from the controller and update the table of the use

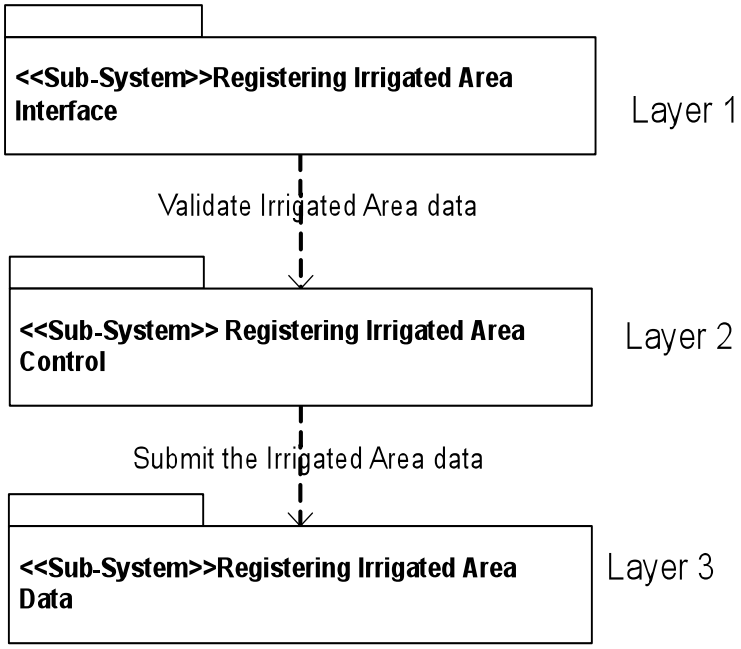


Fig.2 Sub-System Decomposition of Registering Irrigated area, dashed arrows indicate dependencies between sub-systems.

5.4.3 Update Information: this sub-system is responsible for providing updating mechanisms for data that the system database uses with the appropriate user of his account and it is decomposed into four other subsystems.

A. ***Login Interface:*** this subsystem is responsible for providing the login form.

B. ***Login Controller:*** is responsible for validating the user by looking in the table of accounts with the data entered in the form and provide the update form with the data of the account entered. If the account entered in the data is not correct it will generate a message for the user that he/she can not access any data.

C. ***Updating Controller:*** is responsible for validation the data entered on the update form and if the data is correct it will be send to the update data savor and if the user made a mistake it will inform the user.

D. ***Update Data:*** is responsible for accepting the data from the updating controller and update the data changed for the current account logged.

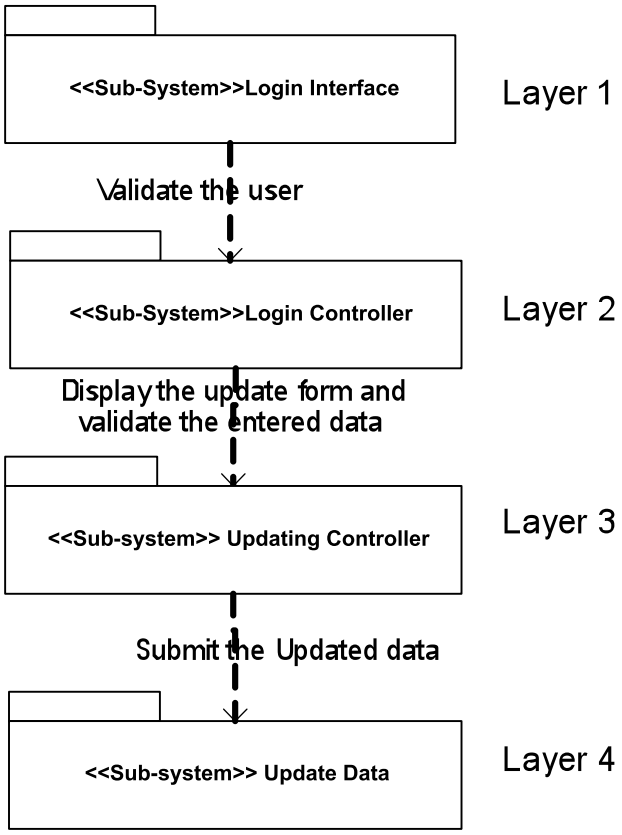


Fig.3 Sub-System Decomposition of Update Information, dashed arrows indicates dependencies between sub-systems and layers.

5.4.4 Searching information: subsystem is responsible for searching Irrigated area with different way of searching methods to users and the webmaster.

A. ***Searching Interface:*** this subsystem is responsible for providing the searching form.

B. ***Searching Controller:*** is responsible for validating the entered information for searching in the searching form. If the data is valid it will search on the table and if found it will submit the data to the displayer and if not it will inform the user that the data is not available.

C. ***Display:*** is responsible for displaying the required information by the user.

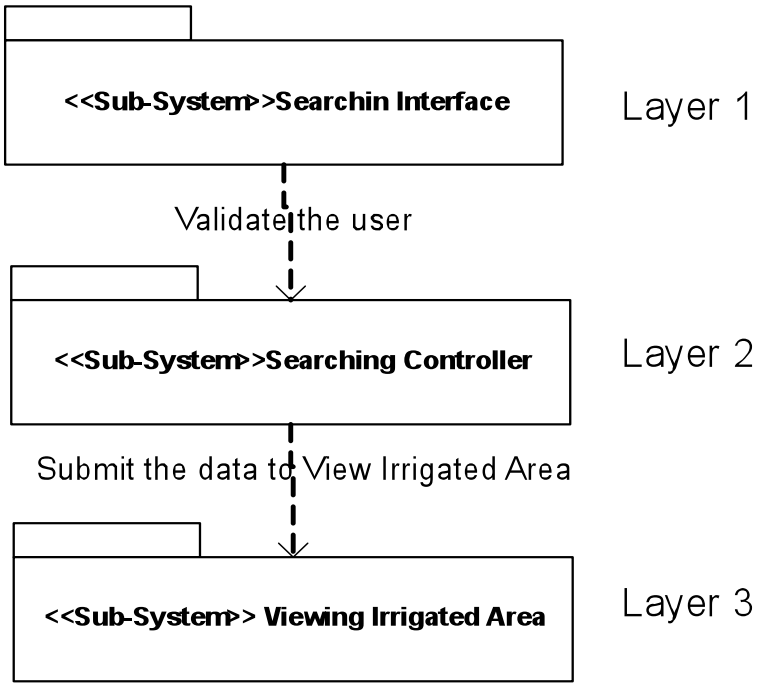


Fig.4 Sub-System Decomposition of Searching Information, dashed arrows indicates dependencies between sub-systems and layers.

5.4.5 Viewing irrigated area: sub-system is responsible for providing well organized information with a standard format about the required water resource and water use to visitors. And this subsystem is decomposed to two other subsystems.

A. ***Display irrigated area:*** this subsystem is responsible for displaying irrigated area and all information about the required water resource and/or water use to the visitor.

B. ***Visualization:*** this subsystem responsible for displaying the interface of visualization of the GIS information of the irrigated area(site)

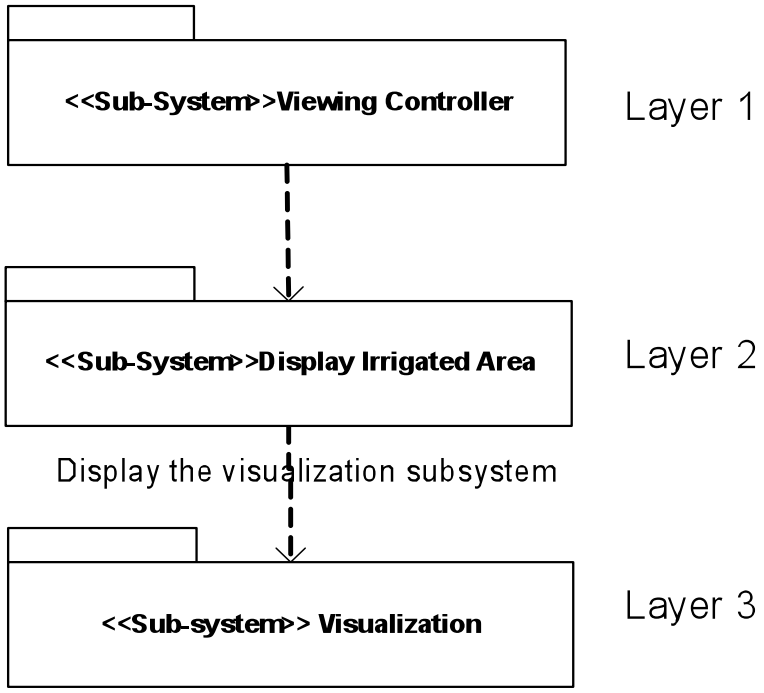


Fig.5 Sub-System Decomposition of Viewing irrigated area, dashed arrows indicates dependencies between sub-systems and layers.

5.4.6 Comments: this sub-system sends comments which performed by users for the system and validating the comments are not of non-text types. This subsystem is decomposed to other three subsystems.

A. ***Comment Interface:*** this subsystem is responsible for displaying the comment form to the visitor.

B. ***Comment Controller:*** this subsystem will check it the comment are of text type and if it is correct submit it to the comment updater subsystem.

C. ***Comment Update:*** is responsible for receiving comment from the comment controller and save it to the comment table.

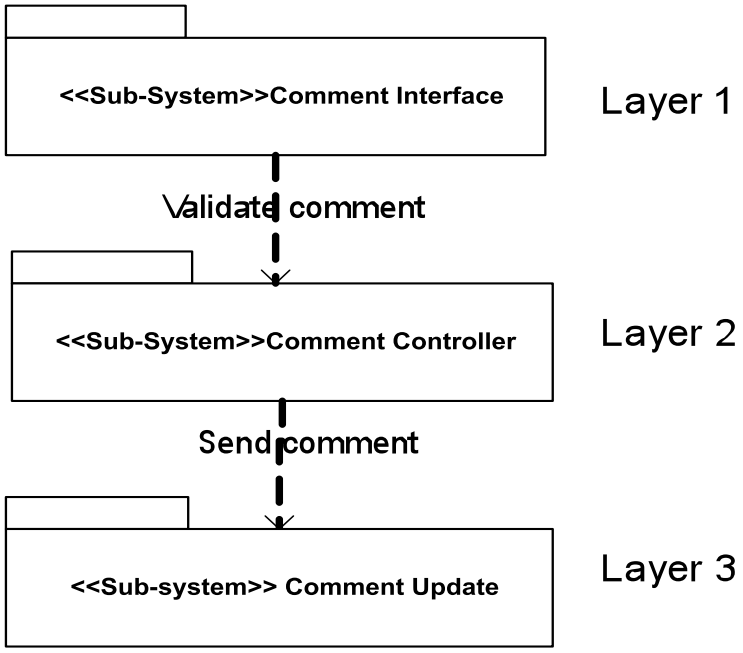


Fig.6 Sub-System Decomposition of Comment, dashed arrows indicates dependencies between sub-systems and layers.

5.4.7 Visualization: This sub-system has a functionality of rendering the geographical information of irrigated area (site). This sub-system is decomposed to three other sub-systems.

A. ***Visualization Interface:*** this subsystem is responsible for displaying the visualization window to the users.

B. ***GIS Controller:*** this subsystem will receive action triggered by users and search load the data form the GIS storage and gives it to the GIS displayer.

C. ***GIS Displayer:*** this subsystem is responsible for displaying the information received from the GIS controller to the window interface.

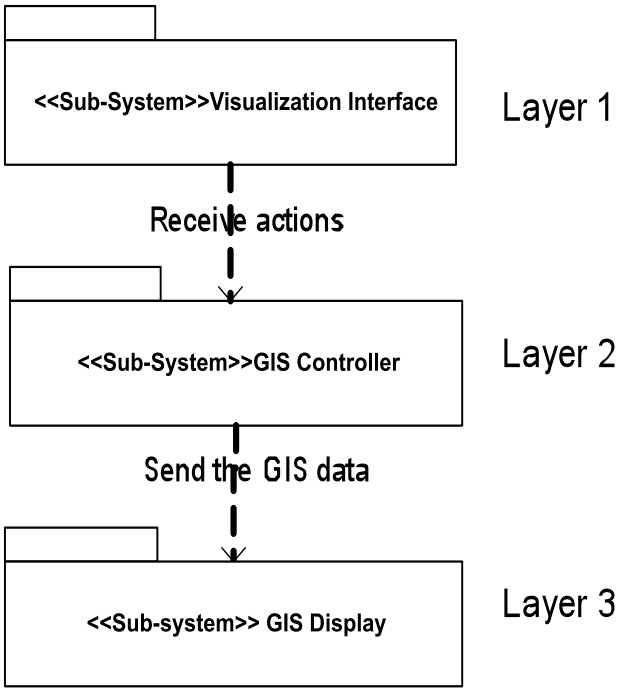


Fig.7 Sub-System Decomposition of visualization, dashed arrows indicates dependencies between sub-systems and layers.

5.4.8 Logging User: This sub-system is responsible for validating power user that is going to use the system, if an unauthorized user tries to access data. This subsystem is decomposed to two other subsystems.

A. ***Logging Interface:*** this subsystem is responsible for displaying the logging form to the user.

B. ***Logging Controller:*** this subsystem will receive the data from the logging form and verify it to the account table. If the user's account is invalid it will tell the user that the user has no permission and if the account is found the user will be permitted to logon.

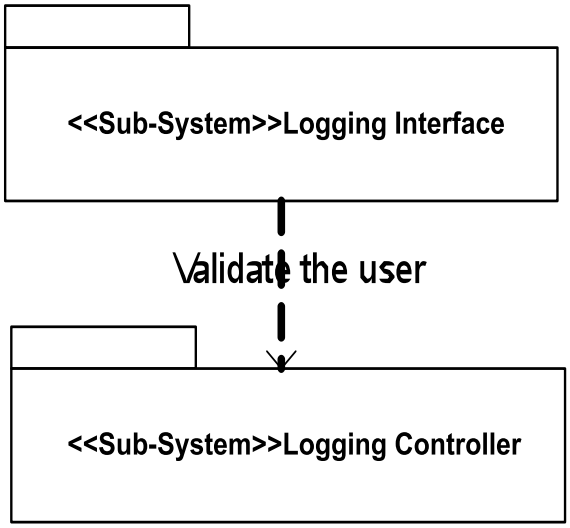
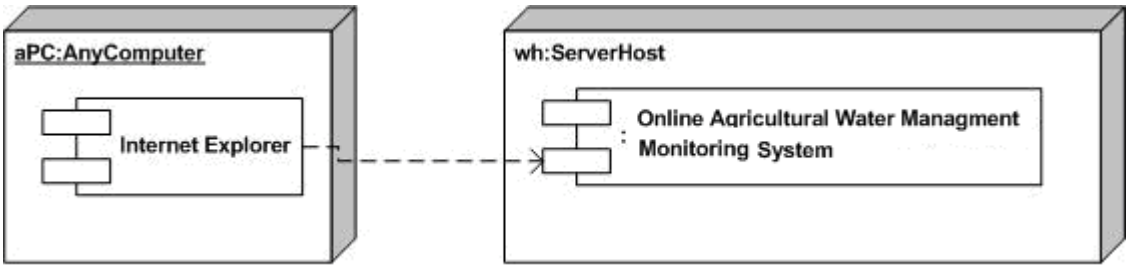


Fig.8 Sub-System Decomposition of Logging User, dashed arrows indicates dependencies between sub-systems and layers.

4.5 Hardware/Software Allocation

The system is built as a client/server application and communicates with any other computers. Therefore, the system is a dependent component that runs on any computer node.

The following UML deployment diagram illustrates the hardware/software mapping of the system.



General hardware/software mapping for Online Agricultural Water Management Monitoring System (UML deployment diagram)

4.6 Data Management

The system requires persistent data management since it needs:

- to store information related to very large number of irrigated area
- to allow different users to have access and view of the system that it provides
- To allow synchronized access to the system's information and other interrelated issues.

A relational database management will be used to maintain the persistent data because of its advantage that it provides several services and utilities that help to attain the design goals of the system. The database management system will offer the following facilities:

- Concurrency control, to enable many users to access shared data concurrently
- Efficient queries over a large volume of data store
- Logging facilities, which keeps track of the current processing and database changes
- A checkpoint facilities, which enables updates to the database that are in progress to be made permanent
- A recovery manager, which allows the system to restore the database to a consistent state following a failure

4.7 Global Resource Handling

The system is a multi-user environment and several users of different sections will work on the system at any time. Hence, each user must have an appropriate access right to the system's data as it should be kept consistent. In addition the system will enforce login qualifications to admit every user in to the system before he/she starts any activity on the system. This protects the system from any unauthorized access.

The following table shows the list of services provided with their corresponding subsystem and their related operations.

No	Subsystem	Services Provided	Operations
1	Registering subsystem	Registers Power users, cropping pattern, Livestock, Water Harvesting and irrigated area i.e. collects information about Power	RegisterPowerusers() RegisterIrrigatedArea() RegisterCroppingPattern()

Table List of services that the system provides and with the corresponding sub-systems.

4.8 Interface Documentation Guidelines

- Operations that can be used for many classes should be declared as globally.
- Classes are names with singular nouns.
- Operations are named with verb phrases with concatenated with the name of the class there are going to operate.
- Error handles should be declared with a name "Err_function _name"
- Global variables should be in capital letters, private variables with small letters, and public variable with combination of capital and small letters.

4.9 Software Control

The global software control is implemented by the basic functionality of the sub-system, i.e. controlling and organizing the information on the web site. This sub-system will synchronize all the other sub-systems by providing access rights to other sub-systems of service.

- The system has just to react on the interaction of the users by receiving a click event that is made by users and the sub-system will interact with classes of the user interface sub-system. After interacting with these classes, events are created and transmitted to the related services. The control sub-system controls the interaction of all sub-systems during the transactions. Since the system is multi-user, the synchronization and concurrency issues will be handled as for on a single computer.

4.10 Boundary condition

The start-up, shutdown and error behavior of the system defines the boundary conditions. Here we must take care of the operating systems that the system is built for.

- ***Start-up:*** The starting of the system depends on the operating system. As a window is used; the user starts the system by double clicking on the internet

explorer executable application file and typing on the address bar the site or the address of the system.

- ***Shutdown:*** Clicking the "Exit" button or closing the internet explorer window stops the system.
- ***Error behavior:*** Errors that might occur are not out of the scope of the system and will be handled by the reports generated on the type of error. The system will report, for any errors made by the user or any other problem encountered, using a message box which will inform the user what kind of error occurred and how to fix the error if possible.

4.11 Packages

Package Definitions

In the package section I defined five packages that will describe the decomposition of sub-systems that are found in the SDD.

1. **Registration**
2. **Searching**
3. **View Data**
4. **Update Data**
5. **Data Access**

1. **Registration** Package

   Deals with the register activities, i.e. Registration of new power user, irrigated area and webmaster. It has an interaction with power use and the webmaster. This package has a communication with the data access package.

2. **Searching** Package

   In this package activities there will be searching of irrigated area with a place type and place purpose. Searching package has a communication with the view irrigated area package and data access only, which is in retrieving irrigated area information. It has an interaction with visitor, power user and webmaster.

3. **View irrigated area** Package

   This package is responsible for viewing water resource and water use of the irrigated area with GIS information. The view irrigated area package will have a communication with the data access package; it will also communicate with the searching package. Like the searching package it has an interaction with visitor, power user and webmaster.

4. **Update data** Package

   In this package activities there will be updating of irrigated area and power user. This package will have a communications with the data access package and view package for retrieving the data and displaying information respectively. It has an interaction with power user and webmaster.

5. **Data Access** Package

   Deals with retrieving any data from the database; this package will have a communications with the view data package, update data, and search package. It has an interaction with power user and webmaster.

4.12 Classes Description

Example:

- ***Webmaster***: has only two attributes, username and password and the operations that are performed in this class are Login (Public) polymorphic, registering webmaster (Private), updating webmaster (Private), and Delete webmaster (private)

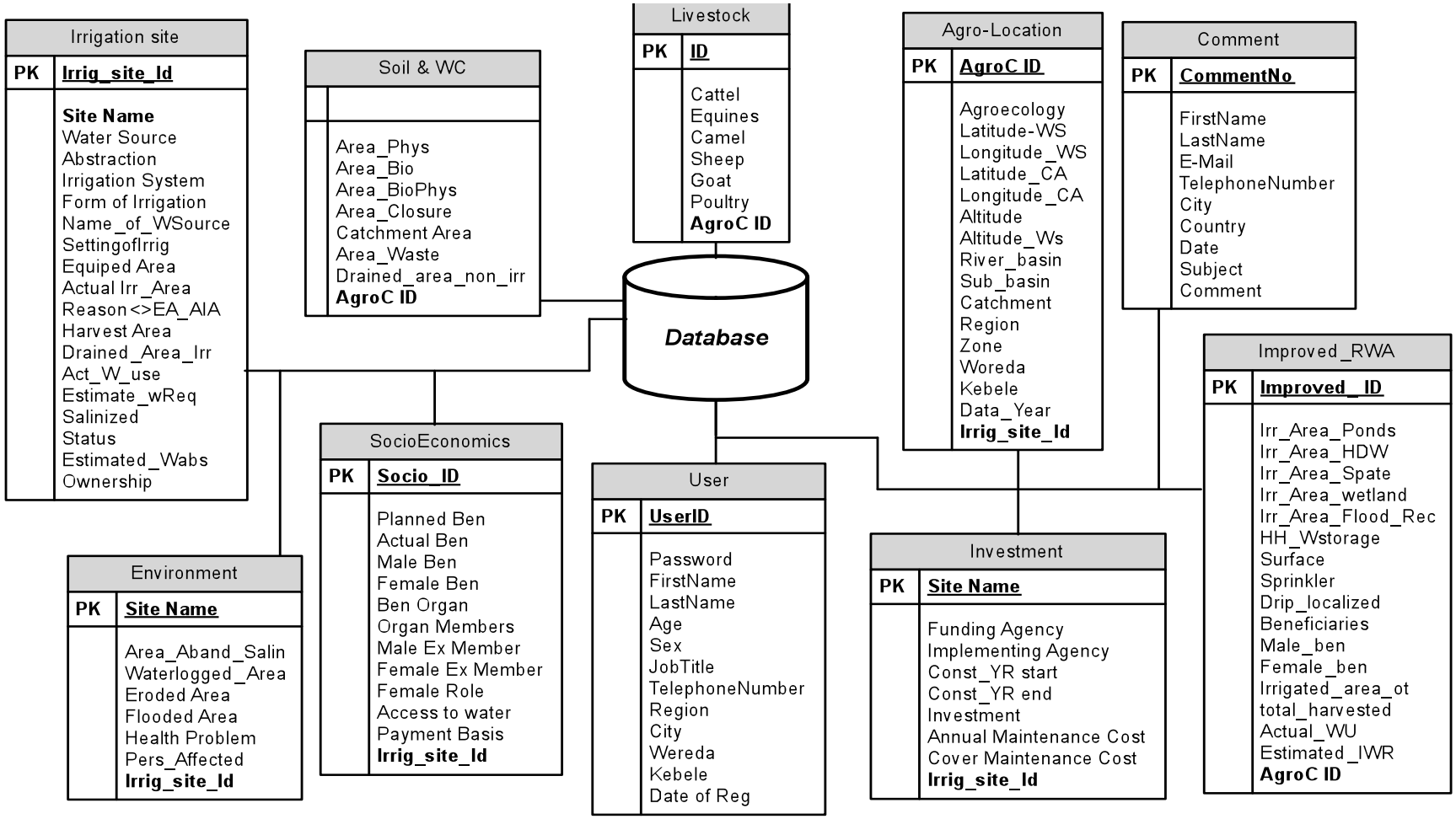
Webmaster
-Username: String -Password: String
+RegisterWebmaster() +UpdateWebmaster() +DeleteWebmater()

Attributes	**Data type**	**Description**
Username	String	The username of the webmaster (Required)
Password	String	The password of the webmaster (Required)

In this class the operation registerwebmaster() can be accessed by a web master who has an account, and that webmaster can give an account to another if required webmaster and both have the same right to access like the first webmaster.

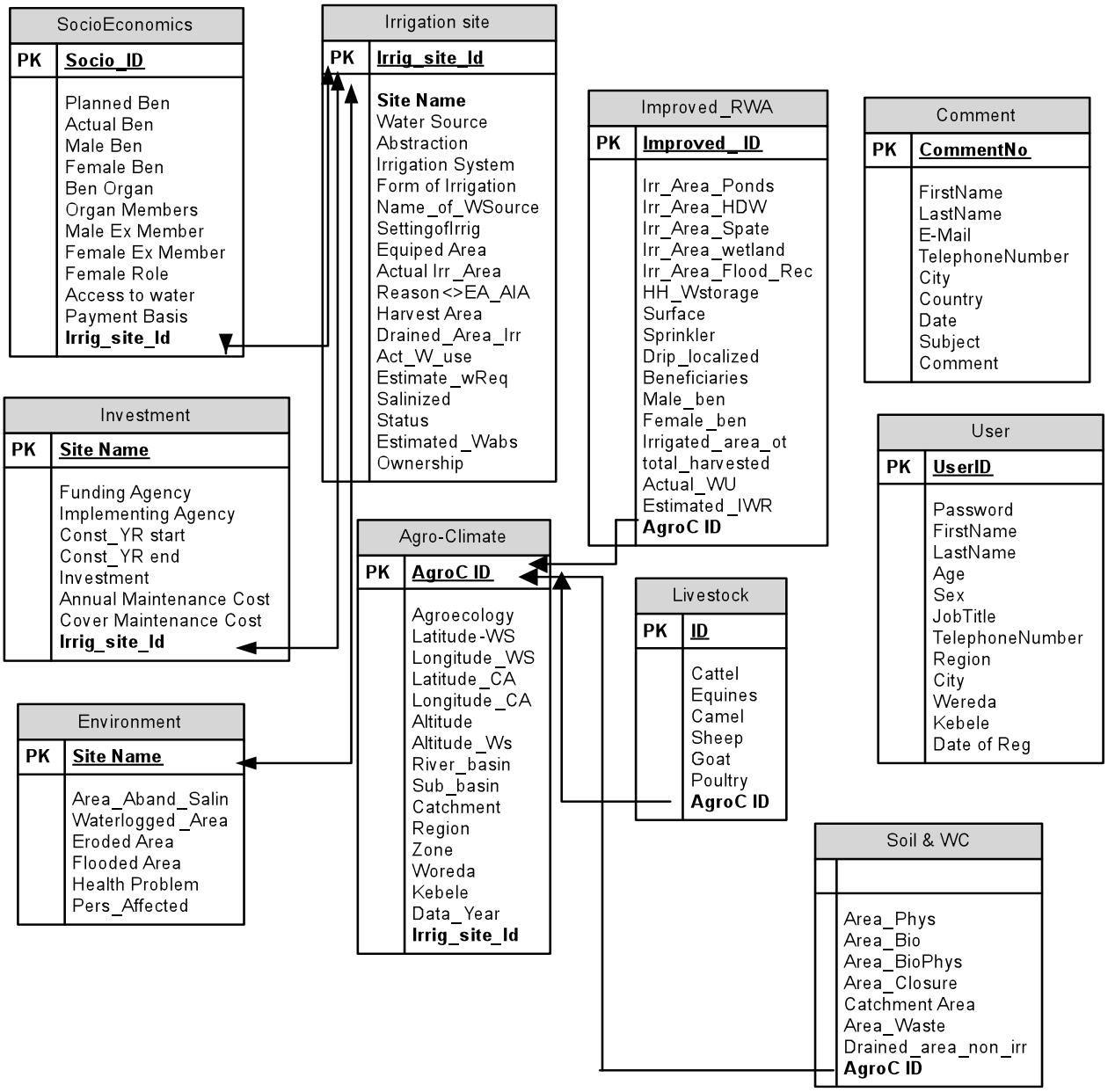
5 Data Base

5.1 Entities in the Database



Entities and their attribute in the database

5.2 Entity Relation-Ship



Entity relation-ship

5.3 The Relational Database Structure

The following relational data structure for agricultural water monitoring data contains descriptions of the primary data tables. The table columns in this document used to describe the fields in the database tables are described below.

- ***FIELD*** -This column contains the field name in the database table as well as the designation of the field as either a primary key (PK), a foreign key (FK), a not null (NN) field, or an optional (O) field. *Primary key* fields, by definition, are not null. *Foreign key* fields are restricted to a set list of values in a lookup table. If the value is not known, it is null. However, if a foreign key field is also part of a combined primary key, it can't be null. Fields which are neither primary nor foreign key fields, but which have been designated as not null are those fields deemed essential to certain applications of the database. Optional fields will serve to increase the functionality of the database from a user interface perspective.
- ***TYPE (FORMAT)*** - This column specifies the field type as String, Int(Integer), Decimal, or date/time; it also includes the format of the field or the precision of the numeric value where appropriate.
- ***DESCRIPTION*** - This column contains a description of the database table field.
- ***EXAMPLE*** - This column specifies the sample data that can be entered in the field as well as the internal database storage requirement.

Database Structure

Within the proposed design, the following listed tables are used to store the vast majority of the data contained within the database. The Irrigated Area and WH table contains all main data that are not depth-dependent. It also contains fields specifying both the type and origin of the data. The Beneficiaries, Investment Cost, Location and Agro climate tables contain all dependent data from the main tables. The user table contains all the required data of the Power User who can have an access for the entering and updating of the database tables.

Irrigation Site- Table

Field:	Type	Description	Example

	(Format)		
Irrig_site_ID	Auto Number	Unique Code to distinguish internally between distinct and uniquely identify each irrigated area (Auto incremental) **Primary Key (PK)**	1
Site Name	String	Name of each Irrigation site.	Chacha
Water Source	String	The source of water for the irrigated site	Ground Water
Abstraction	String	The way that the irrigated area get the water	Diversion
Irrigation System	String	The name of system	Sprinkler
Form of Irrigation	String	The form of the irrigation	Modern
Name of WSource	String	Common name of the Service Cooperative.	Bokayitu
Setting of Irrigation	String	The setting of the irrigated area	Medium Scale
Equipped Area	Decimal	The area equipped for irrigation	70.00
Actual Irr_Area	Decimal	Actual Irrigated Area	88.98
Reason<>EA_ AIA	String	A reason for discrepancy between the above areas **optional (O)**	Shortage of water
Harvested Area	Decimal	Area from which crop is harvested	85.36
Drianed_Area _Irr	Decimal	Part of Irrigated area equipped with drainage system	21.3
Act_WUse	Decimal	Water consumed by crop **optional (O)**	1,000,000.6
Estimated _WReq	Decimal	Estimated irrigation water requirement **optional (O)**	2,000,000.6
Estimated-Wabs	Decimal	Estimated Water abstruction	
Status	String	The status of the site	Semi-Functional
Ownership	String	The owner of the irrigated site **not null (NN)**	Community

Investment - Table

Field:	Type (Format)	Description	Example
Site Name	String	Unique Code to distinguish internally between distinct and uniquely identify each irrigated area. **Primary Key (PK)**	Chacha
Funding	String	The name of the funding organization	FAO

Socioeconomics- Table

Field:	Type (Format)	Description	Example
Socio_ID	Auto Number	Unique Code to distinguish internally between distinct and uniquely identify each Socioeconomics records. **Primary Key (PK)**	2
Planned Ben	Int	The number of the planned beneficiaries	19
Actual Ben	Int	The number of the actual beneficiaries	18
Male Ben	Int	The number of the male beneficiaries	10
Female Ben	Int	The number of the actual beneficiaries	8
Reason <>Ben	String	A text entry to define the reason why If the planned number of beneficiaries can decrease from the actual number of beneficiaries **optional (O)**	less water resource
Ben Organ	String	Beneficiaries organization	irrigation cooperative
Organ Member	Int	Number of Organizational Members	45
Male Ex Mem	Int	Number of male executive Members	5
Female_Ex Mem	Int	Number of Female executive Members	7
Female Role	String	Role of the female members in the organization	Chairperson
Access to water	String	The accessibility of the water to the member	Yes
Payment Basis	String	If Yes what is the basis of payment	crop type
Irrig_site_ID	String	Corresponds to the Unique ID of the Irrigation site table. **Foreign Key (FK)**	1

Agro Location- Table

Field:	Type (Format)	Description	Example
AgrC ID	String	Unique Code to distinguish internally between distinct and uniquely identify agro climate table data. **Primary Key (PK)**	AG12
Agro ecology	String	The agro ecology of the irrigation site or improved RWA	Hot arid lowlands
Latitude_WS	Decimal	Northing of water abstraction site	9.16
Longitude_WS	Decimal	Easting of water abstraction site	39.4
Latitude_CA	Decimal	Northing of center of command area	9.15
Longitude_CA	Decimal	Easting of center of command area	39.41
Altitude	Decimal		55.66
Altitude_WS	Decimal		77.99
River Basin	String	The name of the River basin	Abay
Sub-Basin	String	The name of the sub basin	
Catchment	String	The name of the catchment	
Region	String	The name of the region	Amhara
Zone	String	The name of the zone	Lasta
Wereda	String	The name of the wereda	Gidan
Kebele	String	The kebele can be a number or a text	03/ Kalu
Data_Year	Year	Year of the Data entry	2008
Irrig_site_ID	String	Corresponds to the Unique ID of the Irrigation site table. **Foreign Key (FK)**	1

Improved RWA- Table

Field:	Type (Format)	Description	Example
ID	Int (Auto)	Unique Code to distinguish internally between distinct and uniquely identify WH record. The user is not expected to fill this field data **Primary Key (PK)**	1
Irr_Area_Ponds	Decimal	Irrigated area using water harvested in ponds	12.00
Irr_Area_HDW	Decimal	Irrigated area using hand dug wells	13.56
Irr_Area_wetland	Decimal	Wetland area developed for irrigated	15.25
Irr_Area_Spate	Decimal	Area irrigated using spate irrigation system	16.25
Irr_Area_Flood_Rec	Decimal	Area planted using flood recession	23.55
HH_WStorage	Decimal	Irrigated area using underground and above ground household storage systems	12.5
Surface	Decimal		
Sprinkler	Decimal		
Drip_localized	Decimal		
Beneficiaries	Int		
Male_ben	Int		
Female_ben	Int		
Irrigated_area_ot	Decimal		
Total_harvested	Decimal		
Actual_WU	Decimal		
Estimated_IWR	Decimal		
AgroC ID	Int	Corresponds to the Unique ID of the Agro climatic condition of irrigated site. **Foreign Key (FK)**	1265

Livestock - Table

Field:	Type (Format)	Description	Example
ID	Int (Auto)	Unique Code to distinguish internally between distinct and uniquely identify livestock record. The user is not expected to fill this field data **Primary Key (PK)**	1
Cattle	Int	Ox, cows heifer, steer and calf	2,000,00
Equines	Int	Horses, mules and donkeys	850,000
Camel	Int	camels	225,000
Sheep	Int	Number of sheep	3,500,000
Goat	Int	Number of goats	3,400,000
Poultry	Int	Number of hens and cocks	5,000,000
AgroC ID	Int	Corresponds to the Unique ID of the Agro climatic condition of irrigated site. **Foreign Key (FK)**	1265

User- Table

Field:	Type (Format)	Description	Example
UserID	String	Unique ID to distinguish internally between distinct users and identify user at login **Primary Key (PK)**	Abera13
Password	String	Encrypted, authenticates user at login. **not null (NN)**	Abcd#123
First Name	String	User's First Name	Addisu
Last Name	String	User's Last Name	Mezgeb
Age	Int	User's Age on the registration date	28
Sex	String	Gender of the User	Female
Job Title	Sting	The job title of the user	Data encoder
Phone	String	Phone number to be used for contacting user.	091-1 62 32 65
Region	String	The name of the region the user works for	Oromia
City	String	The regional office or federal office current city	Addis Ababa
Wereda	String	If the user is working at woreda level	Inchine
Kebele	String/int	If the user is working at kebele level	02
Date of Reg	Date	The date on which this user is registered begins.	3/01/2001

Environment- Table

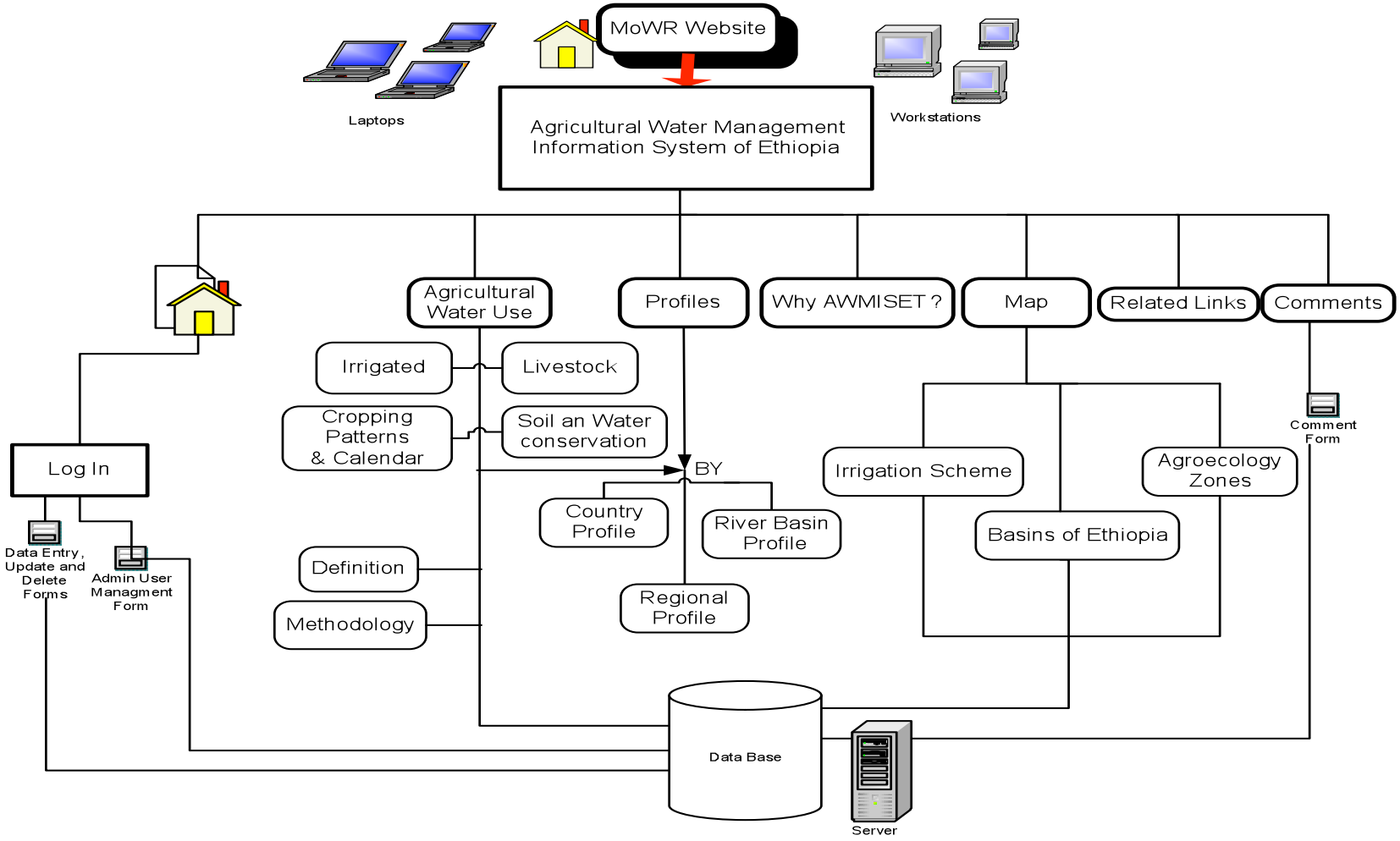
Field:	Type (Format)	Description	Example
Site Name	String	Unique Code to distinguish internally between distinct and uniquely identify each irrigated area. **Primary Key (PK)**	Chacha
Area Salin Aband	Decimal	Area abandoned due to salinity	18.36
Water Logged Area	Decimal	Water Logged Area	15.66
Eroded Area	Decimal	Area eroded due to improper irrigation application	4.5
Flooded Area	Decimal	Irrigated area affected by flooded	3.5
Health Problem	String	Health problem observed after the irrigation	Bilharzias
Pers affected	Int	Number of people affected by the diseases	3
Irrig_site_ID	String	Corresponds to the Unique ID of the Irrigation site table. **Foreign Key (FK)**	1

Soil & WC- Table

Field:	Type (Format)	Description	Example
Area_Phys	Decimal	Area treated with physical SWC measures	140.5
Area_Bio	Decimal	Area treated with biological SWC measures	165.5
Area_BioPhys	Decimal	Area treated with combine SWC measures	56.5
Area_Closure	Decimal	Area protected from any human activities and livestock	23.5
Catchment_Area	Decimal	The catchment area were treated area is located	1568.65
Area_Culti	Decimal	Cultivated area treated with SWC measures	58.69
Area_Waste	Decimal	Waste area treated with SWC measures	99.69
Drained_area_non_irr	Decimal	Drained area but non irrigated	58.67
AgroC ID	Int	Corresponds to the Unique ID of the Agro climatic condition of irrigated site. **Foreign Key (FK)**	1265

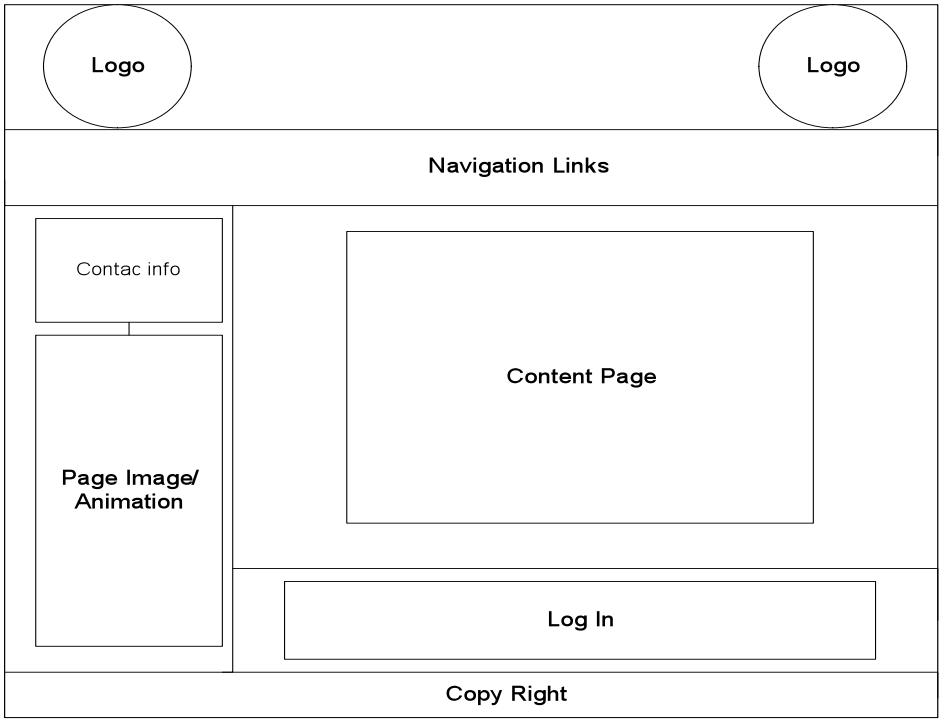
6 Content plan

6.1 Agricultural Water Management Information System of Ethiopia Pages and links

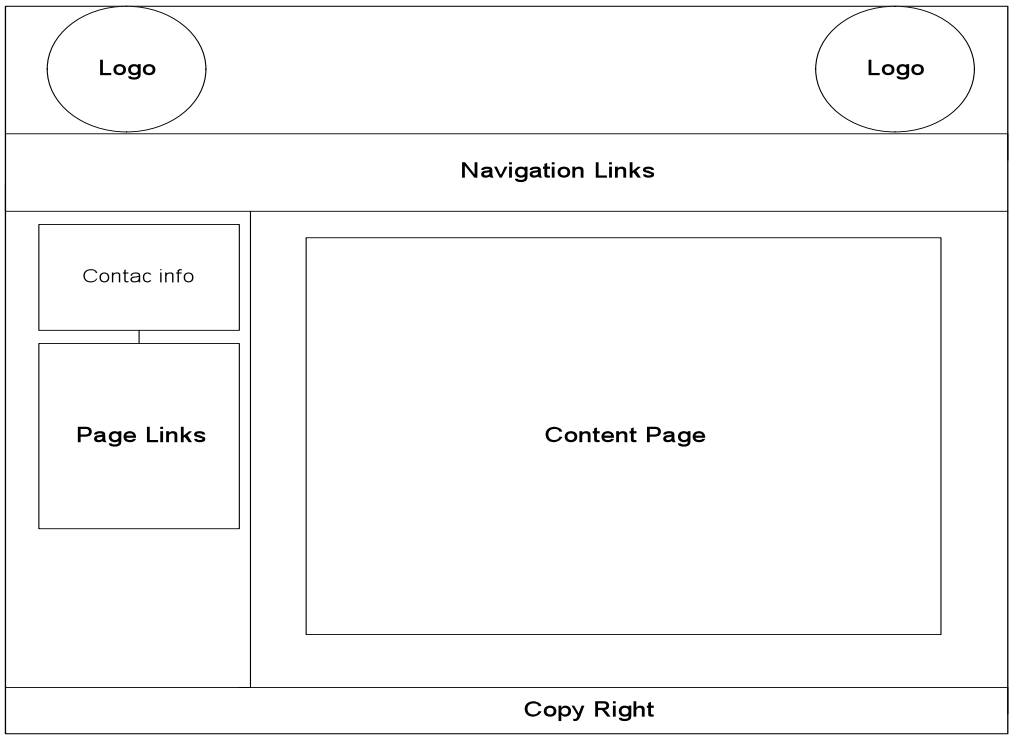


6.2 Page Design

6.2.1 Main Home



6.2.2 Others



6.3 Sample pages

6.3.1 Home page

Contact Info

Related Links
Comments
Contacts

Agricultural Water

Irrigation
Livestock
Cropping Pattern
Soil and Water Conservation
Profile

WELCOME

AWMISET (Agricultural Water Management Information System of ETHIOPIA) which is developed by the support of FAO is Ethiopia's National Information System on irrigated agriculture. The website gives information at national, basin levels and regional.

It keeps records and gives information related to agricultural water management with the following functions:

- providing information including geographical information for the registered irrigation schemes, water harvesting, soil conservational livestock data related to water
- Enabling online data entering and updating the database
- Making easy the data processing and data retrieval from the database

The website will provided the following when complete information is made available.

- Irrigations and typologies disaggregated at national government and basin levels
- Agricultural water use at national and basin levels
- Some socio-economic and environmental aspects of irrigation schemes
- Area treated with soil and water conservation measures
- Cropping pattern
- River Basin, Country or Regional Profiles
- Map

The objective of the website is to inform and help everyone involved in related development programmes search to get up-to-date information on irrigated agriculture (Agricultural water use and other water management information)

Use Our Contacts to send us instant message

The data included in the Database limited to pilot baseline survey in upper Awash Basin and some secondary data compiled by International Water Management Institute (IWMI). Therefore, the aggregate outputs of the Database do not show the complete picture of the Country/ River Basins/ Regions.

Figure 1: Home Page

ONLY FOR REGISTERED USERS

User Name :	
Password :	
	Log In Cancel

6.3.2 Data Entry page

Contact Info

Related Links
Comments
Contacts

Data Entry Links

Irrigation Scheme
Water Harvesting
Soil and Water Conservation
Livestock
Cropping Pattern

Log out

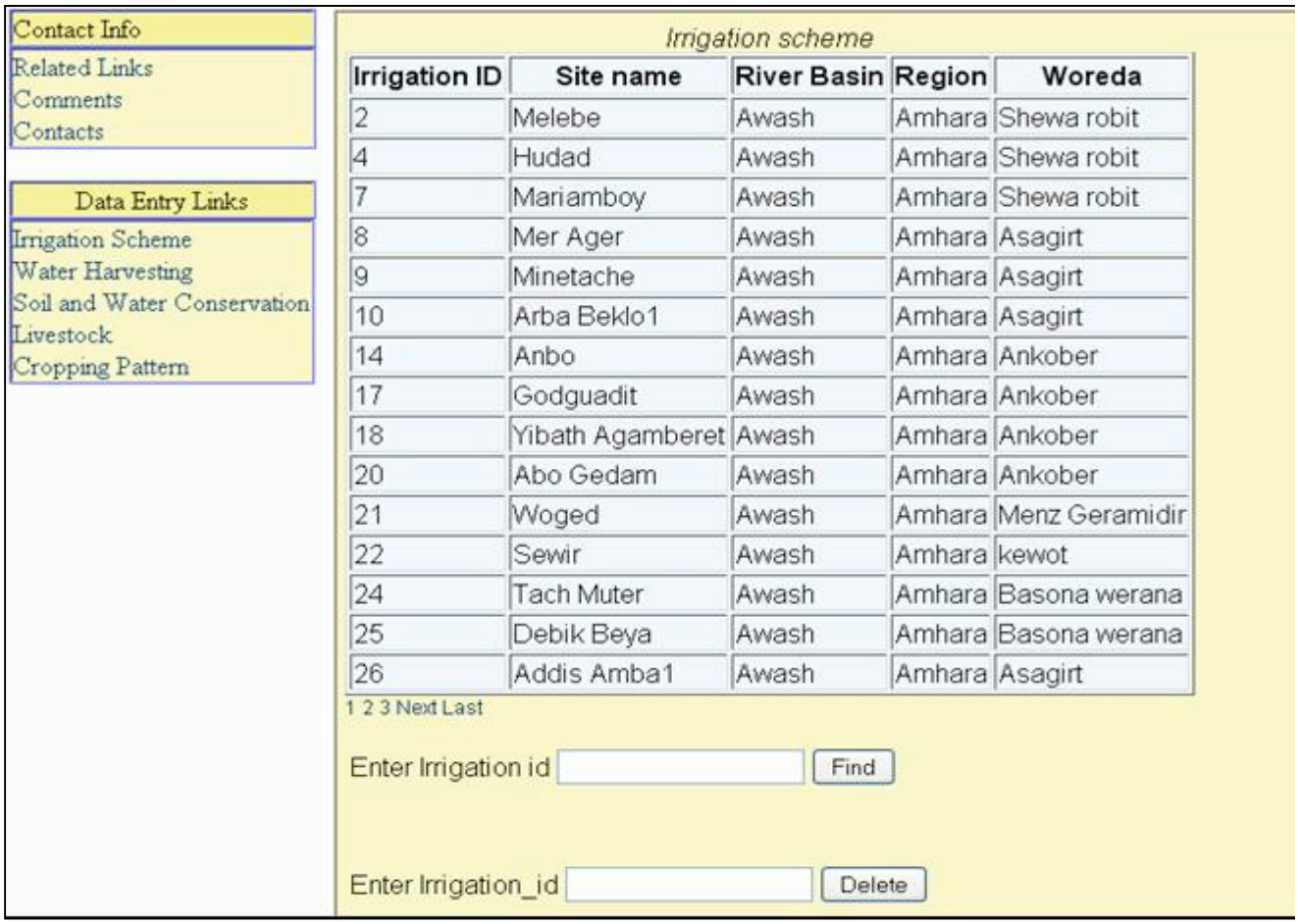
Edit

Irrigation Scheme

Click here to Export Raw Data

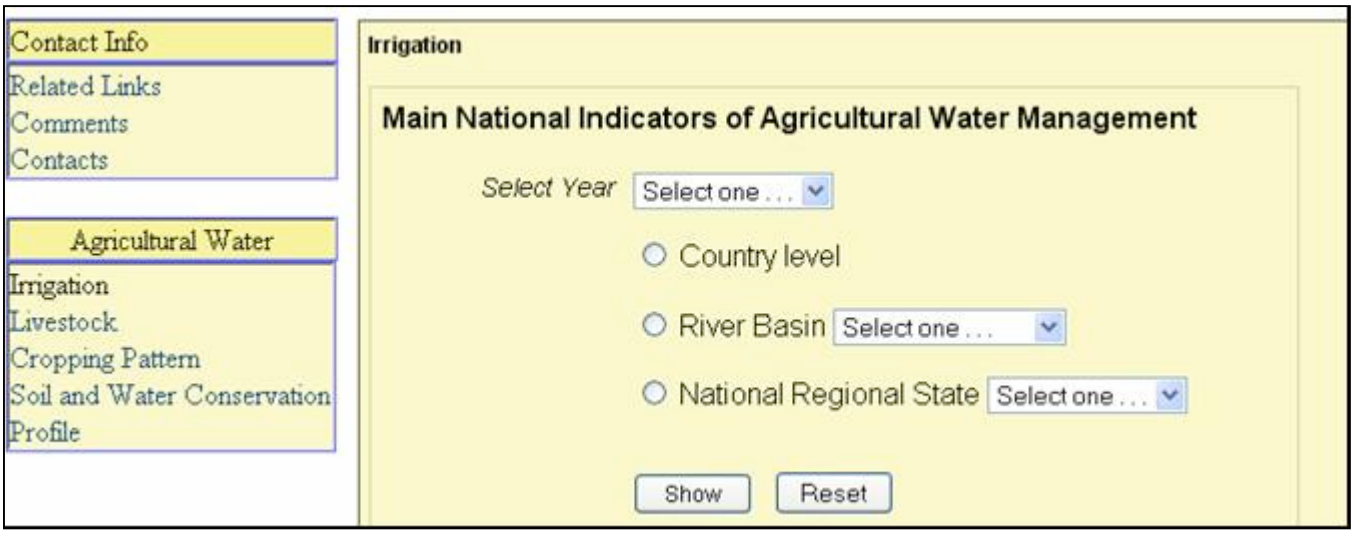
Name of Scheme*	
Water source	Select one . . .
Name of Water source	
Water Abstraction	Select one . . .
Irrigation System	Select one . . .
Irrigation Typology	Select one . . .
Urban/Rural	Select one . . .
Equipped Area(Ae)*	ha
Actual Irrigated Area(Ai)*	ha
Reason for Ai < Ae	Select one . . .
Harvested Area	ha
Drained Area (irrigated)	ha
Actual Water Withdrawal	('000m3)
Estimated Water Abstraction	('000m3)
Estimated IWR	('000m3)

6.3.3 Update page and delet pages

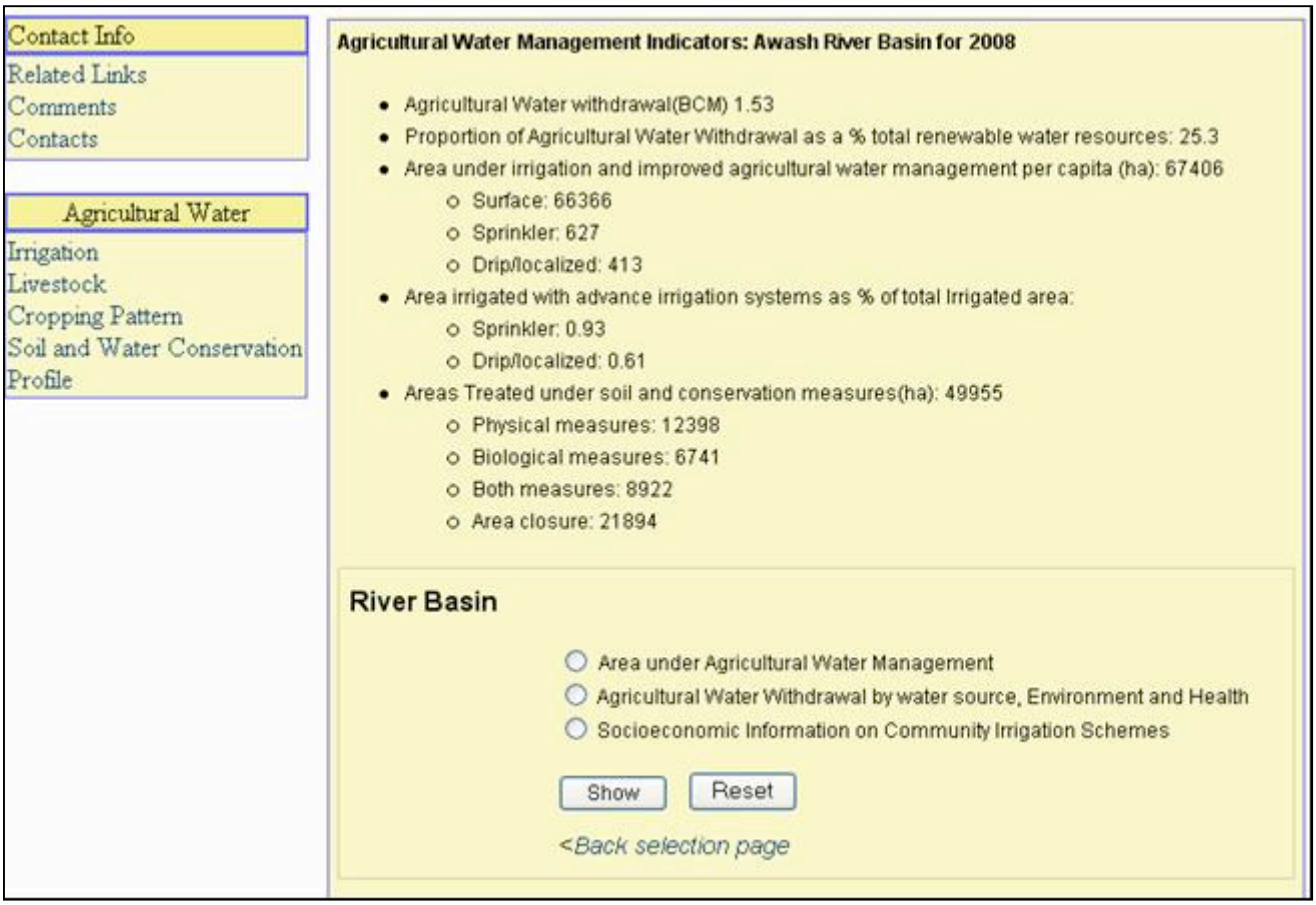


Irrigation ID	Site name	River Basin	Region	Woreda
2	Melebe	Awash	Amhara	Shewa robit
4	Hudad	Awash	Amhara	Shewa robit
7	Mariamboy	Awash	Amhara	Shewa robit
8	Mer Ager	Awash	Amhara	Asagirt
9	Minetache	Awash	Amhara	Asagirt
10	Arba Beklo1	Awash	Amhara	Asagirt
14	Anbo	Awash	Amhara	Ankober
17	Godguadit	Awash	Amhara	Ankober
18	Yibath Agamberet	Awash	Amhara	Ankober
20	Abo Gedam	Awash	Amhara	Ankober
21	Woged	Awash	Amhara	Menz Geramidir
22	Sewir	Awash	Amhara	kewot
24	Tach Muter	Awash	Amhara	Basona werana
25	Debik Beya	Awash	Amhara	Basona werana
26	Addis Amba1	Awash	Amhara	Asagirt

6.3.4 Output Filtration (Criteria selection) page



6.3.5 Output page



7 Code

7.1 Selected pages

7.1.1 Home page

```
<?php

	//include "Scripts/login.php";
	include "Classes/clsDb.php";
	include "Classes/authentication.class.php";
	include "Pages/Special/init.inc.php";
		$titre_html = "AWMISET - Agricultural Water Managment Information System ETHIOPIA";
		$l_str_message = "<br />";

	if( "submit" == $_GET[ 'action' ] ){
		if( ( $_POST[ 'username' ] <> "" ) && (	$_POST[ 'password' ] <> "" ) ){
			$l_str_sql = "SELECT * FROM users WHERE users.username = '{$_POST[ 'username' ]}' AND
users.password = '{$_POST[ 'password' ]}'";
			$l_res_user = $l_obj_db->query( $l_str_sql );

			  while ($row = mysql_fetch_array($l_res_user))
	  {
			 $Region=$row['Region'];
		  }
			if( $l_obj_db->num_rows( $l_res_user ) > 0 ){
				$_SESSION[ 'logged_in' ] = TRUE;
				$_SESSION[ 'username' ] = $_POST[ 'username' ];
				$valid_user = $_POST[ 'username' ];
				session_register("valid_user");
				$_SESSION[ 'ForRegion' ] = $Region;
				header( 'Location: Pages/Irrig_entry.php' ) ;
				exit();
			}else{
				$l_str_message = "Invalid Username or Password";
			}
		}else{
			$l_str_message = "Please enter 'Username' and/or 'Password'. .";
		}
	}
session_start();
$_SESSION[ 'Region' ];
?>

<html>
<head>
<title><?=$titre_html ?></title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<BGSOUND SRC="audio/13.mp3" LOOP="-1">
<style type="text/css">
<!--
.text {
	font-family: Arial, Helvetica, sans-serif;
	font-size: 12px;
	font-style: normal;
	font-weight: normal;
	color: #000000;
```

```
}
a:link {
        color: #003366;
        text-decoration: none;
}
a:hover {
        text-decoration: underline;
        color: #003366;
}
a:visited {
        color: #003366;
        text-decoration: none;
}
a:visited:hover {
        color: #003366;
        text-decoration: underline;
}
.titre {
        font-family: Arial, Helvetica, sans-serif;
        font-size: 14px;
        font-style: normal;
        font-weight: bold;
        text-decoration: underline;
        color: #000000;
}
.style1 {color: #0000FF}
.style3 {color: #990033}
-->
</style>
<script type="text/JavaScript">
<!--
function MM_swapImgRestore() { //v3.0
  var i,x,a=document.MM_sr; for(i=0;a&&i<a.length&&(x=a[i])&&x.oSrc;i++) x.src=x.oSrc;
}

function MM_preloadImages() { //v3.0
  var d=document; if(d.images){ if(!d.MM_p) d.MM_p=new Array();
    var i,j=d.MM_p.length,a=MM_preloadImages.arguments; for(i=0; i<a.length; i++)
    if (a[i].indexOf("#")!=0){ d.MM_p[j]=new Image; d.MM_p[j++].src=a[i];}}
}

function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for (i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_swapImage() { //v3.0
  var i,j=0,x,a=MM_swapImage.arguments; document.MM_sr=new Array; for(i=0;i<(a.length-2);i+=3)
   if ((x=MM_findObj(a[i]))!=null){document.MM_sr[j++]=x; if(!x.oSrc) x.oSrc=x.src; x.src=a[i+2];}
}
//-->
</script>
</head>
<body bgcolor="#FFFFFF" leftmargin="0" topmargin="0" marginwidth="0" marginheight="0"
onLoad="MM_preloadImages('images/Fao-Active_05.gif','images/Fao-Active_06.gif','images/Fao-Active_07.gif','images/Fao-
```

```
Active_09.gif','images/Fao-Active_10.gif')">
<!-- ImageReady Slices (Fao.psd) -->
<table width="768" height="715" border="0" align="center" cellpadding="0" cellspacing="0" id="Table_01">
        <tr>
                <td colspan="13"><img src="images/fao_02.jpg" width="806" height="157" alt=""></td>
 </tr>
        <tr>

   <td colspan="3"><img src="images/Fao_04.jpg" name="Image25" width="147" height="35" border="0"></td>
        <td colspan ="1"><a href="Index.php" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image24',','images/Fao-Active_05.jpg',1)"><img src="images/Fao-Active_05.jpg"
name="Image24" width="148" height="35" border="0"></a></td>
        <td colspan ="3"><a href="Pages/Water_resource.html" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image26',','images/Fao-Active_06.jpg',1)"><img src="images/Fao_06.jpg" name="Image26"
width="129" height="35" border="0"></a><a href="Pages/Profiles.php" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image27',','images/Fao-Active_07.jpg',1)"><img src="images/Fao_07.jpg" name="Image27"
width="127" height="35" border="0"></a></td>
        <td colspan ="2"><a href="Pages/Agri_Water.html" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image28',','images/Fao-Active_08.jpg',1)"><img src="images/Fao_08.jpg" name="Image28"
width="132" height="35" border="0"></a></td>
        <td colspan ="4"><a href="Pages/Map.html" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image29',','images/Fao-Active_10.jpg',1)"><img src="images/Fao_10.jpg" name="Image29"
width="123" height="35" border="0"></a></td>
        </tr>
        <tr>
                <td width="8" height="579" background="images/Fao_12.gif">
                        <img src="images/Fao_12.jpg" width="6" height="990" alt=""></td>

   <td colspan="11" valign="top">
    <table width="792" border="0" cellpadding="0" cellspacing="10">
      <tr valign="top">
       <td width="181" height="627"><table width="170" height="85" border="0" cellpadding="0" cellspacing="0"
bordercolor="#8784C6" bgcolor="#E9E9F8">
         <tr valign="top">
          <td bordercolor="#5555ff" bgcolor="faf8c0"><table width="181" bgcolor="#f6f38f" cellpadding="0" cellspacing="0"
bordercolor="#5555ff" border="1">
            <tr valign="top">
             <td width="177" bordercolor="#5555ff">Contact Info </td>
            </tr>
           </table>
            <table width="181" height="63" border="1" cellpadding="0" cellspacing="0" bordercolor="#5555ff">
             <tr valign="top">
              <td width="176" bordercolor="faf8c0" bgcolor="faf8c0"><p> <a href="Pages/Links.html" class="primary">Related
Links</a><br>
               <a href="Pages/Com.php" class="primary">Comments</a><br>
                       <a href="mailto:yibeltal.tiruneh@fao.org, ytiruneh@yahoo.com" class="Primary">Contacts</a><br>
</p></td>  </tr>
           </table></td>
         </tr>
        </table><br/>
                        <table width="174" border="0" cellpadding="0" cellspacing="0" bordercolor="#8784C6"
bgcolor="#E9E9F8">
         <tr valign="top">
                        <td width="174" bordercolor="#5555ff" bgcolor="faf8c0"><table width="181"
bgcolor="#f6f38f" cellpadding="0" cellspacing="0" bordercolor="#5555ff" border="1">
            <tr valign="top">

            <td width="177" align="center" bordercolor="#5555ff">Agricultural Water</td>
```

```
                  </tr>
                 </table>
                  <table width="180" border="1" cellpadding="0" cellspacing="0" bordercolor="#5555ff">
                   <tr valign="top">
                        <td width="176" align="center" bordercolor="faf8c0" bgcolor="faf8c0"><p align="left">
                                                                                    <a href="Pages/Irrigated.PHP"
class="primary">Irrigation</a><br>
                       <a href="Pages/Livestock.php" class="primary">Livestock</a><br>
                       <a href="Pages/Cropping.php" class="primary">Cropping Pattern</a><br>
                        <a href="Pages/swc.Php" class="primary">Soil and Water Conservation</a><br>
                        <a href="Pages/Profiles.php" class="primary">Profile</a><br>

                    </p></td>
                   </tr>
                 </table>                    </td>
                        </table>         </td>
          <td width="581"><table width="100%" height="540" border="1" cellpadding="5" cellspacing="0" bordercolor="faf8c0"
bgcolor="faf8c0">
               <tr valign="top" bordercolor="#E9E9F8" bgcolor="faf8c0">
             <tr valign="top" bordercolor="#E9E9F8" bgcolor="faf8c0">
                <td height="625" valign="top" bordercolor="5555ff" bgcolor="faf8c0"><div align="left" class="text">
               <table width="100%" border="0" cellspacing="0" cellpadding="0">
                <tr>
                 <td width="38%"><div align="center"><span class="style10"><strong><img src="images/faoone.jpg" width="160"
height="121" alt="">
                   </strong><br />
                   </span> </div></td>
                 <td width="33%"><img src="images/faotwo.jpg" width="160" height="121" alt=""></td>
                 <td width="29%"><img src="images/faothree.jpg" width="160" height="121" alt=""></td>
                </tr>
                <tr>
                 <td height="599" colspan="3"><p><strong> WELCOME </strong>
<div align="left" class="text">
                   <p>AWMISET (Agricultural Water Management Information  System of ETHIOPIA) which is developed by the
support of FAO is Ethiopia&rsquo;s  National Information System on irrigated agriculture. The website gives  information at national,
basin levels and regional. </p>
                   <p>It keeps records and gives information related to  agricultural water management with the following
functions:</p>
                   <ul>
                     <li>providing  information including geographical information for the registered irrigation  schemes, water
harvesting, soil conservational livestock data related to water</li>
                     <li>Enabling  online data entering and updating the database</li>
                     <li> Making easy the data processing and data  retrieval from the database </li>
                   </ul>
                   <p>The  website will provided the following when complete information is made  available.</p>
                   <ul>
                     <li>Irrigations and  typologies disaggregated at national government and basin levels </li>
                     <li>Agricultural  water use at national and basin levels </li>
                     <li>Some socio-economic  and environmental aspects of irrigation schemes </li>
                     <li>Area treated with  soil and water conservation measures </li>
                     <li>Cropping pattern </li>
                     <li>River Basin,  Country or Regional Profiles </li>
                     <li><a href="http://localhost/mowr-fao/Pages/map.html">Map</a></li>
                   </ul>
                   <p>The objective of the website is to inform and  help everyone involved in related development programmes search
to get up-to-date  information on irrigated agriculture (<a href="Pages/Agri_Water.html">Agricultural water use </a> and other water
managment information)</p>
                   <p>Use Our <a href="mailto:ethyoscom@yahoo.com" class="Primary"> Contacts </a> to send us instant message
```

```
                    </p>

                    <p class="style3">The data included in the Database limited to pilot baseline survey (2008) in upper Awash Basin
and some secondary data (2005) compiled by International Water Management Institute (IWMI). Therefore, the aggregate outputs of
the Database do not show the complete picture of the Country/ River Basins/ Regions.</p>
                  </div>



                  </td>
                </tr>
              </table></td>
            </tr>
          </table>
          <br /> <table width="99%" cellpadding="10" cellspacing="0" bgcolor="faf8c0" bordercolor="faf8c0" border="1">
            <tr valign="top">
              <td height="90" align="center" bordercolor="5555ff" bgcolor="faf8c0" bordFercolor="5555ff">
               <div class="message" style="color:#0000FF" align="left">ONLY FOR REGISTERED USERS</div>
                                        <div class="message" style="color:#FF0000" align="left"><?php echo $l_str_message; ?></div>
<form action="<?php echo $_SERVER[ 'PHP_SELF' ] . "?action=submit"; ?>" method="post" style="border: 1px solid #CCCC99;
float:left;" enctype="multipart/form-data"  >
                <table width="70%" border="1" align="center" cellpadding="0" cellspacing="0">
                                          <tr>
                  <td height="28"><div align="left" class="style1">
                     <div align="right">User Name : </div>
                    </div></td>
                  <td><input name="username" type="text" id="username" class="txt" value="<?php echo $_SESSION[ 'username' ];
?>">

                  </td>
                 </tr>
                 <tr>
                  <td><div align="right" class="style1"><strong>Password
                     : </strong></div></td>
                  <td><input name="password" type="password" id="password" class="txt" value="<?php echo $_SESSION[
'password' ]; ?>"></td>
                 </tr>
                 <tr>
                  <td> </td>
                  <td><input type="submit" value="Log In" name="B1"  onClick="checkForm1()">
                    <input type="reset" value="Cancel" name="B2"></td>
                 </tr>
                </table>
              </form>

              </td>
            </tr>
          </table> </td>
        </tr>
      </table>
```

7.1.2 Data page

7.1.2.1 New data entry page

- **Irrigated area first data entry page code**

```
<?PHP
        include "../Classes/clsIrrigation.php";
        include "../Classes/clsDb.php";
```

```
include "Special/init.inc.php";

if (!session_is_registered("valid_user"))
{
 header( 'Location:/mowr-fao/Index.php');
}

$titre_html = "AWMISET - Irrigation site data entry";
$l_str_btn_label = "Insert";
$l_str_message = "<br />  ";
$m_str_username = "<br />";

$_SESSION[ 'Site_Name' ] = "";
$_SESSION[ 'Water_Source' ] = "";
$_SESSION[ 'Abstraction' ] = "";
$_SESSION[ 'Irrigatin_system' ] = "";
$_SESSION[ 'Form_of_irrigation' ] = "";
$_SESSION[ 'Name_of_WSource' ] = "";
$_SESSION[ 'Reason' ] = "";
$_SESSION[ 'SettingofIrrig' ] = "";

$_SESSION[ 'Equipped_Area' ] = "";
$_SESSION[ 'Actual_irr_Area' ] = "";
$_SESSION[ 'Harvested_area' ] = "";
$_SESSION[ 'Drained_Area_Irr' ] = "";

$_SESSION[ 'Act_W_use' ] = "";
$_SESSION[ 'Estimate_wReq' ] = "";

$_SESSION[ 'Salinized' ] = "";
$_SESSION[ 'Waterlogged' ] = "";
$_SESSION[ 'Eroded' ] = "";
$_SESSION[ 'Flooded' ] = "";


$_SESSION[ 'Health_problem' ] = "";
$_SESSION[ 'Funding_Agency' ] = "";

$_SESSION[ 'Implementing_Agency' ] = "";
$_SESSION[ 'Con_Big_Year' ] = "";
$_SESSION[ 'Con_End_Year' ] = "";
$_SESSION[ 'Irrig_st_year' ] = "";
$_SESSION[ 'Investment' ] = "";
$_SESSION[ 'Operation_cost' ] = "";
$_SESSION[ 'Maintenance_cost' ] = "";
$_SESSION[ 'Covering_cost' ] = "";

$_SESSION[ 'Status' ] = "";
$_SESSION[ 'Estimated_Wabs' ] = "";
$_SESSION[ 'Ownership' ] = "";

if( "submit" == $_GET[ 'action' ] ){
  if($_POST['ForEdit'] == 3){
            header( 'Location:Edit_Irr_Site.php');
       }
     else{
                        $_SESSION[ 'Site_Name' ] = $_POST[ 'Site_Name' ];
                        $_SESSION[ 'Water_Source' ] = $_POST[ 'Water_Source' ];
```

```
$_SESSION[ 'Abstraction' ] = $_POST[ 'Abstraction' ];
$_SESSION[ 'Irrigatin_system' ] = $_POST[ 'Irrigatin_system' ];
$_SESSION[ 'Form_of_irrigation' ] = $_POST[ 'Form_of_irrigation' ];
$_SESSION[ 'Name_of_WSource' ] = $_POST[ 'Name_of_WSource' ];
$_SESSION[ 'Reason' ] = $_POST[ 'Reason' ];

$_SESSION[ 'Scale' ] = $_POST[ 'Scale' ];

$_SESSION[ 'SettingofIrrig' ] = $_POST[ 'SettingofIrrig' ];
$_SESSION[ 'Equipped_Area' ] = $_POST[ 'Equipped_Area' ];
$_SESSION[ 'Actual_irr_Area' ] = $_POST[ 'Actual_irr_Area' ];
$_SESSION[ 'Harvested_area' ] = $_POST[ 'Harvested_area' ];
$_SESSION[ 'Drained_Area_Irr' ] = $_POST[ 'Drained_Area_Irr' ];

$_SESSION[ 'Act_W_use' ] = $_POST[ 'Act_W_use' ];
$_SESSION[ 'Estimate_wReq' ] = $_POST[ 'Estimate_wReq' ];

$_SESSION[ 'Salinized' ] = $_POST[ 'Salinized' ];
$_SESSION[ 'Waterlogged' ] = $_POST[ 'Waterlogged' ];
$_SESSION[ 'Eroded' ] = $_POST[ 'Eroded' ];
$_SESSION[ 'Flooded' ] = $_POST[ 'Flooded' ];



$_SESSION[ 'Health_problem' ] = $_POST[ 'Health_problem' ];
$_SESSION[ 'Funding_Agency' ] = $_POST[ 'Funding_Agency' ];
$_SESSION[ 'Implementing_Agency' ] = $_POST[ 'Implementing_Agency' ];
$_SESSION[ 'Con_Big_Year' ] = $_POST[ 'Con_Big_Year' ];
$_SESSION[ 'Con_End_Year' ] = $_POST[ 'Con_End_Year' ];
$_SESSION[ 'Irrig_st_year' ] = $_POST[ 'Irrig_st_year' ];
$_SESSION[ 'Investment' ] = $_POST[ 'Investment' ];
$_SESSION[ 'Operation_cost' ] = $_POST[ 'Operation_cost' ];
$_SESSION[ 'Maintenance_cost' ] = $_POST[ 'Maintenance_cost' ];
$_SESSION[ 'Covering_cost' ] = $_POST[ 'Covering_cost' ];

$_SESSION[ 'Status' ] = $_POST[ 'Status' ];
$_SESSION[ 'Estimated_Wabs' ] = $_POST[ 'Estimated_Wabs' ];
$_SESSION[ 'Ownership' ] = $_POST[ 'Ownership' ];



if( ( $_POST[ 'Site_Name' ] <> "" )){

if( ( $_POST[ 'Equipped_Area' ]) >= ($_POST[ 'Actual_irr_Area' ])){

IF( ($_POST[ 'Harvested_area' ]) <= ($_POST[ 'Actual_irr_Area' ])){

$l_obj_irrigation = new irrigation( $l_obj_db );
$l_obj_irrigation->setSite_name( $_POST[ 'Site_Name' ] );
$l_obj_irrigation->setWater_source( $_POST[ 'Water_Source' ] );
$l_obj_irrigation->setAbstraction( $_POST[ 'Abstraction' ] );
$l_obj_irrigation->setIrrigatin_system( $_POST[ 'Irrigatin_system' ] );
$l_obj_irrigation->setForm_of_irrigation( $_POST[ 'Form_of_irrigation' ] );
$l_obj_irrigation->setName_of_WSource( $_POST[ 'Name_of_WSource' ] );
$l_obj_irrigation->setReason( $_POST[ 'Reason' ] );

if(($_POST[ 'Equipped_Area' ]<2.5)){
$l_obj_irrigation->setScale( $_POST[ 'Scale' ] ="Micro scale" );
```

```
                }
        elseif(($_POST[ 'Equipped_Area' ]<=200)){
                $l_obj_irrigation->setScale( $_POST[ 'Scale' ] ="Small scale" );
                }
        elseif(($_POST[ 'Equipped_Area' ]>200) && ($_POST[ 'Equipped_Area' ]<=3000)){
                $l_obj_irrigation->setScale( $_POST[ 'Scale' ] ="Medium scale" );
                }
        elseif(($_POST[ 'Equipped_Area' ]>3000)){
                $l_obj_irrigation->setScale( $_POST[ 'Scale' ] ="Large scale" );
                }

$l_obj_irrigation->setSettingofIrrig( $_POST[ 'SettingofIrrig' ] );
$l_obj_irrigation->setEquipped_Area( $_POST[ 'Equipped_Area' ] );
$l_obj_irrigation->setActual_irr_Area( $_POST[ 'Actual_irr_Area' ] );
$l_obj_irrigation->setHarvested_area( $_POST[ 'Harvested_area' ] );
$l_obj_irrigation->setDrained_Area_Irr( $_POST[ 'Drained_Area_Irr' ] );

$l_obj_irrigation->setAct_W_use( $_POST[ 'Act_W_use' ] );
$l_obj_irrigation->setEstimate_wReq( $_POST[ 'Estimate_wReq' ] );


$l_obj_irrigation->setSalinized( $_POST[ 'Salinized' ]);
$l_obj_irrigation->setWaterlogged( $_POST[ 'Waterlogged' ]);
$l_obj_irrigation->setEroded( $_POST[ 'Eroded' ]);
$l_obj_irrigation->setFlooded( $_POST[ 'Flooded' ]);

$l_obj_irrigation->setHealth_problem( $_POST[ 'Health_problem' ] );
$l_obj_irrigation->setFunding_Agency( $_POST[ 'Funding_Agency' ] );
$l_obj_irrigation->setImplementing_Agency( $_POST[ 'Implementing_Agency' ] );
$l_obj_irrigation->setCon_Big_Year( $_POST[ 'Con_Big_Year' ] );
$l_obj_irrigation->setCon_End_Year( $_POST[ 'Con_End_Year' ] );
$l_obj_irrigation->setIrrig_st_year( $_POST[ 'Irrig_st_year' ] );
$l_obj_irrigation->setInvestment( $_POST[ 'Investment' ] );
$l_obj_irrigation->setOperation_cost( $_POST[ 'Operation_cost' ] );
$l_obj_irrigation->setMaintenance_cost( $_POST[ 'Maintenance_cost' ] );
$l_obj_irrigation->setCovering_cost( $_POST[ 'Covering_cost' ] );

$l_obj_irrigation->setStatus( $_POST[ 'Status' ] );

$l_obj_irrigation->setEstimated_Wabs( $_POST[ 'Estimated_Wabs' ] );

$l_obj_irrigation->setOwnership( $_POST[ 'Ownership' ] );

$_SESSION[ 'Site_Name' ] = "";
$_SESSION[ 'Water_Source' ] = "";
$_SESSION[ 'Abstraction' ] = "";
$_SESSION[ 'Irrigatin_system' ] = "";
$_SESSION[ 'Form_of_irrigation' ] = "";
$_SESSION[ 'Name_of_WSource' ] = "";
$_SESSION[ 'Reason' ] = "";
$_SESSION[ 'Scale' ] = "";
$_SESSION[ 'SettingofIrrig' ] = "";
$_SESSION[ 'Equipped_Area' ] = "";
$_SESSION[ 'Actual_irr_Area' ] = "";
$_SESSION[ 'Harvested_area' ] = "";
$_SESSION[ 'Drained_Area_Irr' ] = "";

$_SESSION[ 'Act_W_use' ] = "";
```

```
                    $_SESSION[ 'Estimate_wReq' ] = "";
                    $_SESSION[ 'Salinized' ] = "";
                    $_SESSION[ 'Waterlogged' ] = "";
                    $_SESSION[ 'Eroded' ] = "";
                    $_SESSION[ 'Flooded' ] = "";


                    $_SESSION[ 'Health_problem' ] = "";
                    $_SESSION[ 'Funding_Agency' ] = "";

                    $_SESSION[ 'Implementing_Agency' ] = "";
                    $_SESSION[ 'Con_Big_Year' ] = "";
                    $_SESSION[ 'Con_End_Year' ] = "";
                    $_SESSION[ 'Irrig_st_year' ] = "";
                    $_SESSION[ 'Investment' ] = "";
                    $_SESSION[ 'Operation_cost' ] = "";
                    $_SESSION[ 'Maintenance_cost' ] = "";
                    $_SESSION[ 'Covering_cost' ] = "";
                    $_SESSION[ 'Status' ] = "";
                    $_SESSION[ 'Estimated_Wabs' ] = "";
                    $_SESSION[ 'Ownership' ] = "";


                    $l_obj_irrigation->addirrigation();


                    $m_int_Irrig_ro_no = mysql_insert_id();
                    $_SESSION[ 'Irrig_ro_no'] =         $m_int_Irrig_ro_no;

                    if (($_POST[ 'Ownership' ] == "Community")) {
                              header( 'Location: Socioeconomics.php' ) ;
                              exit();
                    }else{
                              header( 'Location: Irrig_add_entry.php' ) ;
                              exit();
                    }

                    }
                    else{
        $l_str_message = "<br /> Please check: Harvested area EXCEEDS actual irrigated area.<br /><br />";
                                        }
                              }

                    else{
        $l_str_message = "<br /> Please check: actual irrigated area EXCEEDS equipped area.<br /><br />";
                                        }
                              }
                    else{
        $l_str_message = "<br /> Please enter 'Site Name' to add the record and move to the next page.<br /><br />";
                    }
              }
        }
?>

<html>
<head>
<title><?=$titre_html ?></title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
```

```
<style type="text/css">
<!--
.text {
	font-family: Arial, Helvetica, sans-serif;
	font-size: 12px;
	font-style: normal;
	font-weight: normal;
	color: #000000;
}
.message{  font-family: Arial, Helvetica, sans-serif;
	font-size: 14px;
	font-style: Bold;
	font-weight: normal;
	color: #880000;
	}

a:link {
	color: #003366;
	text-decoration: none;
}
a:hover {
	text-decoration: underline;
	color: #003366;
}
a:visited {
	color: #003366;
	text-decoration: none;
}
a:visited:hover {
	color: #003366;
	text-decoration: underline;
}
.titre {
	font-family: Arial, Helvetica, sans-serif;
	font-size: 14px;
	font-style: normal;
	font-weight: bold;
	text-decoration: underline;
	color: #000000;
}
-->
</style>
<script type="text/JavaScript">
<!--
function MM_swapImgRestore() { //v3.0
  var i,x,a=document.MM_sr; for(i=0;a&&i<a.length&&(x=a[i])&&x.oSrc;i++) x.src=x.oSrc;
}

function MM_preloadImages() { //v3.0
  var d=document; if(d.images){ if(!d.MM_p) d.MM_p=new Array();
    var i,j=d.MM_p.length,a=MM_preloadImages.arguments; for(i=0; i<a.length; i++)
    if (a[i].indexOf("#")!=0){ d.MM_p[j]=new Image; d.MM_p[j++].src=a[i];}}
}

function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for (i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
```

```
  for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_swapImage() { //v3.0
  var i,j=0,x,a=MM_swapImage.arguments; document.MM_sr=new Array; for(i=0;i<(a.length-2);i+=3)
   if ((x=MM_findObj(a[i]))!=null){document.MM_sr[j++]=x; if(!x.oSrc) x.oSrc=x.src; x.src=a[i+2];}
}
function CheckInser(){
		document.getElementById('inser').submit()
}
function CheckEdit(){
		document.getElementById('ForEdit').value="3";
		document.getElementById('inser').submit();
		document.getElementById('ForEdit').value="3";
}


//-->
</script>
</head>
<body bgcolor="#FFFFFF" leftmargin="0" topmargin="0" marginwidth="0" marginheight="0"
onLoad="MM_preloadImages('../images/Fao-Active_05.gif','../images/Fao-Active_06.gif','../images/Fao-
Active_07.gif','../images/Fao-Active_09.gif','../images/Fao-Active_10.gif','../images/Fao-Active_08.jpg')">
<!-- ImageReady Slices (Fao.psd) -->
<table width="768" height="1408" border="0" align="center" cellpadding="0" cellspacing="0" id="Table_01">
		<tr>
			<td height="140" colspan="13"><img src="../images/fao_02.jpg" width="806" height="157" alt=""></td>
  </tr>
		<tr>

   <td height="35" colspan="3"><img src="../images/Fao_04.jpg" name="Image25" width="147" height="35" border="0"></td>
		<td colspan ="1"><a href="../Index.php" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image24','','../images/Fao-Active_05.jpg',1)"><img src="../images/Fao_05.jpg" name="Image24"
width="148" height="35" border="0"></a></td>
		<td colspan ="3"><a href="../Pages/Water_resource.html" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image26','','../images/Fao-Active_06.jpg',1)"><img src="../images/Fao_06.jpg" name="Image26"
width="129" height="35" border="0"></a><a href="../Pages/Profiles.php" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image27','','../images/Fao-Active_07.jpg',1)"><img src="../images/Fao_07.jpg" name="Image27"
width="127" height="35" border="0"></a></td>
		<td colspan ="2"><a href="../Pages/Agri_Water.html" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image28','','../images/Fao-Active_08.jpg',1)"><img src="../images/Fao_08.jpg" name="Image28"
width="132" height="35" border="0"></a></td>
		<td colspan ="4"><a href="../Pages/Map.html" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image29','','../images/Fao-Active_10.jpg',1)"><img src="../images/Fao_10.jpg" name="Image29"
width="123" height="35" border="0"></a></td>
		</tr>
		<tr>
			<td width="8" height="1191" background="../images/Fao_12.gif">
				<img src="../images/Fao_12.jpg" width="6" height="1289" alt=""></td>

   <td colspan="11" valign="top">
    <table width="792" border="0" cellpadding="0" cellspacing="10">
      <tr valign="top">
       <td width="181" height="1234"><table width="170" height="85" border="0" cellpadding="0" cellspacing="0"
bordercolor="#8784C6" bgcolor="#E9E9F8">
		<tr valign="top">
		<td bordercolor="#5555ff" bgcolor="faf8c0"><table width="181" bgcolor="#f6f38f" cellpadding="0" cellspacing="0"
```

```
bordercolor="#5555ff" border="1">
                <tr valign="top">
                  <td width="177" bordercolor="#5555ff">Contact Info </td>
                </tr>
              </table>
                <table width="181" height="63" border="1" cellpadding="0" cellspacing="0" bordercolor="#5555ff">
                  <tr valign="top">
                    <td width="176" bordercolor="faf8c0" bgcolor="faf8c0"><p> <a href="../Pages/Links.html"
class="primary">Related Links</a><br>
                        <a href="../Pages/Com.php" class="primary">Comments</a><br>
                                    <a href="mailto:yibeltal.tiruneh@fao.org, ytiruneh@yahoo.com" class="Primary">Contacts</a><br>
</p></td>  </tr>
              </table></td>
            </tr>
          </table> <br/>
                                <table width="174" border="0" cellpadding="0" cellspacing="0" bordercolor="#8784C6"
bgcolor="#E9E9F8">
            <tr valign="top">
                                          <td width="174" bordercolor="#5555ff" bgcolor="faf8c0"><table width="181"
bgcolor="#f6f38f" cellpadding="0" cellspacing="0" bordercolor="#5555ff" border="1">
                  <tr valign="top">

                <td width="177" align="center" bordercolor="#5555ff">Data Entry Links </td>
                  </tr>
                </table>
                  <table width="180" border="1" cellpadding="0" cellspacing="0" bordercolor="#5555ff">
                    <tr valign="top">
                        <td width="176" align="center" bordercolor="faf8c0" bgcolor="faf8c0"><p align="left">
                                Irrigation Scheme<br>
                                                        <a href="Improved_RWH.php" class="primary"> Water Harvesting</a><br>

                                                        <a href="Swc_entry.php" class="primary">Soil and Water Conservation</a>
<br>
                      <a href="livestock_entry.php" class="primary"> Livestock</a> <br>
                     <a href="cropping_entry.php" class="primary">Cropping Pattern</a>
                                                            </td>
                    </tr>
                </table>                    </td>
                        </table></td>

                              <td width="581"><table width="100%" height="540" border="1" cellpadding="5" cellspacing="0"
bordercolor="faf8c0" bgcolor="faf8c0">
            <tr valign="top" bordercolor="#E9E9F8" bgcolor="faf8c0">
              <td height="625" valign="top" bordercolor="5555ff" bgcolor="faf8c0"><div align="left" class="text">


              <ul>
              <div class="text"> <div align="left" class="titles" style="color:#FF0000"><strong><a href="../Index.php" >Log
out</a></strong>                
;                  
                  &
nbsp;   You are logged on as <strong><?php echo $_SESSION[ 'username' ]  ?>, Welcome</strong></div>
                  <div class="titles"><span class="titles" style="color:#FF0000"><a
href="export_report.php?fn=Irrigation_Data_Table">Click here to Export Raw Data</a></span></div>
                                                        <div class="titles"><span class="titles" style="color:#FF0000"><a
href="../images/AWMISET User Gudeline.pdf" target="_blank">User Manual - pdf file format </a></span></div>
                                                        <div class="titles"><span class="titles" style="color:#FF0000"><a
href="../images/Guideline for Agricultural Water Use Monitoring-Final.pdf" target="_blank">Guideline for Monitoring Agricultural
```

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Water Use - pdf file format </a></span></div>
                <br />
                <div class="message" style="color:#FF0000"><?php echo $l_str_message; ?></div>
                <form action="<?php echo $_SERVER[ 'PHP_SELF' ] . "?action=submit";?>" id="inser" method="post"
style="border: 1px solid #CCCC99; float:left;" enctype="multipart/form-data"><table width="520" border="0" cellpadding="4"
cellspacing="2">
                  <tr class="table_header">
                    <td colspan="4"><strong> Irrigation Scheme
                      </strong>            
                      <input type="button" value="Edit Irr Site" onClick="CheckEdit()">                      </td>
                  </tr>
                  <tr>
                    <td colspan="4"></td>
                  </tr>
                  <tr>
                    <td width="17"><input type="hidden" name="Irrig_ro_no" value="<?php echo $l_int_irrig_ro_no; ?>" /></td>
                    <td width="178" align="right" valign="top">Name of Scheme* </td>
                    <td width="276"><input type="text" name="Site_Name" class="txt" value="<?php echo $_SESSION[ 'Site_Name'
]; ?>" style="width: 200px;"></td>
                    <td width="7" align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Water source </td>
                    <td><select name="Water_Source" class="header" id="select" value="<?php echo $_SESSION[ 'Water_Source' ];
?>">
                        <option value="" selected>Select one . . .</option>
                        <option value="River">1 - River</option>
                        <option value="Dam">2 - Dam</option>
                        <option value="Pond">3 - Pond</option>
                        <option value="Natura lake">4 - Natural lake</option>
                        <option value="Hand dug well">5 - Hand dug well</option>
                        <option value="Shallow well">6 - Shallow well</option>
                        <option value="Deep well">7 - Deep well</option>
                        <option value="Spring">8 - Spring</option>
                        <option value="Agricultural drainage water">9
                          - Agricultural drainage water</option>
                        <option value="Others">10 - Others</option>
                    </select></td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Name of Water source </td>
                    <td><input name="Name_of_WSource" type="text" class="txt" value="<?php echo $_SESSION[
'Name_of_WSource' ]; ?>" size="35"></td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Water Abstraction  </td>
                    <td><select name="Abstraction" class="header" id="select2" value="<?php echo $_SESSION[ 'Abstraction' ];
?>">
                        <option value="" selected>Select one . . .</option>
                        <option value="Diversion">1 - Diversion</option>
                        <option value="Dam">2 - Dam</option>
                        <option value="Motor pump">3 - Motor pump</option>
                        <option value="Human powered pump">4 - Human
```

```
                    powered pump</option>
                  </select></td>
                <td align="left"></td>
              </tr>
              <tr>
                <td></td>
                <td align="right" valign="top">Irrigation System                    </td>
                <td><select name="Irrigatin_system" class="header" id="select3" value="<?php echo $_SESSION[
'Irrigatin_system' ]; ?>">
                    <option value="" selected>Select one . . .</option>
                    <option value="Surface">1 - Surface</option>
                    <option value="Sprinkler">2 - Sprinkler</option>
                    <option value="Drip/localized">3 - Drip/localized</option>
                  </select></td>
                <td align="left"></td>
              </tr>
              <tr>
                <td></td>
                <td align="right" valign="top"> Irrigation Typology                    </td>
                <td><select name="Form_of_irrigation" class="header" id="co-field" value="<?php echo $_SESSION[
'Form_of_irrigation' ]; ?>">
                    <option value="" selected>Select one . . .</option>
                    <option value="Traditional">1 - Traditional </option>
                    <option value="Modern">2 - Modern</option>
                                                                <option value="Equipped spate irrigation">3 - Equipped
spate irrigation</option>
                                                                <option value="Equipped wetland irrigation">4 - Equipped
wetland irrigation</option>
                                                                <option value="Non-equipped wetland irrigation ">5 - Non-
equipped wetland irrigation</option>
                                                                <option value="Non-equipped flood recession">6 - Non-
equipped flood recession</option>
                  </select></td>
                <td align="left"></td>
              </tr>
              <tr>
                <td></td>
                <td align="right" valign="top">Urban/Rural</td>
                <td><select name="SettingofIrrig" class="header" id="select7" value="<?php echo $_SESSION[ 'SettingofIrrig' ];
?>">
                    <option value="" selected>Select one . . .</option>
                    <option value="Rular">1 - Rural </option>
                    <option value="Urban/Periurban">2 - Urban/Periurban                    </option>
                  </select></td>
                <td align="left"></td>
              </tr>
              <tr>
                <td></td>
                <td align="right" valign="top">Equipped Area(Ae)* </td>
                <td><input name="Equipped_Area" type="text" class="txt" value="<?php echo $_SESSION[ 'Equipped_Area' ];
?>" size="10">
                ha</td>
                <td align="left"></td>
              </tr>
              <tr>
                <td></td>
                <td align="right" valign="top">Actual Irrigated
                  Area(Ai)* </td>
```

```
                    <td><input name="Actual_irr_Area" type="text" class="txt" value="<?php echo $_SESSION[ 'Actual_irr_Area'
]; ?>" size="10">
                      ha </td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Reason for Ai &lt; Ae </td>
                    <td><select name="Reason" class="header" id="select4" value="<?php echo $_SESSION[ 'Reason' ]; ?>">
                        <option value="" selected>Select one . . .</option>
                        <option value="Damage on headwork">1-Damage on headwork</option>
                        <option value="Damage on canal">2-Damage on canal</option>
                                                                    <option value="Natural flow reduction">3-Natural flow
reduction</option>
                        <option value="Water shortage due to upstream users">4-Water shortage due to upstream users</option>

                                    <option value="Natural flow reduction and Damage on headwork">5-Natural flow reduction &
headwork damage </option>                                    <option value="Upstream users and Damage on headwork">6-
Upstream users and & headwork damage</option>
                                    <option value="Natural flow reduction and Damage on canal">7-Natural flow reduction & canal
damage</option>                                    <option value="Upstream users and Damage on canal">8-Upstream users & canal
damage</option>

                                                                    <option value="Other">9 - Other</option>
                                                                    </select></td>
                    <td align="left">></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Harvested Area </td>
                    <td><input name="Harvested_area" type="text" class="txt" value="<?php echo $_SESSION[ 'Harvested_area' ];
?>" size="10">
                      ha</td>
                    <td align="left">></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Drained Area (irrigated)                    </td>
                    <td><input name="Drained_Area_Irr" type="text" class="txt" value="<?php echo $_SESSION[ 'Drained_Area_Irr'
]; ?>" size="10">
                      ha</td>
                    <td align="left">></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Actual Water Withdrawal </td>
                    <td><input name="Act_W_use" type="text" class="txt" value="<?php echo $_SESSION[ 'Act_W_use' ]; ?>"
size="10">
                    ('000m3)</td>
                    <td align="left">></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Estimated Water Abstraction </td>
                    <td><input name="Estimated_Wabs" type="text" class="txt" value="<?php echo $_SESSION[ 'Estimated_Wabs' ];
?>" size="10">
                      ('000m3)</td>
                    <td align="left">></td>
```

```
                    </tr>
                    <tr>
                      <td></td>
                      <td align="right" valign="top">Estimated IWR </td>
                      <td><p>
                          <input name="Estimate_wReq" type="text" class="txt" value="<?php echo $_SESSION[ 'Estimate_wReq' ]; ?>"
size="20">
                          ('000m3)</td>
                      <td align="left"></td>
                    </tr>
                    <tr>
                      <td colspan="4"> 
                        <em><strong>Environment
                        (ha)</strong></em>
                        <table width="487" height="55" border="1">
                          <tr>
                            <td width="131"><div align="center">Salinized &amp; abandoned </div></td>
                            <td width="120"><div align="center">Waterlogged area </div></td>
                            <td width="104"><div align="center">Eroded Area </div></td>
                            <td width="125"><div align="center">Flooded Area </div></td>
                          </tr>
                          <tr>
                            <td><div align="center">
                              <input name="Salinized" type="text" class="txt" value="<?php echo $_SESSION[ 'Salinized' ]; ?>"
size="10">
                            </div></td>
                            <td><div align="center">
                              <input name="Waterlogged" type="text" class="txt" value="<?php echo $_SESSION[ 'Waterlogged' ]; ?>"
size="10">
                            </div></td>
                            <td><div align="center">
                              <input name="Eroded" type="text" class="txt" value="<?php echo $_SESSION[ 'Eroded' ]; ?>" size="10">
                            </div></td>
                            <td><div align="center">
                              <input name="Flooded" type="text" class="txt" value="<?php echo $_SESSION[ 'Flooded' ]; ?>" size="10">
                            </div></td>
                          </tr>
                        </table></td>
                    </tr>

                    <tr>
                      <td></td>
                      <td align="right" valign="top">Health Problem </td>
                      <td><select name="Health_problem" class="header" id="select10" value="<?php echo $_SESSION[
'Health_problem' ]; ?>">
                          <option value="" selected>Select one . . .</option>
                          <option value="Malaria">Malaria</option>
                          <option value="Bilharzias">Bilharzias</option>
                          <option value="Others">Others</option>

                        </select>
                      Affected people
                      <input name="HHaf_Value2" type="text" class="txt" size="3"></td>
                      <td align="left"> </td>
                    </tr>
                    <tr>
                      <td></td>
                      <td align="right" valign="top">Funding Agency </td>
```

```
                    <td><input name="Funding_Agency" type="text" class="txt" value="<?php echo $_SESSION[
'Funding_Agency' ]; ?>" size="34"></td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Implement Agency                    </td>
                    <td><input name="Implementing_Agency" type="text" class="txt" value="<?php echo $_SESSION[
'Implementing_Agency' ]; ?>" size="34"></td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top"> Construction Started                    </td>
                    <td><input name="Con_Big_Year" type="text" class="txt" value="<?php echo $_SESSION[ 'Con_Big_Year' ];
?>" size="20">
                      year</td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top"> Construction Ended                    </td>
                    <td><input name="Con_End_Year" type="text" class="txt" value="<?php echo $_SESSION[ 'Con_End_Year' ];
?>" size="20">
                      year</td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top"> Irrigation Started</td>
                    <td><input name="Irrig_st_year" type="text" class="txt" value="<?php echo $_SESSION[ 'Irrig_st_year' ]; ?>"
size="20">
                      year</td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Investment Cost                    </td>
                    <td><input name="Investment" type="text" class="txt" value="<?php echo $_SESSION[ 'Investment' ]; ?>"
size="20">
                      US$ </td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Annual Operation Cost </td>
                    <td><p>
                        <input name="Operation_cost" type="text" class="txt" value="<?php echo $_SESSION[ 'Operation_cost' ]; ?>"
size="20">
                      US$</td>
                    <td align="left"></td>
                  </tr>
                  <tr>
                    <td></td>
                    <td align="right" valign="top">Annual Maint Cost                    </td>
                    <td><p>
                        <input name="Maintenance_cost" type="text" class="txt" value="<?php echo $_SESSION[ 'Maintenance_cost'
]; ?>" size="20">
```

```
                US$</td>
              <td align="left"></td>
            </tr>
            <tr>
              <td></td>
              <td align="right" valign="top"> Source of Maint Cost  </td>
              <td><p>
                <select name="Covering_cost" class="header" id="select8" value="<?php echo $_SESSION[ 'Covering_cost' ];
?>">
                  <option value="" selected>Select one . . .</option>
                  <option value="Users annual payments">1-Users' annual water charge </option>
                  <option value="Users contribute at system failure">2-Users contribute at system failure</option>
                  <option value="Users payment and woreda/Region">3-Users' water charge and Woreda/Region </option>
                  <option value="Users contribute and Region/woreda">4-Users contribute and Woreda/Region</option>
                  <option value="Others">5 - Others</option>
                </select>
              </td>
              <td align="left"></td>
            </tr>
            <tr>
              <td></td>
              <td align="right" valign="top">Status </td>
              <td><select name="Status" class="header" id="select5" value="<?php echo $_SESSION[ 'Status' ]; ?>">
                <option value="" selected>Select one . . .</option>
                <option value="Functional">1 - Functional </option>
                <option value="Semi Functional ">2 - Semi Functional</option>
                <option value="Non Functional">3 - Non Functional </option>
              </select></td>
              <td align="left"></td>
            </tr>
            <tr>
              <td></td>
              <td align="right" valign="top">Ownership </td>
              <td><select name="Ownership" class="header" id="select6" value="<?php echo $_SESSION[ 'Ownership' ]; ?>">
                <option value="" selected>Select one . . .</option>
                <option value="Public">1 - Public </option>
                <option value="Community">2 - Community</option>
                <option value="Individual">3 - Individual </option>
                <option value="Commercial farm">4 - Commercial farm </option>
              </select></td>
              <td align="left"></td>
            </tr>
             <tr>
              <td></td>
              <td><input type="hidden" name="ForEdit" id="ForEdit" size="2"></td>
              <td> <input type="button" name="Submit" value="<?php echo $l_str_btn_label; ?>" class="btn"  style="width:
65px;" onClick="CheckInser()" />  
               <input type="reset" value="Reset" class="btn" style="width: 65px;"/>  
               <input type="button" value="Edit " onClick="CheckEdit()"></td>
            </tr>
            <tr>
              <td colspan="4"></td>
            </tr>
          </table>
        </form>
      </div>
    </ul>
      <div align="left" class="text"></div>
```

```
                </p>
</div>                </td>
            </tr>
          </table>          </td>
        </tr>
      </table>
            <div align="center">Copyright &copy; Ethiopian MoWR. All Rights Reserved.      </div></td>

   <td width="5"><img src="../images/Fao_14.jpg" width="5" height="1289" alt=""></td>


   <td width="4" background="../images/Fao_14.gif">  </td>
          </tr>
          <tr>
                    <td height="23" colspan="2">
                              <img src="../images/Fao_15.jpg" width="25" height="19" alt=""></td>

   <td colspan="9"> <img src="../images/Fao_16.jpg" width="756" height="19" alt=""></td>
                    <td colspan="2">
                              <img src="../images/Fao_17.jpg" width="24" height="19" alt=""></td>
          </tr>
          <tr>
                    <td height="2">
                              <img src="../images/spacer.gif" width="5" height="1" alt=""></td>
                    <td width="17">
                              <img src="../images/spacer.gif" width="16" height="1" alt=""></td>
                    <td width="122">
                              <img src="../images/spacer.gif" width="114" height="1" alt=""></td>
                    <td width="148">
                              <img src="../images/spacer.gif" width="143" height="1" alt=""></td>
                    <td width="76">
                              <img src="../images/spacer.gif" width="73" height="1" alt=""></td>
                    <td width="92">
                              <img src="../images/spacer.gif" width="88" height="1" alt=""></td>
                    <td width="88">
                              <img src="../images/spacer.gif" width="85" height="1" alt=""></td>
                    <td width="62">
                              <img src="../images/spacer.gif" width="57" height="1" alt=""></td>
                    <td width="70">
                              <img src="../images/spacer.gif" width="65" height="1" alt=""></td>
                    <td width="8">
                              <img src="../images/spacer.gif" width="7" height="1" alt=""></td>
                    <td width="90">
                              <img src="../images/spacer.gif" width="75" height="1" alt=""></td>
                    <td width="20">
                              <img src="../images/spacer.gif" width="17" height="1" alt=""></td>
                    <td>
                              <img src="../images/spacer.gif" width="5" height="1" alt=""></td>
          </tr>
</table>
<!-- End ImageReady Slices -->
</body>
</html>
```

7.1.2.2 Update page

- **List of record displayer for Irrigated area and find option to update or delete**

```
</div>
    <?php
        $con=mysql_connect("localhost","root","root");
        if(!$con)
          echo "Database connection failed !!!";
        else
        {
        $db=mysql_select_db("faomowr",$con);
           if(!$db)
        echo "Database selection failed !!!";
        else
        $db_search = mysql_query("SELECT * FROM irrigation INNER JOIN agro_loca WHERE irrigation.Irrig_ro_no =
agro_loca.Irrig_ro_no AND agro_loca.Region = '".$_SESSION[ ForRegion ]."'");
$size = @mysql_num_rows($db_search);
$Pagination = new Pagination($size , 15 , 3 );
$result = mysql_query( 'SELECT * FROM irrigation INNER JOIN agro_loca WHERE irrigation.Irrig_ro_no = agro_loca.Irrig_ro_no
AND agro_loca.Region = '".$_SESSION[ ForRegion ]."' LIMIT ' . $Pagination->get_start() . ', ' . $Pagination->get_displayed_rows()
);
echo '
<table border=1 style="background-color:#F0F8FF;">
<caption><EM>Irrigation scheme</EM></caption>
          <tr>
        <th>Irrigation ID</th>
        <th>Site name</th>
        <th>River Basin</th>
        <th>Region</th>
        <th>Woreda</th>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
        echo "</td><td>";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
        echo $row['Irrig_ro_no'];
        echo "</td><td>";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                echo
$row['Site_Name'];                                                                                                                                                                                                echo
"</td><td>";                                                                                                                                                echo $row['River_basin'];
                                                                                                                                echo "</td><td>";
        echo $row['Region'];
        echo "</td><td>";
        echo $row['Wereda'];                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                echo
"</td></tr>";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
        echo "</td></tr>";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
        echo "</table>";                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
$Pagination->get_paginate_links() as $link ){                                                                                                                                                                                                                                                                                                                                                                                                                                                                                echo '<a href="' . $link[
'href' ] . '"' . ( isset( $link[ 'current' ] ) ? 'style="text-decoration: none;"' : " ) . '>' . $link[ 'name' ] . '</a> ';
        }                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
        ?>
        <form action="Edit_Irr_Site_Done.php" method="post" id="frmid">
                <table border="0">
                <tr>
                <td>Enter Irrigation id</td>
                  <td><input type="text" name="IrrID"></td>
                <td><input type="button" name="Submit" value="Find" onClick="checkId()"></td>
                </tr>
                <tr>
                <td colspan="2"><font color="red" size="2"><p id="mes" ></p></font></td>
                </tr>
        </table>
        </form>
        <form id="frmDel" action="Delete_Irr_Site.php" method="post">
            <table border="0">
```

```
                <tr>
                <td>Enter Irrigation_id</td>
                  <td><input type="text" name="DelID" id="DelID"></td>
<td><input type="button" name="Submit" value="Delete" onClick="checkDel()"></td>
                </tr>
                <tr><td colspan="2"><font color="red" size="2"><p id="mesg" ></p></font></td></tr>
</table>
        </form>
```

7.1.2.3 Delete page

- **Taking data from previous code and Delete Irrigated area page code**

```
<?PHP
        include "../Classes/clsIrrigation.php";
        include "../Classes/clsDb.php";
        include "Special/init.inc.php";
        $titre_html = "AWMISET - Irrigation site data entry";
        $l_str_btn_label = "Yes";
        $l_str_message = "<br />  ";
        $m_str_username = "<br />";

                $l_obj_irr = new irrigation( $l_obj_db );
        $va = $_POST[ 'DelID' ];
        if($l_obj_irr->setVariables($_POST[ 'DelID' ]) == 1){
                $message_about_irr = "Irrigation records are not found";
        }
        else
        {
                        $_SESSION[ 'Site_Name' ] = $l_obj_irr->getSite_Name();
                        $_SESSION[ 'Water_Source' ] = $l_obj_irr->getWater_Source();
                        $_SESSION[ 'Abstraction' ] = $l_obj_irr->getAbstraction();
                        $_SESSION[ 'Irrigatin_system' ] = $l_obj_irr->getIrrigatin_system();
                        $_SESSION[ 'Form_of_irrigation' ] = $l_obj_irr->getForm_of_irrigation();
                        $_SESSION[ 'Name_of_WSource' ] = $l_obj_irr->getName_of_WSource();
                        $_SESSION[ 'Reason' ] = $l_obj_irr->getReason();
                        $_SESSION[ 'SettingofIrrig' ] = $l_obj_irr->getSettingofIrrig();
                        $_SESSION[ 'Equipped_Area' ] = $l_obj_irr->getEquipped_Area();
                        $_SESSION[ 'Actual_irr_Area' ] = $l_obj_irr->getActual_irr_Area();
                        $_SESSION[ 'Harvested_area' ] = $l_obj_irr->getHarvested_area();
                        $_SESSION[ 'Drained_Area_Irr' ] = $l_obj_irr->getDrained_Area_Irr();
                        $_SESSION[ 'Act_W_use' ] =  $l_obj_irr->getAct_W_use();
                        $_SESSION[ 'Estimate_wReq' ] = $l_obj_irr->getEstimate_wReq();
                        $_SESSION[ 'Salinized' ] = $l_obj_irr->getSalinized();
                        $_SESSION[ 'Waterlogged' ] = $l_obj_irr->getWaterlogged();
                        $_SESSION[ 'Eroded' ] = $l_obj_irr->getEroded();
                        $_SESSION[ 'Flooded' ] = $l_obj_irr->getFlooded();
                        $_SESSION[ 'Health_problem' ] = $l_obj_irr->getHealth_problem();
                        $_SESSION[ 'Funding_Agency' ] = $l_obj_irr->getFunding_Agency();
                        $_SESSION[ 'Implementing_Agency' ] = $l_obj_irr->getImplementing_Agency();
                        $_SESSION[ 'Con_Big_Year' ] = $l_obj_irr->getCon_Big_Year();
                        $_SESSION[ 'Con_End_Year' ] = $l_obj_irr->getCon_End_Year();
                        $_SESSION[ 'Irrig_st_year' ] = $l_obj_irr->getIrrig_st_year();
                        $_SESSION[ 'Investment' ] = $l_obj_irr->getInvestment();
                        $_SESSION[ 'Operation_cost' ] = $l_obj_irr->getOperation_cost();
                        $_SESSION[ 'Maintenance_cost' ] = $l_obj_irr->getMaintenance_cost();
                        $_SESSION[ 'Covering_cost' ] = $l_obj_irr->getCovering_cost();
```

```
                    $_SESSION[ 'Status' ] = $l_obj_irr->getStatus();
                    //$_SESSION[ 'Status_Reason' ] = $l_obj_irr->getStatus_Reason();
                    $_SESSION[ 'Ownership' ] = $l_obj_irr->getOwnership();
        }

        if( "submit" == $_GET[ 'action' ] ){
                    $va=$_POST['forid'];


                        $l_obj_irrigation = new irrigation( $l_obj_db );


                        $l_obj_irrigation->deleteirrigation($va,$_SESSION[ 'Ownership' ]);
                        header( 'Location: DeleteSucessful.php' ) ;
                        exit();
        }
?>

        /*- - - -
```

```
        var $m_str_Irrigatin_system;
        var $m_str_Form_of_irrigation;
        var $m_str_Name_of_WSource;
        var $m_str_Scale;
        var $m_str_Reason;
        var $m_str_SettingofIrrig;
        var $m_str_Equipped_Area;
        var $m_str_Actual_irr_Area;
        var $m_str_Harvested_Area;
        var $m_str_Drained_Area_Irr;

        var $m_str_Act_W_use;
        var $m_str_Estimate_wReq;

                var $m_str_Salinized ;
                var $m_str_Waterlogged ;
                var $m_str_Eroded ;
                var $m_str_Floodedd ;

                var $m_str_Health_problem ;
                var $m_str_Funding_Agency ;
                var $m_str_Implementing_Agency ;
                var $m_str_Con_Big_Year;
                var $m_str_Con_End_Year;
                var $m_str_Irrig_st_year;
                var $m_str_Investment;
                var $m_str_Operation_cost;
                var $m_str_Maintenance_cost;
                var $m_str_Covering_cost;
        var $m_str_Status;
        var $m_str_Estimated_Wabs;
        var $m_str_Ownership;
        var $m_obj_dbs;

function irrigation( $dbs ){
                $this->m_obj_dbs = $dbs;
        }

function setSite_Name( $Site_Name ){
                $this->m_str_Site_Name = $Site_Name;
        }
        function getSite_Name(){
                return $this->m_str_Site_Name;
        }

        function setWater_Source( $Water_Source){
                $this->m_str_Water_Source = $Water_Source;
        }
        function getWater_Source(){
                return $this->m_str_Water_Source;
        }

        function setAbstraction( $Abstraction ){
                $this->m_str_Abstraction = $Abstraction;
        }
        function getAbstraction(){
                return $this->m_str_Abstraction;
        }
```

```
function setIrrigatin_system( $Irrigatin_system ){
        $this->m_str_Irrigatin_system = $Irrigatin_system;
}
function getIrrigatin_system(){
        return $this->m_str_Irrigatin_system;
}

function setForm_of_irrigation( $Form_of_irrigation ){
        $this->m_str_Form_of_irrigation = $Form_of_irrigation;
}
function getForm_of_irrigation(){
        return $this->m_str_Form_of_irrigation;
}

function setName_of_WSource( $Name_of_WSource ){
        $this->m_str_Name_of_WSource = $Name_of_WSource;
}
function getName_of_WSource(){
        return $this->m_str_Name_of_WSource;
}

function setReason( $Reason ){
        $this->m_str_Reason = $Reason;
}
function getReason(){
        return $this->m_str_Reason;
}

function setScale( $Scale ){
        $this->m_str_Scale = $Scale;
}
function getScale(){
        return $this->m_str_Scale;
}
function setSettingofIrrig( $SettingofIrrig ){
        $this->m_str_SettingofIrrig = $SettingofIrrig;
}
function getSettingofIrrig(){
        return $this->m_str_SettingofIrrig;
}


function setEquipped_Area( $Equipped_Area ){
        $this->m_str_Equipped_Area = $Equipped_Area;
}
function getEquipped_Area(){
        return $this->m_str_Equipped_Area;
}

function setActual_irr_Area( $Actual_irr_Area ){
        $this->m_str_Actual_irr_Area = $Actual_irr_Area;
}
function getActual_irr_Area(){
        return $this->m_str_Actual_irr_Area;
}

function setHarvested_area( $Harvested_area ){
```

```
        $this->m_str_Harvested_area = $Harvested_area;
}
function getHarvested_area(){
        return $this->m_str_Harvested_area;
}

function setDrained_Area_Irr( $Drained_Area_Irr ){
        $this->m_str_Drained_Area_Irr = $Drained_Area_Irr;
}
function getDrained_Area_Irr(){
        return $this->m_str_Drained_Area_Irr;
}


function setAct_W_use( $Act_W_use ){
        $this->m_str_Act_W_use = $Act_W_use;
}
function getAct_W_use(){
        return $this->m_str_Act_W_use;
}

function setEstimate_wReq( $Estimate_wReq ){
        $this->m_str_Estimate_wReq = $Estimate_wReq;
}
function getEstimate_wReq(){
        return $this->m_str_Estimate_wReq;
}

function setSalinized( $Salinized ){
        $this->m_str_Salinized = $Salinized;
}
function getSalinized(){
        return $this->m_str_Salinized;
}
function setWaterlogged( $Waterlogged ){
        $this->m_str_Waterlogged = $Waterlogged;
}
function getWaterlogged(){
        return $this->m_str_Waterlogged;
}

function setEroded( $Eroded ){
        $this->m_str_Eroded = $Eroded;
}
function getEroded(){
        return $this->m_str_Eroded;
}

function setFlooded( $Flooded ){
        $this->m_str_Flooded = $Flooded;
}
function getFlooded(){
        return $this->m_str_Flooded;
}

function setHealth_problem( $Health_problem ){
        $this->m_str_Health_problem = $Health_problem;
}
```

```
function getHealth_problem(){
	return $this->m_str_Health_problem;
}

function setFunding_Agency( $Funding_Agency ){
	$this->m_str_Funding_Agency = $Funding_Agency;
}
function getFunding_Agency(){
	return $this->m_str_Funding_Agency;
}

function setImplementing_Agency( $Implementing_Agency ){
	$this->m_str_Implementing_Agency = $Implementing_Agency;
}
function getImplementing_Agency(){
	return $this->m_str_Implementing_Agency;
}

function setCon_Big_Year( $Con_Big_Year ){
	$this->m_str_Con_Big_Year = $Con_Big_Year;
}
function getCon_Big_Year(){
	return $this->m_str_Con_Big_Year;
}

function setCon_End_Year( $Con_End_Year ){
	$this->m_str_Con_End_Year = $Con_End_Year;
}
function getCon_End_Year(){
	return $this->m_str_Con_End_Year;
}

function setIrrig_st_year( $Irrig_st_year ){
	$this->m_str_Irrig_st_year = $Irrig_st_year;
}
function getIrrig_st_year(){
	return $this->m_str_Irrig_st_year;
}

function setInvestment( $Investment ){
	$this->m_str_Investment = $Investment;
}
function getInvestment(){
	return $this->m_str_Investment;
}

function setOperation_cost( $Operation_cost ){
	$this->m_str_Operation_cost = $Operation_cost;
}
function getOperation_cost(){
	return $this->m_str_Operation_cost;
}

function setMaintenance_cost( $Maintenance_cost ){
	$this->m_str_Maintenance_cost = $Maintenance_cost;
}
function getMaintenance_cost(){
	return $this->m_str_Maintenance_cost;
```

```
	}

	function setCovering_cost( $Covering_cost){
		$this->m_str_Covering_cost = $Covering_cost;
	}
	function getCovering_cost(){
		return $this->m_str_Covering_cost;
	}

	function setStatus( $Status ){
		$this->m_str_Status = $Status;
	}
	function getStatus(){
		return $this->m_str_Status;
	}
	function setEstimated_Wabs( $Estimated_Wabs ){
		$this->m_str_Estimated_Wabs = $Estimated_Wabs;
	}
	function getEstimated_Wabs(){
		return $this->m_str_Estimated_Wabs;
	}
	function setOwnership( $Ownership){
		$this->m_str_Ownership = $Ownership;
	}
	function getOwnership(){
		return $this->m_str_Ownership;
	}


	function setVariables( $v_int_Irrig_ro_no ){
		$l_res_irrigation = $this->m_obj_dbs->query( "SELECT * FROM Irrigation WHERE Irrig_ro_no =
$v_int_Irrig_ro_no" );
		$l_arr_irrigation = $this->m_obj_dbs->fetch_array( $l_res_irrigation );
		if(@mysql_num_rows($l_res_irrigation) > 0){
				$this->m_str_Site_Name = $l_arr_irrigation[ 'Site_Name' ];
				$this->m_str_Water_Source = $l_arr_irrigation[ 'Water_Source' ];
				$this->m_str_Abstraction = $l_arr_irrigation[ 'Abstraction' ];
				$this->m_str_Irrigatin_system = $l_arr_irrigation[ 'Irrigatin_system' ];
				$this->m_str_Form_of_irrigation = $l_arr_irrigation[ 'Form_of_irrigation' ];
				$this->m_str_Name_of_WSource = $l_arr_irrigation[ 'Name_of_WSource' ];
				$this->m_str_Scale = $l_arr_irrigation[ 'Scale' ];
				$this->m_str_Reason = $l_arr_irrigation[ 'Reason' ];
				$this->m_str_Estimated_Wabs = $l_arr_irrigation[ 'Estimated_Wabs' ];

				$this->m_str_SettingofIrrig = $l_arr_irrigation[ 'SettingofIrrig' ];
				$this->m_str_Equipped_Area = $l_arr_irrigation[ 'Equipped_Area' ];
				$this->m_str_Actual_irr_Area = $l_arr_irrigation[ 'Actual_irr_Area' ];
				$this->m_str_Harvested_area = $l_arr_irrigation[ 'Harvested_area' ];
				$this->m_str_Drained_Area_Irr = $l_arr_irrigation[ 'Drained_Area_Irr' ];

				$this->m_str_Act_W_use = $l_arr_irrigation[ 'Act_W_use' ];
				$this->m_str_Estimate_wReq = $l_arr_irrigation[ 'Estimate_wReq'];

				$this->m_str_Salinized = $l_arr_irrigation[ 'Salinized' ];
				$this->m_str_Waterlogged = $l_arr_irrigation[ 'Waterlogged' ];
				$this->m_str_Eroded = $l_arr_irrigation[ 'Eroded' ];
				$this->m_str_Flooded = $l_arr_irrigation[ 'Flooded' ];
```

```
                                $this->m_str_Health_problem = $l_arr_irrigation[ 'Health_problem' ];

                                $this->m_str_Funding_Agency = $l_arr_irrigation[ 'Funding_Agency' ];
                                $this->m_str_Implementing_Agency = $l_arr_irrigation[ 'Implementing_Agency' ];
                                $this->m_str_Con_Big_Year = $l_arr_irrigation[ 'Con_Big_Year' ];
                                $this->m_str_Con_End_Year = $l_arr_irrigation[ 'Con_End_Year' ];
                                $this->m_str_Irrig_st_year = $l_arr_irrigation[ 'Irrig_st_year' ];
                                $this->m_str_Investment = $l_arr_irrigation[ 'Investment' ];
                                $this->m_str_Operation_cost = $l_arr_irrigation[ 'Operation_cost' ];
                                $this->m_str_Maintenance_cost = $l_arr_irrigation[ 'Maintenance_cost' ];
                                $this->m_str_Covering_cost = $l_arr_irrigation[ 'Covering_cost'];

                                $this->m_str_Status = $l_arr_irrigation[ 'Status'];
                                //$this->m_str_Status_Reason = $l_arr_irrigation[ 'Status_Reason'];
                                $this->m_str_Ownership = $l_arr_irrigation[ 'Ownership'];
                }
                else{
                  return 1;
                  }
        }


function addirrigation(){
$t_str_sql = "INSERT INTO irrigation(Site_Name, Water_Source, Abstraction, Irrigatin_system, Form_of_irrigation, Scale,
Name_of_WSource, Reason, SettingofIrrig, Equipped_Area, Actual_irr_Area, Harvested_area, Drained_Area_Irr,  Act_W_use,
Estimate_wReq, Salinized , Waterlogged , Eroded, Flooded, Health_problem, Funding_Agency ,Implementing_Agency ,
Con_Big_Year,    Con_End_Year, Irrig_st_year, Investment, Operation_cost, Maintenance_cost, Covering_cost, Status,
Estimated_Wabs, Ownership)

VALUES('{$this->m_str_Site_Name}', '{$this->m_str_Water_Source}', '{$this->m_str_Abstraction}', '{$this-
>m_str_Irrigatin_system}', '{$this->m_str_Form_of_irrigation}', '{$this->m_str_Scale}', '{$this->m_str_Name_of_WSource}',
'{$this->m_str_Reason}', '{$this->m_str_SettingofIrrig}', '{$this->m_str_Equipped_Area}', '{$this->m_str_Actual_irr_Area}', '{$this-
>m_str_Harvested_area}', '{$this->m_str_Drained_Area_Irr}',  '{$this->m_str_Act_W_use}', '{$this->m_str_Estimate_wReq}',
'{$this->m_str_Salinized}' , '{$this->m_str_Waterlogged}' ,'{$this->m_str_Eroded}' , '{$this->m_str_Flooded}' ,'{$this-
>m_str_Health_problem}' ,'{$this->m_str_Funding_Agency}','{$this->m_str_Implementing_Agency}' , '{$this-
>m_str_Con_Big_Year}',  '{$this->m_str_Con_End_Year}', '{$this->m_str_Irrig_st_year}', '{$this->m_str_Investment}', '{$this-
>m_str_Operation_cost}', '{$this->m_str_Maintenance_cost}', '{$this->m_str_Covering_cost}','{$this->m_str_Status}', '{$this-
>m_str_Estimated_Wabs}','{$this->m_str_Ownership}' )";
                return $this->m_obj_dbs->query( $t_str_sql );
        }

function deleteirrigation( $v_int_Irrig_ro_no,$m_owners_fordele ){
        $this->m_obj_dbs->query( "DELETE FROM irrigation WHERE Irrig_ro_no = $v_int_Irrig_ro_no" );
        if($m_owners_fordele == Community){
                        if($this->m_obj_dbs->query( "DELETE FROM socioeconomics WHERE Irrig_ro_no =
$v_int_Irrig_ro_no" )){
                                return $this->m_obj_dbs->query( "DELETE FROM agro_loca WHERE Irrig_ro_no =
$v_int_Irrig_ro_no" );
                        }
                        else
                          echo "Record deleting error !!";

        }
        else{
                        return $this->m_obj_dbs->query( "DELETE FROM agro_loca WHERE Irrig_ro_no = $v_int_Irrig_ro_no"
);
        }
```

```
	}

function updateirrigation( $v_int_Irrig_ro_no ){
		$t_str_sql = "UPDATE Irrigation SET Site_Name='{$this->m_str_Site_Name}',Water_Source='{$this-
>m_str_Water_Source}',Abstraction='{$this->m_str_Abstraction}',
		Irrigatin_system='{$this->m_str_Irrigatin_system}',Form_of_irrigation='{$this-
>m_str_Form_of_irrigation}',Name_of_WSource='{$this->m_str_Name_of_WSource}',
		Reason='{$this->m_str_Reason}',Scale='{$this->m_str_Scale}',SettingofIrrig='{$this-
>m_str_SettingofIrrig}',Equipped_Area='{$this->m_str_Equipped_Area}',
		Actual_irr_Area='{$this->m_str_Actual_irr_Area}',Harvested_Area='{$this-
>m_str_Harvested_Area}',Drained_Area_irr='{$this->m_str_Drained_Area_Irr}',
		Act_W_use='{$this->m_str_Act_W_use}',Estimate_wReq='{$this-
>m_str_Estimate_wReq}',Estimated_Wabs='{$this->m_str_Estimated_Wabs}',

		Salinized='{$this->m_str_Salinized}' ,Waterlogged='{$this->m_str_Waterlogged}' , Eroded='{$this-
>m_str_Eroded}' ,Flooded='{$this->m_str_Flooded}',
		Health_problem='{$this->m_str_Health_problem}', Funding_Agency='{$this-
>m_str_Funding_Agency}',Implementing_Agency='{$this->m_str_Implementing_Agency}',
		Con_Big_Year='{$this->m_str_Con_Big_Year}', Con_End_Year='{$this->m_str_Con_End_Year}',
Irrig_st_year='{$this->m_str_Irrig_st_year}',
		Investment='{$this->m_str_Investment}', Operation_cost='{$this->m_str_Operation_cost}',
Maintenance_cost='{$this->m_str_Maintenance_cost}',
		Covering_cost='{$this->m_str_Covering_cost}', Status='{$this->m_str_Status}' ,
		Ownership='{$this->m_str_Ownership}' WHERE Irrig_ro_no=$v_int_Irrig_ro_no";
		return $this->m_obj_dbs->query( $t_str_sql );
	}

	function disableirrigation( $v_int_Irrig_Ro_no ){
		$this->m_obj_dbs->query( "UPDATE irrigation SET display = 0 WHERE id = $v_int_Irrig_Ro_no" );
	}

	function enableirrigation( $v_int_Irrig_Ro_no ){
		$this->m_obj_dbs->query( "UPDATE irrigation SET display = 1 WHERE id = $v_int_Irrig_Ro_no" );
	}

	function getirrigationToShow(){
		return $this->m_obj_dbs->query( "SELECT id, Site_Name, Water_source, Abstraction, Irrigatin_system,
Form_of_irrigation, Name_of_WSource, Reason, SettingofIrrig, Equipped_area, Actual_irr_area, Harvested_area, Drained_Area_irr,
Drained_Area_non_irr, Act_W_us, Estimate_wReq, Salinized , Waterlogged , Eroded , Flooded ,Health_problem, Funding_Agency ,
Implementing_Agency , Con_Big_Year,	Con_End_Year, Irrig_st_year, Investment, Operation_cost, Maintenance_cost,
Covering_cost, Status, Estimated_Wabs, Ownership FROM irrigation " );
	}

//-----------------------------------------------------------------------------------------------

}
?>
```

7.1.3 Output page

7.1.3.1 Criteria selection page

- **For cropping pattern output page**

```
<?PHP
	include "../Classes/clscropping.php";
	include "../Classes/clsImproved.php";
```

```
include "../Classes/clsDb.php";
include "Special/init.inc.php";

$titre_html = "AWMISET - Cropping pattern";
$l_str_btn_label = "Show";
$l_str_message = "<br />";

if( "submit" == $_GET[ 'action' ] ){
        if( $_POST[ 'Data_Year' ] <> "" ) {

                $l_str_sql = " SELECT * FROM cropping WHERE cropping.Data_Year = '{$_POST[ 'Data_Year' ]}' ";
                $l_res_year = $l_obj_db->query( $l_str_sql );
                if( $l_obj_db->num_rows( $l_res_year ) > 0 ){
                        //$_SESSION[ 'logged_in' ] = TRUE;
                        $_SESSION[ 'Data_Year' ] = $_POST[ 'Data_Year' ];

                $selected_radio = $_POST['RadioGroup1'];

                if ($selected_radio == 'Country') {

                        header( 'Location: cropping_Country.php' ) ;
                        exit();
                        }
                else if ($selected_radio == 'River_Basin') {
                                        if( $_POST[ 'River_basin' ] <> "" ) {
                                                $l_str_sql = " SELECT * FROM cropping WHERE
cropping.River_basin = '{$_POST[ 'River_basin' ]}' and cropping.Data_Year = '{$_POST[ 'Data_Year' ]}' ";
                                                $l_res_river = $l_obj_db->query( $l_str_sql );
                                                if( $l_obj_db->num_rows( $l_res_river ) > 0 ){
                                                        //$_SESSION[ 'logged_in' ] = TRUE;
                                                $_SESSION[ 'River_basin' ] = $_POST[ 'River_basin' ];

                                                header( 'Location: cropping_river.php' ) ;
                                                exit();

                                                }else{
                                                $l_str_message1 = "Record for the selected River basin Does't exist in
the database";

                                                }
                                                }else{
                                        $l_str_message1 = "Please select a River basin . .";
                                        }

                        }


                else if ($selected_radio == 'Region') {
                                        if( $_POST[ 'Region' ] <> "" ) {
                                                $l_str_sql = " SELECT * FROM cropping WHERE cropping.Region =
'{$_POST[ 'Region' ]}' and cropping.Data_Year = '{$_POST[ 'Data_Year' ]}'";
                                                $l_res_Region = $l_obj_db->query( $l_str_sql );
                                                if( $l_obj_db->num_rows( $l_res_Region ) > 0 ){
                                                        //$_SESSION[ 'logged_in' ] = TRUE;
                                                $_SESSION[ 'Region' ] = $_POST[ 'Region' ];

                                                header( 'Location: cropping_Region.php' ) ;
                                                exit();
```

```
                                                        }else{
                                                        $l_str_message1 = "Record for the selected Region record Does't exist
in the database";
                                                        }
                                                        }else{
                                                $l_str_message1 = "Please select a Region . .";
                                                }

                                        }



                                }else{
                                        $l_str_message = "Record for the selected Year Does't exist in the database";
                                }
                        }else{
                                $l_str_message = " Please select a year. . ";
                        }
                }
?>
<html>
<head>
<title>AWMISET - cropping</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
<BGSOUND SRC="audio/13.mp3" LOOP="-1">
<style type="text/css">
<!--
.text {
        font-family: Arial, Helvetica, sans-serif;
        font-size: 12px;
        font-style: normal;
        font-weight: normal;
        color: #000000;
}
a:link {
        color: #003366;
        text-decoration: none;
}
a:hover {
        text-decoration: underline;
        color: #003366;
}
a:visited {
        color: #003366;
        text-decoration: none;
}
a:visited:hover {
        color: #003366;
        text-decoration: underline;
}
.titre {
        font-family: Arial, Helvetica, sans-serif;
        font-size: 14px;
        font-style: normal;
        font-weight: bold;
        text-decoration: underline;
        color: #000000;
}
```

```
.style2 {font-size: 10}
.style7 {font-size: 14px; font-style: italic; }
.style8 {font-size: 16px}
.style9 {font-family: Arial, Helvetica, sans-serif; font-size: 12px; font-style: normal; font-weight: bold; color: #000000; }
-->
</style>
<script type="text/JavaScript">
<!--
function MM_swapImgRestore() { //v3.0
  var i,x,a=document.MM_sr; for(i=0;a&&i<a.length&&(x=a[i])&&x.oSrc;i++) x.src=x.oSrc;
}

function MM_preloadImages() { //v3.0
  var d=document; if(d.images){ if(!d.MM_p) d.MM_p=new Array();
    var i,j=d.MM_p.length,a=MM_preloadImages.arguments; for(i=0; i<a.length; i++)
    if (a[i].indexOf("#")!=0){ d.MM_p[j]=new Image; d.MM_p[j++].src=a[i];}}
}

function MM_findObj(n, d) { //v4.01
  var p,i,x;  if(!d) d=document; if((p=n.indexOf("?"))>0&&parent.frames.length) {
    d=parent.frames[n.substring(p+1)].document; n=n.substring(0,p);}
  if(!(x=d[n])&&d.all) x=d.all[n]; for (i=0;!x&&i<d.forms.length;i++) x=d.forms[i][n];
  for(i=0;!x&&d.layers&&i<d.layers.length;i++) x=MM_findObj(n,d.layers[i].document);
  if(!x && d.getElementById) x=d.getElementById(n); return x;
}

function MM_swapImage() { //v3.0
  var i,j=0,x,a=MM_swapImage.arguments; document.MM_sr=new Array; for(i=0;i<(a.length-2);i+=3)
   if ((x=MM_findObj(a[i]))!=null){document.MM_sr[j++]=x; if(!x.oSrc) x.oSrc=x.src; x.src=a[i+2];}
}
//-->
</script>
</head>
<body bgcolor="#FFFFFF" leftmargin="0" topmargin="0" marginwidth="0" marginheight="0"
onLoad="MM_preloadImages('../images/Fao-Active_05.gif','../images/Fao-Active_06.gif','../images/Fao-
Active_07.gif','../images/Fao-Active_09.gif','../images/Fao-Active_10.gif')">
<!-- ImageReady Slices (Fao.psd) -->
<table width="768" height="715" border="0" align="center" cellpadding="0" cellspacing="0" id="Table_01">
        <tr>
                <td colspan="13"><img src="../images/fao_02.jpg" width="806" height="157" alt=""></td>
  </tr>
        <tr>

   <td colspan="3"><img src="../images/Fao_04.jpg" name="Image25" width="147" height="35" border="0"></td>
        <td colspan ="1"><a href="../Index.php" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image24','','../images/Fao-Active_05.jpg',1)"><img src="../images/Fao_05.jpg" name="Image24"
width="148" height="35" border="0"></a></td>
        <td colspan ="3"><a href="Water_resource.html" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image26','','../images/Fao-Active_06.jpg',1)"><img src="../images/Fao_06.jpg" name="Image26"
width="129" height="35" border="0"></a><a href="Profiles.php" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image27','','../images/Fao-Active_07.jpg',1)"><img src="../images/Fao_07.jpg" name="Image27"
width="127" height="35" border="0"></a></td>
        <td colspan ="2"><a href="Agri_Water.html" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image28','','../images/Fao-Active_08.jpg',1)"><img src="../images/Fao_08.jpg" name="Image28"
width="132" height="35" border="0"></a></td>
        <td colspan ="4"><a href="Map.html" onMouseOut="MM_swapImgRestore()"
onMouseOver="MM_swapImage('Image29','','../images/Fao-Active_10.jpg',1)"><img src="../images/Fao_10.jpg" name="Image29"
width="123" height="35" border="0"></a></td>
```

```
          </tr>
          <tr>
                    <td width="8" height="579" background="../images/Fao_12.gif">
                              <img src="../images/Fao_12.jpg" width="6" height="669" alt=""></td>

   <td colspan="11" valign="top">
    <table width="792" border="0" cellpadding="0" cellspacing="10">
       <tr valign="top">
        <td width="181" height="627"><table width="170" height="85" border="0" cellpadding="0" cellspacing="0"
bordercolor="#8784C6" bgcolor="#E9E9F8">
            <tr valign="top">
             <td bordercolor="#5555ff" bgcolor="faf8c0"><table width="181" bgcolor="#f6f38f" cellpadding="0" cellspacing="0"
bordercolor="#5555ff" border="1">
                <tr valign="top">
                  <td width="177" bordercolor="#5555ff">Contact Info </td>
                </tr>
               </table>
                <table width="181" height="63" border="1" cellpadding="0" cellspacing="0" bordercolor="#5555ff">
                  <tr valign="top">
                    <td width="176" bordercolor="faf8c0" bgcolor="faf8c0"><p> <a href="Links.html" class="primary">Related
Links</a><br>
                      <a href="Com.php" class="primary">Comments</a><br>
                                 <a href="mailto:yibeltal.tiruneh@fao.org, ytiruneh@yahoo.com" class="Primary">Contacts</a><br>
</p></td>  </tr>
               </table></td>
            </tr>
          </table><br/>
                              <table width="174" border="0" cellpadding="0" cellspacing="0" bordercolor="#8784C6"
bgcolor="#E9E9F8">
             <tr valign="top">
                                        <td width="174" bordercolor="#5555ff" bgcolor="faf8c0"><table width="181"
bgcolor="#f6f38f" cellpadding="0" cellspacing="0" bordercolor="#5555ff" border="1">
                  <tr valign="top">

                <td width="177" align="center" bordercolor="#5555ff">Agricultural Water</td>
                  </tr>
                </table>
                  <table width="180" border="1" cellpadding="0" cellspacing="0" bordercolor="#5555ff">
                    <tr valign="top">
                         <td width="176" align="center" bordercolor="faf8c0" bgcolor="faf8c0"><p align="left">
                                                                  <a href="Irrigated.Php" class="primary">Irrigation</a><br>
                         <a href="Livestock.php" class="primary">Livestock</a>
                                                                  <a href="cropping.php" class="primary"></a><br>
                        Cropping Pattern<br>
                         <a href="swc.Php" class="primary">Soil and Water Conservation</a><br>
                         <a href="Profiles.php" class="primary">Profile</a><br>

                      </p></td>
                    </tr>
                </table>                    </td>
                        </table>         </td>
         <td width="581"><table width="100%" height="540" border="1" cellpadding="5" cellspacing="0" bordercolor="faf8c0"
bgcolor="faf8c0">
             <tr valign="top" bordercolor="#E9E9F8" bgcolor="faf8c0">
            <tr valign="top" bordercolor="#E9E9F8" bgcolor="faf8c0">
             <td height="625" valign="top" bordercolor="5555ff" bgcolor="faf8c0"><div align="left" class="text">
               <div class="style9">Cropping Pattern </div>
                                        <div class="message" style="color:#FF0000"><?php echo $l_str_message; ?>  <?php
```

```
echo $l_str_message1; ?></div>
                <form action="<?php echo $_SERVER[ 'PHP_SELF' ] . "?action=submit"; ?>" method="post" style="border: 1px solid
#CCCC99; float:left;" enctype="multipart/form-data"   >
                  <table width="505" border="0" cellpadding="4" cellspacing="2">
                    <tr class="table_header">
                      <td colspan="4"><strong>Cropping pattern</strong></td>
                    </tr>
                    <tr>
                      <td colspan="4"></td>
                    </tr>
                    <tr>
                      <td></td>
                      <td align="right" valign="top" class="style2"><span class="style7">Select Year</span></td>
                      <td><select name="Data_Year" class="header" id="select" value="<?php echo $_SESSION[ 'Data_Year' ]; ?>">
                          <option value="" selected>Select one . . .</option>

                          <option value="2005">2005</option>
                          <option value="2006">2006</option>
                          <option value="2007">2007</option>
                          <option value="2008">2008</option>
                          <option value="2009">2009</option>
                          <option value="2010">2010</option>
                          <option value="2011">2011</option>
                          <option value="2012">2012</option>
                          <option value="2013">2013</option>
                          <option value="2014">2014</option>
                          <option value="2015">2015</option>
                          <option value="2016">2016</option>
                          <option value="2017">2017</option>
                          <option value="2018">2018</option>
                          <option value="2019">2019</option>
                          <option value="2020">2020</option>
                      </select></td>
                      <td align="left"></td>
                    </tr>
                    <tr>
                      <td height="130"></td>
                      <td width="117" align="right" valign="top" class="style7"> </td>
                      <td width="346"><p>
                        <label>
                          <input type="radio" name="RadioGroup1" value="Country">
                          <span class="style2"><span class="style8">Country level</span></span></label>
                        </br>
                        <label><br>
                        <input type="radio" name="RadioGroup1" value="River_Basin">
                        <span class="style2"><span class="style8">River Basin </span></span></label>
                        <span class="style2">
                        <select name="River_basin" class="header" id="select2" value="<?php echo $_SESSION[ 'River_basin' ]; ?>">
                          <option value="" selected>Select one . . .</option>
                          <option value="Wabishebelle">Wabishebelle</option>
                          <option value="Abbay">Abbay</option>
                          <option value="Genale Dawa">Genale Dawa</option>
                          <option value="Awash">Awash </option>
                          <option value="Tekeze">Tekeze</option>
                          <option value="Denakil">Denakil</option>
                          <option value="Ogaden">Ogaden</option>
                          <option value="Omo-Ghibe">Omo-Ghibe</option>
                          <option value="Baro-Akobo">Baro-Akobo</option>
```

```
                    <option value="Rift Valley Lakes">Rift Valley Lakes</option>
                    <option value="Mereb">Mereb</option>
                    <option value="Aysha">Aysha</option>
                  </select>
                  </span></p>
                  <p>
                <label>
                      <input type="radio" name="RadioGroup1" value="Region">
                      <span class="style2"><span class="style8">National Regional State </span></span></label>
                    <select name="Region" class="header" id="select3" value="<?php echo $_SESSION[ 'Region' ]; ?>">
                      <option value="" selected>Select one . . .</option>
                      <option value="Amhara">Amhara</option>
                      <option value="Tigray">Tigray</option>
                      <option value="Afar">Afar</option>
                      <option value="Bebshangul">Bebshangul </option>
                      <option value="Gambela">Gambela</option>
                      <option value="Somali">Somali</option>
                      <option value="Oromya">Oromya</option>
                      <option value="Harari">Harari</option>
                      <option value="South PP">South PP</option>
                      <option value="Addis Ababa">Addis Ababa</option>
                      <option value="Dire Dawa">Dire Dawa</option>
                    </select>
                    <br>
                  </p>
                <p class="style2"></td>
                <td align="left"></td>
              </tr>
              <tr>
                <td></td>
                <td class="style7"></td>
                <td><input name="submit" type="submit" class="text" style="width: 65px;" value="<?php echo $l_str_btn_label;
?>" />
                   
                  <input name="reset" type="reset" class="btn" style="width: 65px;" value="Reset"/></td>
                <td></td>
              </tr>
              <tr>
                <td colspan="4"></td>
              </tr>
            </table>
          </form>
        </div>
        </p>
      </div>

</td>
      </tr>
     </table>          </td>
    </tr>
  </table>
        <div align="center">Copyright &copy; Ethiopian MoWR. All Rights Reserved.     </div></td>

  <td width="5"><img src="../images/Fao_14.jpg" width="5" height="670" alt=""></td>


  <td width="4" background="../images/Fao_14.gif">  </td>
      </tr>
```

```
        <tr>
                <td colspan="2">
                        <img src="../images/Fao_15.jpg" width="25" height="19" alt=""></td>
                <td colspan="9">
                        <img src="../images/Fao_16.jpg" width="756" height="19" alt=""></td>
                <td colspan="2">
                        <img src="../images/Fao_17.jpg" width="24" height="19" alt=""></td>
        </tr>
        <tr>
                <td height="2">
                        <img src="../images/spacer.gif" width="5" height="1" alt=""></td>
                <td width="17">
                        <img src="../images/spacer.gif" width="16" height="1" alt=""></td>
                <td width="122">
                        <img src="../images/spacer.gif" width="114" height="1" alt=""></td>
                <td width="148">
                        <img src="../images/spacer.gif" width="143" height="1" alt=""></td>
                <td width="76">
                        <img src="../images/spacer.gif" width="73" height="1" alt=""></td>
                <td width="92">
                        <img src="../images/spacer.gif" width="88" height="1" alt=""></td>
                <td width="88">
                        <img src="../images/spacer.gif" width="85" height="1" alt=""></td>
                <td width="62">
                        <img src="../images/spacer.gif" width="57" height="1" alt=""></td>
                <td width="70">
                        <img src="../images/spacer.gif" width="65" height="1" alt=""></td>
                <td width="8">
                        <img src="../images/spacer.gif" width="7" height="1" alt=""></td>
                <td width="90">
                        <img src="../images/spacer.gif" width="75" height="1" alt=""></td>
                <td width="20">
                        <img src="../images/spacer.gif" width="17" height="1" alt=""></td>
                <td>
                        <img src="../images/spacer.gif" width="5" height="1" alt=""></td>
        </tr>
</table>
<!-- End ImageReady Slices -->
</body>
</html>
```

7.1.3.2 Output page

- **Cropping pattern some code that returns a calculated result**

```
<td>
        <?php
        $l_str_sql = " SELECT cropping.River_basin, cropping.Region, cropping.Data_Year, SUM( cropping.Planted_area) AS
        total_planted
                FROM cropping
        WHERE cropping.Data_Year = '{$_SESSION[ 'Data_Year' ]}'  and cropping.Crop_Type = 'Wheat' and
        cropping.River_basin = '{$_SESSION[ 'River_basin' ]}'
        GROUP BY Crop_Type";

        $l_res_row = $l_obj_db->query( $l_str_sql );

        while( ($l_arr_row = $l_obj_db->fetch_array( $l_res_row ))  ){

        echo round( $l_arr_row[ 'total_planted' ] , 0);
```

```
}

?>
 </td>

<td align="right" valign="bottom" nowrap="nowrap" class="text"><?php

                                                $l_str_sql = " SELECT cropping.River_basin, cropping.Region,
cropping.Data_Year, SUM( cropping.Planted_area) AS total_planted
                                                FROM cropping
                                                WHERE cropping.Data_Year = '{$_SESSION[ 'Data_Year' ]}'  and
cropping.Crop_Type = 'Wheat' and cropping.River_basin = '{$_SESSION[ 'River_basin' ]}' and cropping.Planting_month =
'January'
                                                GROUP BY Crop_Type";

                                                $l_str_sql1 = " SELECT agro_loca.River_basin, agro_loca.Data_Year,
SUM( irrigation.Actual_irr_Area ) AS total_ir_area
                                                FROM agro_loca INNER JOIN irrigation ON agro_loca.irrig_ro_no =
irrigation.irrig_ro_no
                                                        WHERE agro_loca.Data_Year = '{$_SESSION[ 'Data_Year'
]}'  and agro_loca.River_basin = '{$_SESSION[ 'River_basin' ]}'
                                                        GROUP BY Data_Year";

                                                $l_res_row = $l_obj_db->query( $l_str_sql );
                                                $l_res_row1 = $l_obj_db->query( $l_str_sql1 );


                        while( ($l_arr_row = $l_obj_db->fetch_array( $l_res_row )) && ($l_arr_row1 = $l_obj_db->fetch_array(
$l_res_row1 )) ){

                                                        echo round( ($l_arr_row[ 'total_planted' ] / $l_arr_row1[
'total_ir_area' ])*100 , 1);

                                                }

                                        ?>
</td>

 <td align="right" valign="bottom" nowrap="nowrap" class="text"><?php

                                                $l_str_sql = " SELECT cropping.River_basin, cropping.Region,
cropping.Data_Year, SUM( cropping.Planted_area) AS total_planted
                                                FROM cropping
                                                WHERE cropping.Data_Year = '{$_SESSION[ 'Data_Year' ]}'  and
cropping.Crop_Type = 'Wheat' and cropping.River_basin = '{$_SESSION[ 'River_basin' ]}' and (cropping.Planting_month =
'January' or cropping.Planting_month = 'February')
                                                GROUP BY Crop_Type";

                                                $l_str_sql1 = " SELECT agro_loca.River_basin, agro_loca.Data_Year,
SUM( irrigation.Actual_irr_Area ) AS total_ir_area
                                                FROM agro_loca INNER JOIN irrigation ON agro_loca.irrig_ro_no =
irrigation.irrig_ro_no
                                                        WHERE agro_loca.Data_Year = '{$_SESSION[ 'Data_Year'
]}'  and agro_loca.River_basin = '{$_SESSION[ 'River_basin' ]}'
                                                        GROUP BY Data_Year";

                                                $l_res_row = $l_obj_db->query( $l_str_sql );
                                                $l_res_row1 = $l_obj_db->query( $l_str_sql1 );
```

```
                    while( ($l_arr_row = $l_obj_db->fetch_array( $l_res_row )) && ($l_arr_row1 = $l_obj_db->fetch_array( $l_res_row1 )) ){

                                                echo round( ($l_arr_row[ 'total_planted' ] / $l_arr_row1[ 'total_ir_area' ])*100 , 1);

                                        }

                                ?>
</td>

 <td align="right" valign="bottom" nowrap="nowrap" class="text"><?php

                                        $l_str_sql = " SELECT cropping.River_basin, cropping.Region, cropping.Data_Year, SUM( cropping.Planted_area) AS total_planted
                                        FROM cropping
                                        WHERE cropping.Data_Year = '{$_SESSION[ 'Data_Year' ]}'  and cropping.Crop_Type = 'Wheat' and cropping.River_basin = '{$_SESSION[ 'River_basin' ]}' and (cropping.Planting_month = 'January' or cropping.Planting_month = 'February' or cropping.Planting_month = 'March')

                                        GROUP BY Crop_Type";

                                        $l_str_sql1 = " SELECT agro_loca.River_basin, agro_loca.Data_Year, SUM( irrigation.Actual_irr_Area ) AS total_ir_area
                                        FROM agro_loca INNER JOIN irrigation ON agro_loca.irrig_ro_no = irrigation.irrig_ro_no
                                                WHERE agro_loca.Data_Year = '{$_SESSION[ 'Data_Year' ]}'  and agro_loca.River_basin = '{$_SESSION[ 'River_basin' ]}'
                                                GROUP BY Data_Year";

                                        $l_res_row = $l_obj_db->query( $l_str_sql );
                                        $l_res_row1 = $l_obj_db->query( $l_str_sql1 );


                    while( ($l_arr_row = $l_obj_db->fetch_array( $l_res_row )) && ($l_arr_row1 = $l_obj_db->fetch_array( $l_res_row1 )) ){

                                                echo round( ($l_arr_row[ 'total_planted' ] / $l_arr_row1[ 'total_ir_area' ])*100 , 1);

                                        }

                                ?>
</td>

 <td align="right" valign="bottom" nowrap="nowrap" class="text"><?php

                                        $l_str_sql = " SELECT cropping.River_basin, cropping.Region, cropping.Data_Year, SUM( cropping.Planted_area) AS total_planted
                                        FROM cropping
                                        WHERE cropping.Data_Year = '{$_SESSION[ 'Data_Year' ]}'  and cropping.Crop_Type = 'Wheat' and cropping.River_basin = '{$_SESSION[ 'River_basin' ]}' and ((cropping.Planting_month = 'January' and(cropping.Harvesting_month = 'April' or cropping.Harvesting_month = 'May' or cropping.Harvesting_month = 'June')) or cropping.Planting_month = 'February' or cropping.Planting_month = 'March' or cropping.Planting_month = 'April' )
                                        GROUP BY Crop_Type";
```

```
                                                $l_str_sql1 = " SELECT agro_loca.River_basin, agro_loca.Data_Year,
SUM( irrigation.Actual_irr_Area ) AS total_ir_area
                                                FROM agro_loca INNER JOIN irrigation ON agro_loca.irrig_ro_no =
irrigation.irrig_ro_no
                                                        WHERE agro_loca.Data_Year = '{$_SESSION[ 'Data_Year'
]}'  and agro_loca.River_basin = '{$_SESSION[ 'River_basin' ]}'
                                                        GROUP BY Data_Year";

                                                $l_res_row = $l_obj_db->query( $l_str_sql );
                                                $l_res_row1 = $l_obj_db->query( $l_str_sql1 );


                    while( ($l_arr_row = $l_obj_db->fetch_array( $l_res_row )) && ($l_arr_row1 = $l_obj_db->fetch_array(
$l_res_row1 )) ){

                                                        echo round( ($l_arr_row[ 'total_planted' ] / $l_arr_row1[
'total_ir_area' ])*100 , 1);

                                                }

                                        ?>
</td>

<td align="right" valign="bottom" nowrap="nowrap" class="text"><?php

                                                $l_str_sql = " SELECT cropping.River_basin, cropping.Region,
cropping.Data_Year, SUM( cropping.Planted_area) AS total_planted
                                                FROM cropping
                                                WHERE cropping.Data_Year = '{$_SESSION[ 'Data_Year' ]}'  and
cropping.Crop_Type = 'Wheat' and cropping.River_basin = '{$_SESSION[ 'River_basin' ]}' and ((cropping.Planting_month =
'January' and(cropping.Harvesting_month = 'May' or cropping.Harvesting_month = 'June')) or (cropping.Planting_month =
'February' and(cropping.Harvesting_month = 'May' or cropping.Harvesting_month = 'June' or cropping.Harvesting_month =
'July')) or cropping.Planting_month = 'March' or cropping.Planting_month = 'April' or cropping.Planting_month = 'May' )

                                                GROUP BY Crop_Type";

                                                $l_str_sql1 = " SELECT agro_loca.River_basin, agro_loca.Data_Year,
SUM( irrigation.Actual_irr_Area ) AS total_ir_area
                                                FROM agro_loca INNER JOIN irrigation ON agro_loca.irrig_ro_no =
irrigation.irrig_ro_no
                                                        WHERE agro_loca.Data_Year = '{$_SESSION[ 'Data_Year'
]}'  and agro_loca.River_basin = '{$_SESSION[ 'River_basin' ]}'
                                                        GROUP BY Data_Year";

                                                $l_res_row = $l_obj_db->query( $l_str_sql );
                                                $l_res_row1 = $l_obj_db->query( $l_str_sql1 );


                    while( ($l_arr_row = $l_obj_db->fetch_array( $l_res_row )) && ($l_arr_row1 = $l_obj_db->fetch_array(
$l_res_row1 )) ){

                                                        echo round( ($l_arr_row[ 'total_planted' ] / $l_arr_row1[
'total_ir_area' ])*100 , 1);

                                                }

                                        ?>
```

```
</td>

<td align="right" valign="bottom" nowrap="nowrap" class="text"><?php

                                                $l_str_sql = " SELECT cropping.River_basin, cropping.Region,
cropping.Data_Year, SUM( cropping.Planted_area) AS total_planted
                                                FROM cropping
                                                WHERE cropping.Data_Year = '{$_SESSION[ 'Data_Year' ]}'  and
cropping.Crop_Type = 'Wheat' and cropping.River_basin = '{$_SESSION[ 'River_basin' ]}' and ((cropping.Planting_month =
'January' and cropping.Harvesting_month = 'June') or (cropping.Planting_month = 'February'
and(cropping.Harvesting_month = 'June' or cropping.Harvesting_month = 'July')) or (cropping.Planting_month = 'March'
and(cropping.Harvesting_month = 'August' or cropping.Harvesting_month = 'June' or cropping.Harvesting_month = 'July') )
or cropping.Planting_month = 'April' or cropping.Planting_month = 'May' or cropping.Planting_month = 'June' )

                                                GROUP BY Crop_Type";

                                                $l_str_sql1 = " SELECT agro_loca.River_basin, agro_loca.Data_Year,
SUM( irrigation.Actual_irr_Area ) AS total_ir_area
                                                FROM agro_loca INNER JOIN irrigation ON agro_loca.irrig_ro_no =
irrigation.irrig_ro_no
                                                        WHERE agro_loca.Data_Year = '{$_SESSION[ 'Data_Year'
]}'  and agro_loca.River_basin = '{$_SESSION[ 'River_basin' ]}'
                                                        GROUP BY Data_Year";

                                                $l_res_row = $l_obj_db->query( $l_str_sql );
                                                $l_res_row1 = $l_obj_db->query( $l_str_sql1 );


                    while( ($l_arr_row = $l_obj_db->fetch_array( $l_res_row )) && ($l_arr_row1 = $l_obj_db->fetch_array(
$l_res_row1 )) ){

                                                        echo round( ($l_arr_row[ 'total_planted' ] / $l_arr_row1[
'total_ir_area' ])*100 , 1);

                    }

          ?>
</td>
```

7.2 Global Classes

7.2.1 Database connection

- **Global Database connection initialization code**

```
<?php
          error_reporting( E_ERROR );
          session_start();

          //--------------------- Database Initialization(Begin) ---------------------//

          $l_obj_db = new Db();
          $l_obj_db->setHost( "localhost" );
          $l_obj_db->setUser( "root" );
          $l_obj_db->setPassword( "root" );
          $l_obj_db->setDb( "faomowr" );
          $l_obj_db->connect();
          $l_obj_db->select();
```

```
//---------------------- Database Initialization(End) ----------------------//
?>
```

7.2.2 Pagination

- **Global Class for pagination**

```
<?php
class Pagination{
   const DEFAULT_DISPLAYED_ROWS = 30;
   const DEFAULT_GET_INDEX = 'page';
   const DEFAULT_MAX_LINKS_DISPLAYED = 5;
   protected $get_index;
   protected $max_links_displayed;
   protected $total_number_of_records;
   protected $displayed_rows;
   public function get_displayed_rows()
         {
               return $this->displayed_rows;
         }
         protected $start;
         public function get_start()
         {
               return $this->start;
         }
         public function __construct( $total_number_of_records , $displayed_rows = null , $max_links_displayed = null , $get_index
= null )
               {
               $this->total_number_of_records = is_int( $total_number_of_records ) && $this->total_number_of_records >= 0 ?
$total_number_of_records : null;
               if ( !isset( $this->total_number_of_records ) )
               throw new Exception( '$total_number_of_records must be an int and greater than or equal to 0' );
               // Check is $displayed_rows is set and a int, otherwise it is the default.
               $this->displayed_rows = isset( $displayed_rows ) && is_int( $displayed_rows ) ? $displayed_rows :
self::DEFAULT_DISPLAYED_ROWS;
               // Check is $max_links_displayed is set and an int, otherwise it is the default.
               $this->max_links_displayed = isset( $max_links_displayed ) && is_int( $max_links_displayed ) &&
$max_links_displayed >= 0? $max_links_displayed : self::DEFAULT_MAX_LINKS_DISPLAYED;
               // Check is $get_index is set and a string, otherwise it is the default.
               $this->get_index = isset( $get_index ) && is_string( $get_index ) ? $get_index : self::DEFAULT_GET_INDEX;
               // Check the if the page start ($_GET[$this->get_index]) is set, int, greater than 0 and less than
$total_number_of_records.
 $this->start = isset( $_GET[ $this->get_index ] ) && is_int( (int)$_GET[ $this->get_index ] ) && $_GET[ $this->get_index ] >= 0
&& $_GET[ $this->get_index ] < $total_number_of_records ? $_GET[ $this->get_index ] : 0;
               // Round down to a mulitple of $this->displayed_rows.
               $this->start = $this->start >= $this->displayed_rows ? $this->round_to_multiple( $this->displayed_rows , $this-
>start ) : 0;
                     }
               public function get_paginate_links()
                     {
                     // Get a clean URL.
               $url = isset( $_GET[ $this->get_index ] ) ? str_ireplace( array( '?' . $this->get_index . '=' . $_GET[ $this->get_index
] , '&' . $this->get_index . '=' . $_GET[ $this->get_index ] ) , '' , $_SERVER[ 'REQUEST_URI' ] ) : $_SERVER[ 'REQUEST_URI' ];
         $url = htmlentities( $url . ( ( substr( $url , -4 ) == '.php' || substr( $url , -1 ) == '/' ) ? '?' : '&' ) . $this->get_index . '=' );
         $links = array();   // If the current paginate is not the first.
         if ( $this->start > 0 )
               {
               $links[] = $this->paginate_link( 'First' , $url . '0' );
```

```
                $links[] = $this->paginate_link( 'Prev' , $url . ( $this->start - $this->displayed_rows ) );
                }                       // The last multiple to be allowed to display.
                $last = $this->round_to_multiple( $this->displayed_rows , $this->total_number_of_records - 1);
                // Get the page currently on.
                $current_page = ( $this->start / $this->displayed_rows ) + 1;
                // Get the last page number to be displayed.
                $last_page = ( $last / $this->displayed_rows ) + 2;
                // Get the page to start counting from.
                $start_page = $current_page > 0 ? $current_page - ( floor( $this->max_links_displayed / 2 ) - ( $this-
>max_links_displayed % 2 == 0 ? 1 : 0 ) ) : 1;
                $start_page = $start_page + $this->max_links_displayed > $last_page ? $last_page - $this->max_links_displayed :
$start_page;
                $links_displayed = 0;
                while ( $links_displayed < $this->max_links_displayed )
        {
// If the last page is reached before the maximum links have been displayed.
if ( $start_page + $links_displayed == $last_page )
                break;
// If the current page (in the loop) is not in arrears (negative).
if ( $start_page + $links_displayed > 0 )
        {
        if ( $start_page + $links_displayed == $current_page )
        $links[] = $this->paginate_link( $start_page + $links_displayed , '#', true );
        else
        $links[] = $this->paginate_link( $start_page + $links_displayed , $url . ( ($start_page + $links_displayed - 1) * $this-
>displayed_rows ) );
        }
        else
        $this->max_links_displayed++;
        $links_displayed++;
                                        }
// If the current page is not the last.
        if ( $current_page < $last_page - 1 )
        {$links[] = $this->paginate_link( 'Next' , $url . ( $this->start + $this->displayed_rows ) );
        $links[] = $this->paginate_link( 'Last' , $url . $last );
                        }
                        return $links;
                        }
                        private function paginate_link( $name , $href , $current = null )
                         {                      if ( isset( $current ) )
                        return array( 'name' => $name , 'href' => $href , 'current' => $current );
                        else
                          return array( 'name' => $name , 'href' => $href );
                         }
                        private function round_to_multiple( $factor , $value )
                    {
                        return $value % $factor == 0 ? $value : ( ceil( $value / $factor ) - 1 ) * $factor;

                         }
                    }

?>
```

8 Conclusion

Thanks to God!

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