

DHIRUBHAI AMBANI INSTITUTE OF INFORMATION AND COMMUNICATION TECHNOLOGY



Content Management System for GSWMA Manuals Internship Project 2012

Worked at

Gujarat State Watershed Management Agency



Submitted By

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Submitted to

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CERTIFICATE

This is to certify that Mr. Mayank Chauhan of Masters of Science in Information and Communication Technology in Agriculture and Rural Development, batch-2010 of DAIICT has successfully completed his internship during Jan-May-2012 for duration of four months

The project titled: "Content Management System for livelihood and Technical Manuals" was undertaken in the department of Gujarat State Watershed Management Agency (GSWMA), Gandhinagar, Gujarat.

The project report was completed under the guidance of Dr. Ranendu Ghosh, Professor DAIICT, Gandhinagar, Gujarat

I hereby certify that the report fulfills all the stated criteria and is up to the mark to the best of my knowledge.

Acknowledgement

First of all, I bow my head towards God, the Almighty, who is behind every cause and thereafter towards my parents and teachers who are the eternal sources of inspiration to me.

I take immense pleasure in thanking Shri Ram Kumar, IFS, Chief Conservator of Forest, and Chief Executive officer of GSWMA for giving me an opportunity to work on this project for my internship.

I wish to express my deep sense of gratitude to Dr. Ranendu Ghosh, Professor DAIICT, Gandhinagar, Gujarat my mentor for his meticulous guidance, concrete suggestions and constant encouragement throughout the course of the project without whom the report not have been able to see the light of day. Thereafter, from the inner sanctum of my heart I am obliged to Mr. Sagar Chandarana, B.Tech Student, DAIICT, for his incessant support during the study.

I gratefully acknowledge

- i. The valuable inputs and insights offered by officers from GSWMA.
- ii. Mr. Bhabhor, Project Director, GSWMA, Baroda who provided me data and other critical inputs to understand the activities through field exposure providing detailed information and facilitating as well as accompanying me during my field visit.
- iii. Mr. Nitya Pasala, Technical Expert for providing detailed information and facilitating as well as accompanying me during field visit.

Diction is not enough to express my sincere gratitude and indebtedness to, Dr. B N Hiremath (Course- Coordinator, DA-IICT) and entire staff of DA-IICT, Gandhinagar for their constant support and encouragement.

I express my sincere thanks to the entire staff members of GSWMA for their unconditional support in one way or another, as and when needed.

Mayank Chauhan

Table of Content

List of Figures.....	4
Executive Summary.....	5
1. Introduction.....	6
1.1 Importance and Need of the Manuals.....	6
1.2 Advantages of system.....	8
2. Objectives.....	8
3. Methodology.....	9
3.1 System Analysis.....	10
3.1.1 Principle Component of System Packag.....	10
3.2 Design of System.....	10
3.2.1 Selection of Tools.....	11
3.3 Design of Content	12
3.4 Methodology for Success Story.....	14
3.4.1 Collection of Primary data.....	15
3.4.2 Collection of Secondary Data.....	15
3.4.3 Flow of Linkage for Gradual Development.....	15
4. System Implementation.....	17
5. Scope of Improvement.....	17
6. Conclusion.....	18
Abbreviation.....	17
Questionnaire to Farmers.....	18
References.....	19

List of Figures

FIG: 3.1;	Flow Chart for Methodology.....	9
FIG: 3.2;	Flow of Hierarchy for GSWMA Manuals in Information System.....	12
FIG: 3.3;	Flow Hierarchy of Technical Manuals in Information System.....	13
FIG: 3.4;	Design of System.....	14
FIG: 3.5;	Meeting with the Farmers.....	15
FIG: 3.6;	Gradual Development due to Watershed Activity and Linkage.....	17

Executive Summary

Gujarat State Watershed Management (GSWMA) manuals that Technical, Livelihood, Operational Guidelines, Capacity Building, and Human Resource manuals are critical input to the GSWMA employees and individuals like Multi-Disciplinary Team (MDT), Watershed Development Team (WDT) members, Line departments and organizations who will be involved in planning, implementing and monitoring the integrated watershed program and enhancing the livelihood activities.

These manuals play key tool of practical guidance to field engineers at village level and district level. Many of field engineers are joining fresh without any practical experience and many of field engineers not having relevant field experiences will get benefited from these manuals,

The objective of intern is to build content management system for these manuals so user can access the information as per their requirement. The system is developed in flash builder and content of the manuals are delivered through compact disc.

One success story of Vadodara District also introduced in the information system which is a great example of GSWMA efforts.

1. Introduction

In Gujarat state, Gujarat State Watershed Management Agency (GSWMA) is the nodal agency to implement the IWMP with the vision of “enhancing the quality of life of the rural populace through sustainable, equitable and participatory Natural Resource Management”. The mission statement is to work towards creating sustainable rural livelihoods in Gujarat through scientific and integrated watershed development approach. It manage local natural resources like land, water and vegetation with active participation of the people and their institutions in a way that enhances employment and income opportunities for all, and the asset-less in particular. GSWMA focus both on preservation of our natural environment and socio-economic development of the people.”

The Manuals for Integrated Watershed Management Program is prepared by experienced technical officials of Gujarat State Watershed Management Agency (GSWMA), in consultation with various professional research institutes. The Technical manual gives systematically ridge to valley treatment with details engineering activities with appropriate design, drawings, estimation example and photograph of each structure, while livelihood manual gives information about different livelihoods i.e. farm produce, value addition of agricultural products, animal husbandry, forestry, pottery, sculpture embroidery and other skill based activities of rural populace.

1.1 Importance and Need of the Manuals

Technical and Livelihood manuals are referred to understand the watershed and livelihood concepts, it helps the new professionals to deal with. These manuals are complete source of reference for initiating the roots in conservation of natural resources and developing livelihood assets of people. As far as Operational Guidelines are concern it has information of Watershed Development Program (WDP) which has come a long way in India from merely a set of soil moisture conservation measures to a livelihood oriented comprehensive rural development program through Natural Resource Management. WDP started in India in 1962-63 with the launch of the “River Valley Project” of the Ministry of Agriculture, Government of India. Afterwards, a number

of similar programs were launched by the Ministry of rural Development like the “Drought Prone Area Program (DPAP)” in 1973-74, “Desert Development Program (DDP)” in 1977-78 and “Integrated Wasteland Development Program (IWDP)” in 1988-89. These programs were reviewed in 1994 by a Technical Committee headed by Prof. C.H. Hanumantha Rao; the suggestions of the report of the committee culminated in Ministry of Rural Development issuing a “Common Guidelines” in 1994-95 for implementation of these programs on a watershed development approach. Similarly, the ministry of Agriculture issued its own Guidelines. Since then these Guidelines have been modified a number of times. The “Common Guidelines” of 1994 was revised in 2001 and in 2003. Again in 2005 (report submitted in 2006), a new Technical Committee under the Chairmanship of Shri S. Parthasarathy was constituted with the objective of reinvigorating the running Watershed Development Programs. Their report was followed by a “New Common Guideline” issued by the Government of India in 2008 applicable to WDPs implemented by all Departments/ Ministries of the Government of India.

Through the years, there have been some clear shifts in approach of the Watershed Development Program. The earlier physical structure focus has been replaced by a focus on overall development of the natural resource base, the top-to-bottom approach has given way to a participatory mechanism, the sectoral approach has been replaced by an integrated approach and involvement of village level institutions has replaced the departmental approach. Besides, application of technology has become people friendly. These subtle changes are in the right direction and needs to be strengthened. The “New Common Guidelines” includes all these and much more.

Capacity Building is the process of assisting the group or individuals, organization and system to identify and address issues and gain the insights, knowledge and experience needed to solve problems and implement change. All the information related to this are covered under Capacity Building Manual, while Human Resource Manual contain the information related to general rules, classification of rules, remunerations , allowances and Leaves for employees. It also help them to understand the organizational structure.

GSWMA is a core rural development organization, the projects of this organization had change the scenario and done a miracle in developing the rural people by their integrated watershed management program. There are various examples of successive implementation of the rural projects where amazing development had been reflected. One such story was noted during the field visit, which was introduced as valuable information in the information system. Similar success stories need to advertise in order to develop the other rural area through adopting their concepts.

This livelihood, Technical, Capacity Building, Operational Guidelines, and Human Resource manuals are of 240, 198, 65, 61 and 48 pages respectively, where one has to scroll the number of pages to get the specific information at a time, which leads to time consumption and make diverted from the objectives. To provide this useful information in effectively organized manner as when required, content management system is used. A content management system (CMS) is a tool that enables a variety of (centralized) technical and (de-centralized) non-technical staff to create, edit, manage and finally publish (in a number of formats) a variety of content (such as text, graphics, video, documents etc), whilst being constrained by a centralized set of rules, process and workflows that ensure coherent, validated electronic content.

1.2 Advantages of the System

- Configuration access is restricted.
- Navigation is automatically generated and adjusted from section to section.
- The content quality is properly maintained and becomes consistent
- Reduces the cost of hard copy.
- User can access five manuals through single user interface.

2. Objectives

- To manage the content of livelihood, Technical, Operational Guideline, Capacity Building, and Human Resource through content management

system, with which one can fetch the specific information as and when required

- To deliver the content of manuals through compact-disc and web

3. Methodology

Systems are implemented and can be maintained further for addition of new information.

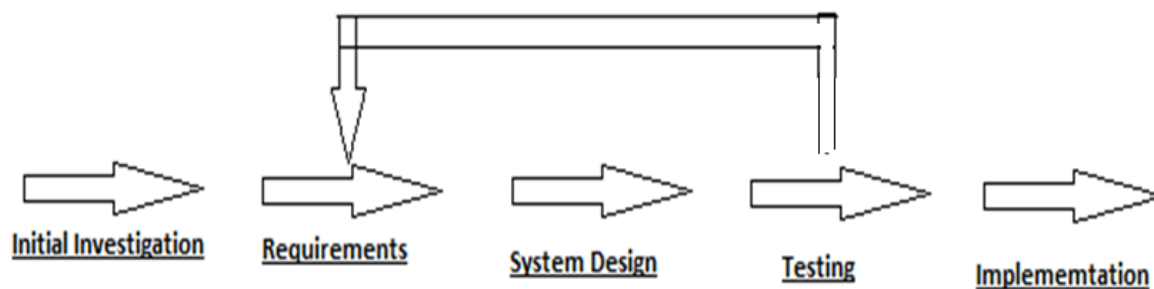


Fig: 3.1 Flow chart for Methodology

Initial investigation is done where all the manuals are analyzed and system requirements are design accordingly, the information is designed in the system by selecting the appropriate tools. All the necessity for the user to access the system is designed and verified to know the compatibility of system, fulfilling the objective and related problems. The verified system is implemented to deliver the information. The system is worth when it does not allows user to edit information unless of permit from the administrator. By keeping all this things in the mind various tools are trialed and some of them are managed to acquire willful result.

3.1 System Analysis

A large number of CMS tools are available in the markets that are compatible to deliver content in compact disc, mobile and web-based technologies. Drupal JOOMLA, Mambo, Silver-stripe, word- press and many other are open source web based content management systems. These information systems work on offline server, which requires software like WAMP and XAMPP. Once XAMPP/WAMP is installed you can treat your local host like a remote host by connecting using an FTP client. Program like FileZilla has many advantages when installing a content management system like JOOMLA; you can also connect to local host via FTP with your HTML editor.

XAMPP and WAMP are intended to use only as a development tool, to allow website designers and programmers to test their work on their own computers without any access to the Internet.

3.1.2 The principal components of the package:

Apache is a web server

MySQL is an open-source database.

PHP is a scripting language that helps to manipulate information held in a database and generate web pages dynamically each time content is requested by a browser. Other programs are also included in a package, such as phpmyadmin which provides a graphical user interface for the MySQL database manager and the alternative scripting languages Python or Perl.

Equivalent packages are MAMP (for the Apple Mac) and LAMP (for the Linux operating system).

The content are possible to made under compact disc, we can run the content made under these software's through compact disc, but one must have knowledge to install the offline server. The procedure to run the large content created through such information systems is difficult under CD and Mobile. For mobile, creating PDF along with the bookmarks in Microsoft word is the best way to provide large content. PDF format are compatible to mobile operating systems like Symbian (Nokia), JAVA (Sony Ericson), and Android (Smart Phones) languages, While others have some limitations. We can present all the content in beautiful and animated way using flash software, but it require professional skill to work with the software, easiest way is to link the PDF in the flash builder.

3.2 System Design

System designed has simple website like appearance. Different buttons and links are created to access the information, it has options like print, search, and magnify. The information is categorized and classified into main and sub parts.

3.2.1 Selection of tools

Information of technical and livelihood manuals are initially investigated to classify according to its role, different activities. Defined requirements of information are designed in flex builder and PDF

- A. JOOMLA
- B. WAMP and its components
 - Apache 2.2.21
 - MySQL 5.5.16
 - PHP 5.3.8
 - phpMyAdmin 3.4.5
 - FileZilla FTP Server 0.9.39
 - Tomcat 7.0.21
- C. Flash Builder
 - External library Flex Paper
 - Browser Firefox 12.0 Portable to show CMS
- D. Adobe Acrobat

Flex builder software is used to deliver the content of all the manuals through CD; it can be browse through Firefox internet browser which is portable and designed in build under Compact Disc. Information of all manuals is initially investigated to classify according to its role and different activities. Defined requirements of information are designed in flex builder, it require external flex paper. The system is easily build using SWF file which is converted from PDF file, otherwise it requires to write or copy the information content of the manuals, inserting of images, and coding of large content, which lead to time consumption and not possible to build information system within Four months of period.

3.3 Design of Content and System

System designed has simple website like appearance. Different buttons and links are created to access the information, it has options like print, search, and magnify. The system designed in such a manner that the PDF viewer are managed to fit width and aspect ratio as false, which facilitates the user to view all the content when the horizontal box are resized. The information are categorized into hierarchical way, the design of content is shown below

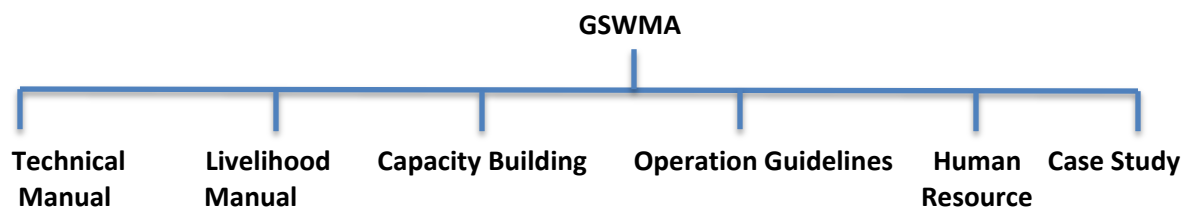


Fig:3.2 Flow of Hierarchy for GSWMA Manuals in Information System

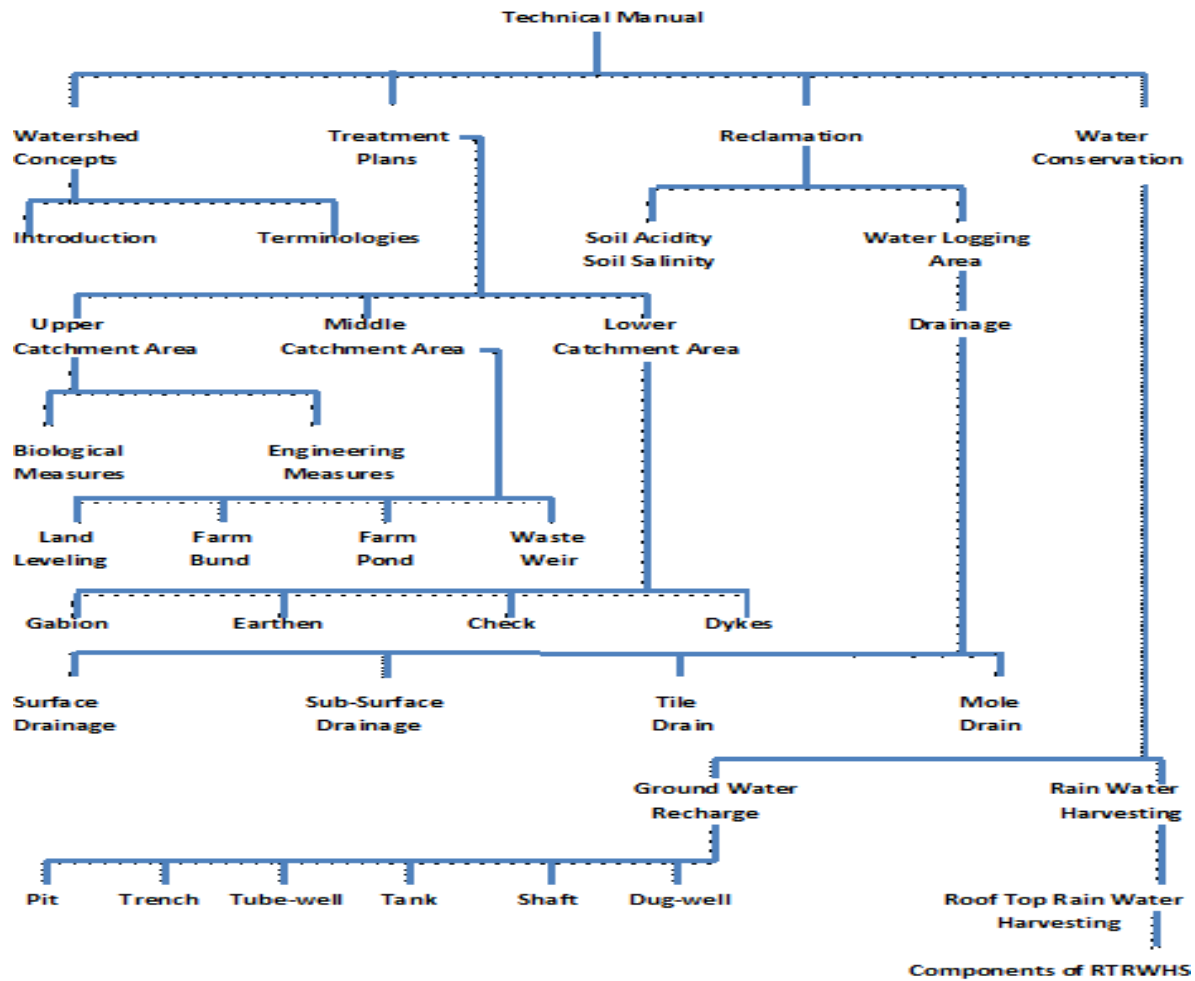


Fig: 3.3 Flow Hierarchy of Technical Manual in Information System

The technical manual are mainly classified into four categories are watershed concept, treatment activities, reclamation activities, and water conservation activities which is somewhat perplexing in the manual, other than technical manual all the information of the manuals is directly arranged in the hierarchal nodes from the index.



Fig: 3.4 Design of the System

This design has title bar and application control bar, application control bar contains six buttons to access five different manuals and case study. It also provides the information for the current manual used by user. The information is arranged in the nodes and sub nodes, user can access through pages, nodes, and thumbnail view. System also supports to magnify the content to zoom in and zoom out. Hand tool option helps to navigate the pages. At the opening of the information system the beautiful cover page is displayed with the animation which is created in adobe flash CS5.5 and link to the successive manual information by buttons as shown in above fig 3.2

3.4 Methodology for Success Story

For the success story Vadodara district was visited, as per the suggestion of Nitiya Pasala, Technical Expert (GSWMA) the Achhali village of Sankheda Taluka was studied, where great progress had been noticed.

3.4.1 Collection of Primary Data

Questionnaire was prepared to collect the primary data directly from individual farmers. For the views of farmers towards GSWMA, meeting was arranged. Random sampling was done and sample size was 15 farmers.



Fig: 3.5 Meeting with the Farmers

3.4.2 Collection of Secondary Data

Secondary data are collected from District Watershed Development Unit (DWDU), Vadodara. The information related to transformation that has occurred due to implementation of IWMP projects in different villages is noticed.

3.4.3 Flow of linkage for Gradual Development

The watershed activities lead to integrated development of natural resources as well rural populace. The flow represents the changes in the Achhali village that had been happened due to watershed activities. Initially village was very backward, males have

been migrated for employment, women have to walk more than 5km per day to collect woods and fodder for their animals, children are suffering from malnutrition, due to poor rural infrastructure and awareness children are supporting their family to sustain their life at the sake of education. Due to migration, business was not developed, which increase their hardship to collect their necessity from nearly developed town.

Watershed activities have changed the scenario and develop the village through integrity of linkage of natural resources with the livelihood. Developing the structures of check dam the water is been conserved, water availability lead to engage farmer in agriculture business rather than migrating. Watershed activity and agriculture have created employment to them, stability of village have been occurred and small business are started to develop in the village, where plantation and fodder development activities of GSWMA made them fodder and woods available for their animals, women of the villages are influenced towards animal husbandry and dairy development. With the help of GSWMA the women have started to form group and engage themselves in various livelihood based activities offered from GSWMA, while landless labors are made engaged in micro-enterprises. The strategy and framework of conservation, growth and development applied by this agency is very strong. During meeting, villagers are found happy in working with watershed agency and hoping more initiatives from government. The situation of village and its people is far better than what they have lived. Well-developed questionnaire help to measure their growth and situation of the village and its people. The questionnaire consists of agriculture, water, biodiversity and physical aspects, on basis of which the progress and the positive change is noticed. Following figure shows the linkage and gradual development of interdependent activities.



Fig: 3.6 Gradual Development due to Watershed Activity and linkage

4. System Implementation

The CD based CMS is implemented by mounting the files of flash builder in CD, the web based JOOMLA CMS is implemented by loading the database in the server and mobile CMS is implemented by saving PDF CMS to the memory card.

5. Scope of Improvement for System

As far as content improvements are required, we can edit the information as well as the user interface in the CMS that are CD based. To edit the content take the SWF file of desired manual from the assets of the system convert it into word and we can make any change to add or delete the information, then for inserting the changes convert the same file into SWF and by putting directly in the codes of mxml we can load the changes. Also we can change the user interface by shaping the buttons, adding colors to them, inserting breadcrumbs and animations.

The system initially takes time to load as it was built under Flash Builder and requires windows7 to run the CD; we can improve or made it compatible to windows XP

6. Conclusion

The content management systems are nice tools to handle a large amount of content and with the help of such tools we can access them as and when require, as per our convenience

Abbreviation

GSWMA	Gujarat State Watershed Management Agency
MDT	Multi-Disciplinary Team
WDT	Watershed Development Team
DWDU	District Watershed Development Unit
CMS	Content Management System
PDF	Portable Disk Format
SWF	Shock Wave Flash

Questionnaire to farmer

NAME OF FARMER	LAND HOLDING	SURVEY NUMBER	PREVIOUS CROP	YIELD	PRESENT CROP	YIELD
CROPPING PATTERN						
1						
2						
3						
4						
5						
PLANTATION			PREVIOUS	NO. OF TRESS	PREVIOUS	NO. OF TRESS
1						
2						
3						
BUYING OF			PREVIOUS		PRESENT	
ANIMAL						
VEHICLE						
LAND						
OTHER						
QUALITY OF WATER	AS USUAL		INCREASE		DECREASE	
GROUND WATER LEVEL	AS USUAL		INCREASE		DECREASE	
AVAILABILITY OF WATER	KHARIF		RABI		ZAYAD	
SOURCE OF IRRIGATION	DIESEL					
	ELECTRICITY					
ANY NEW BUSINESS ADOPTED						
WISH AND IDEAS TO AGRICULTURE						

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