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Integrated Watershed Management Programme

IWMP

Courtesy By

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Area development programmes of the Ministry of Rural Development (MoRD) like the Drought Prone Area Programme (DPAP), Drought Prone Area Programme (DDP) and Integrated Wasteland Development Programme (IWDP) has been following the watershed development approach since 1995-96 with the first watershed development guidelines coming into force.

With the coming into effect of the new Common Guidelines, 2008, the individual Watershed Development Programmes have been merged together to form one comprehensive programme, namely, Integrated Watershed Management Programme (IWMP).

Gujarat is among the front runners in the country in taking up new projects. The Government of India has sanctioned 151 watershed projects covering 7.08 lakh hectares involving more than Rs. 930 crores.

To manage the IWMP at state level, Gujarat State Watershed Management Agency has been established.

Introduction:

Gujarat State Watershed Management Agency (GSWMA) is the State Level Nodal Agency (SLNA) for implementation of Integrated Watershed Management Programme (IWMP) of the Government of India. GSWMA works in all the 26 districts of Gujarat. GSWMA has planned to cover all the micro-watersheds (at village level) of the state in the next 18 years. Thus it will cover all the talukas of the state. Presently, it is working on 7.08 lakh hectares covering 1062 villages of 106 talukas (blocks) in all 26 districts of Gujarat. The geographical coverage of the programmes as planned is given in table below.

WHAT IS WATERSHED DEVELOPMENT?

Watershed development refers to the conservation regeneration and the judicious use of all the resources – natural (like land, water plants, animals) and human – within the watershed area. Watershed Management tries to bring about the best possible balance in the environment between natural resources on the one side and man and animals on the other.

Since it is the man which is primarily responsible for degradation of environment, regeneration and conservation can only be possible by promoting awakening and participation among the people who inhabit the watersheds.

WHY WATERSHED DEVELOPMENT?

Man and his environment are interdependent. The changes in the environment directly affect the lives of the people depending on it. A degraded environment means a degraded quality of life of the people. Environmental degradation can be tackled effectively through the holistic development of the watershed. A watershed provides a natural geo-hydrological unit for planning any developmental initiative.

Sr. No.	Item	Details	
		No.	Area (Lakh ha.)
1	Total micro-watersheds (MWS) in the State	13587	196.024
2	Total untreatable MWS (Reserved Forest, Barren Rocky, assured irrigation, etc.)	1005	27.2386
3	Total treatable MWS in the State	12582	168.7854
4 (a)	Total MWS covered under pre-IWMP schemes of DoLR	3895	31.6302
(b)	Total MWS covered under schemes of other Ministries	645	6.07954
(c)	Total MWS covered under IWMP 2009-10 of DoLR	705	7.08186
(d)	Total of 4 a to d	5245	44.7916
5	Balance micro-watersheds not covered till date	7337	123.9938

6	Plan for covering balance micro- watersheds		
	11th Plan: 2010-11	802	7.1366
	11th Plan: 2011-12	835	7.8572
	12th Plan	2015	39.0000
	13th Plan	1940	37.0000
	14th Plan	1745	33.0000
	Total	7337	123.9938

Situation before the initiative:

A number of different Watershed Development Programmes with similar objectives were being implemented in Gujarat before the commencement of the Integrated Watershed Management Programme (IWMP), viz. Drought Prone Area Programme (DPAP), Desert Development Programme (DDP), Integrated Wasteland Development Programme (IWDP), etc. These programmes lacked a scientific approach; planning was haphazard and implementation was lack luster; they were just disjointed area based programmes with loosely knitted activities. Thus, the results were not significantly visible.

Some of the shortcomings of the earlier programmes are:

- ✓ Without any scientific basis, projects used to be selected on the basis of either conscience of the district authorities or political dynamics of the place
- ✓ Inconsistencies in site selection for construction of physical structures
- ✓ Preparation of Detailed Project Report (DPR) was not more than a formality
- ✓ Monitoring and evaluation of the projects were very minimal
- ✓ Impact assessment of the projects was subjective

Realizing the shortcomings, it was decided that technology would be adopted to enhance the planning and implementation of the programme.

Strategy Adopted:

The Integrated Watershed Management Programme (IWMP) aims at improving agricultural productivity, promote judicious use of water, and enhance agriculture based other livelihood options. 23% of the total funds under IWMP are to be spent for activities like agriculture, horticulture, forestry, animal husbandry and allied micro-enterprises.

To enhance the efficiency, transparency, accountability and effectiveness of the programme, GSWMA is trying to automate the systems and procedures.

The various steps taken to automate the system are: Large scale computerization of activities and use of Information Communication Technology (ICT) at different levels, use of GIS and MIS as planning and monitoring tools, GPS and mobile phones as data feeding mechanism, and provision of GIS based maps to field functionaries as well as villagers.

Objectives:

The principal objective of a Watershed Development Programme is to enhance sustainable livelihood options for the rural poor through integrated land and water management practices. The primary livelihood option of rural folks is agriculture, animal husbandry and allied activities. Thus the Integrated Watershed Management Programme (IWMP) aims at improving agricultural productivity, promote judicious use of water, and enhance agriculture based other livelihood options. 50% of the total funds are spent on strengthening the natural resource base of the area and based on the development therein, 23% of the total funds are to be spent on activities like agriculture, horticulture, forestry, animal husbandry and allied micro-enterprises.

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- GPS and mobile phones as data feeding mechanism
- Provision of GIS based maps to field functionaries as well as villagers.

Technology & Project Success:

- **Computerization:**

  Starting from the state level office at Gandhinagar to the district level offices to the project offices at taluka (block) level, most works are computerized. Computer, telephone and internet facilities have been made compulsory for all the offices.

- **GIS based planning:**

  The planning started with the state level satellite imagery where the natural boundaries were identified. The administrative boundaries were obtained from revenue records which were overlaid onto the satellite imagery. Imagery was panned up to the village level where land parcel level information was collected. Survey number wise plotting of land was previously done based on the data collected from the village level.

  The next step was to overlay all watershed boundaries onto a cadastral map. The treatable watersheds were then ear-marked and a ranking was assigned to each based on clear cut

parameters identified by the Department of Land Resources (DoLR). The parameters included Natural Resource Indicators, the Socio-Economic Indicators, the Contiguity factor and the Cluster approach. Factors such as the Poverty Index, percentage of SC/ST and the small and marginal farmers provide focus to provision of better livelihood options to the local population in project areas. The Natural resource parameters which include factors such as Moisture Index and the Productivity potential of the land ensured true representation of the watershed. Contiguity factor and the cluster approach ensured that the watersheds would be treated through holistic area development. The overall goal was to ensure prioritization based on objective and equitable criteria.

- **Centralized Management Information System (MIS)**

The MIS is centralized at the Government of India level. All the data fields are entered at the project level (block). So real time updated data is available to decision makers at different levels- district, state and central government.

- **GIS based monitoring system**

GSWMA has developed a GIS based monitoring system that incorporates real time progress of the works on the map. As works are completed the essential data will be uploaded to the online GIS, which will automatically reflect the progress on the map.

- **Satellite imagery based Impact Assessment**

GIS will be used to map the environmental as well as social impact resulting from implementation of IWMP. Natural parameters such as ground water recharge, forest cover, salinity ingress, soil erosion and biodiversity will be studied through remote sensing and GIS. Also parameters such as crop pattern and irrigated area which have a direct impact on society can be studied. Analysis of data available from satellite images at regular intervals will help in generating an idea of the changes occurring in the baseline data due to implementation of IWMP.

- **On line Banking operations:**

All the transactions for all the projects in the state are carried out by only one bank. It has helped the state to track the flow of funds at different levels on line on the computer at the state level office at Gandhinagar.

Result Achieved/ Value Delivered to the beneficiary of the project:

- The projects could be equitably distributed among all the districts.
- The most needy watershed areas could be identified; the districts were able to take those watersheds on priority.
- The planning for convergence of IWMP with other developmental schemes of various Government Departments is prepared on the basis of thematic maps.
- The state was able to plan for the next 18 years; the GIS based plan for the 18 years is given in the map

- GIS based maps are provided to the project level functionaries and villagers to take informed decisions
- DPRs are now prepared after proper scientific analysis, which includes appropriate site selection
- Centralized automated MIS and Action Plan maps helped in establishing a strong monitoring system

Other distinctive features/ accomplishments of the project:

- The first state to apply GIS fully to plan, implement and monitor IWMP
- The first scientific DPR in the country to be uploaded on the website; the Government of India has instructed other states to follow the Gujarat model.

GIS application:

The planning for the IWMP has been rigorous with the help of Geographic Information System (GIS). The nodal agency, Gujarat State Watershed Management Agency (GSWMA) has had a tie up with Bhaskaracharya Institute of Space Applications and Geoinformatics for the purpose.

While prioritizing the projects, different parameters are categorized into the natural resource base (including the historical data) of the area and the socio-economic aspects. Some of the important data sets and images include: Geo-morphology, Soil, Slope, Erosion, Aspects, Drainage, Contour, Geo-hydrology, concentration of BPL and SC/ST population, etc.

The satellite image on the same parameters are collected in different sheets and then superimposed to get a composite picture of the priority areas. This process is followed for all the watersheds, starting from the micro-level to the macro-level. The micro-watershed wise prioritization culminated in prioritizing the watersheds for the districts and the whole of the state. It has helped in the following ways:

The projects could be equitably distributed among all the districts. The most needy watershed areas could be identified; the districts were able to take those watersheds on priority. The Planning for convergence of IWMP with other developmental schemes of various Government Departments is prepared on the basis of the GIS based maps the state was able to plan for the next 18 years

Capacity Building:

GSWMA has identified 29 well recognized institutions across the state for Capacity Building of the different stakeholders in the watershed programme, starting from the state and district level executives to the village watershed committee members. A comprehensive Capacity Building Plan / Manual has been developed which will be followed diligently.

Livelihood Plan:

A comprehensive region specific Livelihood Strategy has been developed for direct livelihood support. The regions have been divided along different agro-climatic zones and occupation patterns. The livelihood strategy would ensure appropriate measures are taken in different regions.

e Governance News

14th National eGovernance Award -2010

The Department of Administrative Reforms & Public Grievance, Government of India, has been organizing the National Conference on eGovernance every Year.To recognize and promote excellence in implementation of e-governance initiatives, this department presents National Awards for e-Governance every year in national conference.

14th National Conference on e-Governance is being organized by the Department of Administrative Reforms & Public Grievances, Ministry of Personnel, Public Grievances & Pensions, Government of India in association with Department of Information Technology, Government of India and Government of Maharashtra at **CIDCO, Natyagruha, Aurangabad, Maharashtra on 10th -11th February, 2011.**

The theme for this year's conference is ***'Rural e-Service Delivery'*** which will explore how to use of ICT transformed governance from the prospective of the beneficiaries of the Services. The focus sector for this year's conference is Agriculture with agenda '***ICT in Agriculture'.***

The 14th National eGovenance Award was presented in following categories:

i. Excellence in Government Process Re-engineering
ii. Exemplary Re-Use of ICT-based Solutions
iii. Outstanding performance in Citizen-Centric Service Delivery
iv. Innovative Use of Technology in e-Governance
v. Innovative Use of ICT by PSUs for Customer's Benefits
vi. Best Government Portal
vii. Sectoral Award

Gujarat State had received the following three awards:

Sr. No.	Name of Project	Category
1	State Wide Attention on Grievances by Application of Technology (SWAGAT)	Gold Icon Award -Outstanding Performance in Citizen-centric Service Delivery
2	Integrated Watershed Management Programme (IWMP)	Silver Icon Award -Innovative Use of Technology in e-Governance
3	Rajkot Municipal Corporation	Bronze Icon Award -Innovative Use of Technology in e-Governance

Web Corer

Gujarat State Watershed Management Agency (GSWMA)

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