

# PILOT PROJECTS ON ACHIEVING DRINKING WATER SECURITY THROUGH CONVERGENCE AND PARTICIPATORY INTEGRATED WATER MANAGEMENT

## Background

Deliberations in the International workshop on Achieving Drinking Water Security in Water stressed and Quality-affected Areas on 25-26 May 2010 focused on the need for measurement of the various parameters of ground water for its effective management. Elaborating on it is difficult to manage what is not measured, the then Honorable Minister for Rural Development, Dr. C.P. Joshi, expressed the need for addressing different dimensions of drinking water security which include 1) Unit of management – district, block or panchayat, 2) Rural to Urban transition and disparities – minimum tariffs and standards, 3) Issues of agricultural power subsidies and energy component in drinking water to enable appropriate pricing and recovery 4) Conjunctive storage in aquifers and rainwater harvesting systems, and 5) Demand and supply side management of water.

As a follow up to the workshop, a meeting was held on 4<sup>th</sup> June 2010 with, CGWB, CAZRI, World Bank, WSP-SA and APFAMGS to discuss the process for operationalisation of a pilot programme for convergent action for sustainability and Panchayat monitoring and management of water resources to achieve drinking water security in selected overexploited blocks in different states. WSP suggested that there was a need to document the relevant data and offered to provide technical assistance in the design and monitoring of the national pilot.

## Pilot Projects

In the above light, pilot projects are being launched with the objective of achieving drinking water security in a holistic manner, through a four-pronged approach of

- i) Measures for source sustainability through convergence with MNREGS, IWMP and other Watershed programmes and NRDWP
- ii) Participatory integrated water resources management led by Gram Panchayats
- iii) Preparation of drinking water security plans by villages
- iv) Making the selected villages open defecation free and ensuring proper solid and liquid waste management

Initially, selected aquifers/sub-watersheds/hydrological units in selected over-exploited blocks may be identified for demonstration with a provision for scaling up to the district level and thereafter on to a larger scale if the pilots are successful. About 10-15 blocks with alarming level of ground water development have been identified in the 10 States of Rajasthan, Andhra Pradesh, Gujarat, Haryana, Punjab, Madhya Pradesh, Tamilnadu, Karnataka, Uttar Pradesh and Maharashtra. Financing for the pilot will come from the existing allocations under the NRDWP Sustainability and Support components, MNREGS funds and allocations under the 13<sup>th</sup> Finance Commission recommendations. The pilot projects will focus on operationalising drinking water security and total sanitation in a holistic manner and will attempt to address the different

dimensions of water security and sanitation including what it will cost in terms of investments, setting of minimum standards for pricing, quality and quantity, storage management that includes aquifer management, demand side management and capacity building and training. This will also be necessary to plan for capacity building to scale up the activity. Convergence will be worked out with Department of Rural Development dealing with MNREGS, Department of Land Resources dealing with watershed development, Ministry of Water Resources dealing with water resources and Ministry of Agriculture dealing with water use for agricultural crops.

### **Institutional framework for implementation of the Pilot:**

- A. The new guidelines for the National Rural Drinking Water Programme (NRDWP) provide the necessary operational guidance with a package of funding and institutional framework that shift emphasis in the sector to ensure *'drinking water security'* for sustainable supply of adequate and good quality water for villages. In accordance with this, convergent action plans for water conservation, community managed water development plans and village water security plans will be prepared for all the villages in the hydrological units focusing on appropriate and fruitful convergence with other schemes. The four main features of the pilot would be
- i) preparation and implementation of a Sustainability plan through convergence for the selected watersheds/aquifers with an objective to plan and construct water conservation and recharge structures including related afforestation works to saturate the watershed/aquifer. Guidelines for convergence under district planning, MNREGS, Watershed programmes and BRGF will be used to ensure convergence of programmes.
  - ii) community led water resources management and water quality monitoring and surveillance through awareness generation, capacity building and handholding of the Gram Panchayats and communities and
  - iii) planning for drinking water security. Implementation will be through Village Water and Sanitation Committees (VWSCs), Block Resource Centres (BRCs) and District Water and Sanitation Missions (DWSMs);
  - iv) coverage of all households in the habitations in the selected aquifers/watersheds with toilets and with solid and liquid waste management in the selected villages for reuse, recycling and recharging of waste water and safe disposal of solid waste.
- B. A concurrent study on the cost of delivery, pricing and tariffs across a sample number of small towns, large and small villages;
- C. A concurrent study on the activity mapping done by different states in devolving drinking water supply to the local governments;

A Steering Committee set up in the Ministry will advise the States on the pilot projects.

## **Methodology for pilot projects:**

The key activities to be taken up in the proposed Pilots are:

### **Phase-1: Preparatory phase:**

1. Identify the districts and ten-fifteen blocks by the Government of India and State Governments (2 weeks); - Done
2. Identify reputed NGOs in each State to provide support to GPs, VWSCs and communities in the pilots, to work on developing capacity building plans and water security plans in the pilot areas- supervised and supported by MDWS/ State Governments/ steering committee and hiring the same (8-10 weeks);
3. Preparation of Sustainability Plans by
  - a. obtaining baseline data from CGWB, NRSC and Ministry of Water Resources on groundwater including nature of aquifers, and surface water resources including rainfall patterns for each block and pattern of water use to enable water budgeting and analyse the same (2 months);
  - b. Design training modules for groundwater management( including demand-side management of agriculture) and demonstration visits to APFAMGS and other projects (2 months from start);
  - c. Designing training modules for surface water management including rainwater harvesting based on TBS and other successful water harvesting initiatives and roll out training and demonstration visits (2 months from start);
  - d. Concerned Area Officers of MDWS, WSP and FAO to guide the selected block level staff in developing Sustainability plans for the selected hydrological units/aquifers/watersheds to saturate them with measures for water conservation, recharge structures, revival of traditional water bodies, including afforestation and horticulture based on a ridge to valley approach.

### **Phase-2: Capacity Building, Surveys and analysis**

- a. Once the sustainability plans are prepared, the Working group and the concerned State Governments will draw up timelines to implement these plans.
- b. The NGOs will take up awareness generation and training activities in the identified hydrological units to engage the Gram Panchayat and VWSC members and other selected villagers in collection and analysis of ground and surface water data, building their understanding of the dynamics and status of the local aquifers. The villagers will be given knowledge of profitability of crops, water consumption of crops, selection of cropping patterns that optimize productivity and returns while minimizing risk, water saving techniques of cultivation, and improved agricultural techniques.

- c. Review and assessment of the efficiency and effectiveness of the existing water supply systems in the pilot areas and initiate measures to (a) introduce bulk water metering and retail water metering where appropriate; (b) introduce operating plans and service improvement plans to increase operational efficiency(6 months from start);
- d. Utilise HGM maps on a GIS platform/template for each block incorporating all the relevant themes for continued analysis(6 months from start) ;
- e. Develop relational mapping between climate change grids and the pilots to better prepare for adaptation and mitigation measures against climate change induced variability in conjunction with the National Water Mission objectives (1 year);
- f. Identify variables to create an index for benchmarking and rating of blocks/districts in terms of water scarcity and availability and quality of drinking water service delivery (1 Year).

### **Develop Village/Block Water Security and Sanitation Plans**

Develop villages/ block water security plans with active participation of the community, Village Water and Sanitation Committees, BRCs, DWSM, PHED and other stakeholders. The plans should have options identified with budgets and O&M costs and options preferred by the community. The plan will also detail local institutional arrangements, roles and responsibilities and soft issues such as norms for water use regulation, user tariffs, quality monitoring etc. The Plan will also include actions for covering all households with toilets and solid and liquid waste management in the selected villages. (9 months)

### **Phase-3: Implementation of the Plans:**

The implementation of the Sustainability plans will be done by the respective VWSCs with support from BP/BRC, ZP/ DWSM, state level PHEDs and other organizations as appropriate. The budgets will be allocated as per the plans developed. Detailed execution plan will be drawn as a part of the overall water security plan. For works related to rainwater harvesting/ water conservation etc, it will be important to complete them before on-set of monsoons. (Start in 6 months)

The concerned NGOs will work with the selected communities to help them in the participatory water resources management and crop planning and diversification for optimizing returns.

### **Phase-4: Monitoring improvements:**

The VWSC and GP members and villagers will be trained and empowered to monitor the improvements due to the implementation of Sustainability and water security plans. Monitoring would be of O&M, water quality, quantity of water consumption by sectors and households, equity, dispute resolution etc. For external monitoring and evaluation, the Working Group may entrust each block to agencies like CGWB, NIH, and CAZRI. The BRC/ DWSM and/ or the state PHED will assist and support the VWSC/ GP in this phase. (12 -24 months). Key Resource Centres will help in documentation of the process and the lessons. CGWB and CAZRI will provide technical guidance.

## Outputs from the Pilot projects

The main output would demonstrate the three-pronged approach of convergence of MNREGS, Watershed programmes and NRDWP for source sustainability, community monitoring and management of water resources for optimal allocation and village /Block Water Security Planning in ensuring drinking water security. Other outputs will include:

- Sustainability plans developed and implemented through convergent action.
- Demonstration of Gram Panchayat, VWSC and community monitored and managed ground and surface water management and water quality monitoring and surveillance approach.
- Village Water Security Plans developed and implemented in pilot hydrological units. The same would be useful in developing planning guidelines/ templates for other areas;
- Information on actual costs in investments, capacity building and training which can be used as benchmark for future planning and budgeting purposes for scaling up and to sustain the approach;
- Agreement on the institutional framework (roles and responsibilities) and fund flows to operationalise the approach;
- A rating module that could help for scaling up;
- Training materials and a training plan to bring capacity for scale up

### ROLES AND RESPONSIBILITIES

RESPONSIBLE AGENCY	ROLE
MDW&S	Strategic management of the pilot through setting up and chairing a national Working Group, identification of the district/blocks. Preparation of TORs for identification of Support Organisations and necessary guidance to States, districts and blocks
STATE GOVERNMENT/PHED	Identify the blocks/hydrological units, Identification of Support Organisations, issue necessary GO, implement pilot programmes in their blocks
CGWB/CAZRI	Technical support and monitoring
Support Organisations	Training, Capacity Building and continued support to empower GPs, VWSCs and villagers
DoRD, DoLR, MoWR and MoAgri	Ensure convergence of funds at the local level; Technical support and facilitation
WSP-SA, FAO	Technical support

## ESTIMATED COST

The total estimated cost for 10 blocks for 3 years is Rs. 10.50 crore for the software component, which is expected to be allocated from NRDWP (Support) funds available with State Governments. The cost of hardware support is estimated at Rs.140 crore which is expected to be financed from the NRDWP(Sustainability) funds, MNREGS, Watershed programmes, BRGF, State Plan funds etc.

### List of over-exploited Blocks with among the highest levels of groundwater development selected by States for Pilot projects (as on 17/1/2012).

Sl. No.	District	Name of selected Block
<b>Andhra Pradesh</b>		
1	Anantapur	Gorantalu
2	Nalgonda	Moothey
3	Chittoor	Pileru
<b>Gujarat</b>		
4	Mahesana	Kheralu
<b>Haryana</b>		
5	Kaithal	Kaithal
<b>Karnataka</b>		
6	Kolar	Mulbagal
<b>Maharashtra</b>		
7	Amravati	Warud
8	Amravati	Morshi
<b>Madhya Pradesh</b>		
9	Ratlam	Piploda
10	Satna	Rampur Baghelan
<b>Punjab</b>		
11	Sangrur	Dhuri
<b>Rajasthan</b>		
12	Bhilwara	Raipur
<b>Tamilnadu</b>		
13	Dharmapuri	Morappur
<b>Uttar Pradesh</b>		
14	Agra	Barauli Ahir
15	Jhansi	Mauranipur

### Detailed costing of Support Organization

Sr.No	Detail	Untis	Cost/ unit/ month	cost/ year
			Rs' 000	Rs' 000
	<b>Staff costs</b>			
1	Team leader	1	30	360
2	Hydrological facilitator	1	25	300
3	Engineering facilitator	1	25	300
4	Social mobilizers	3	15	540
5	Admn/ accounts	1	15	180
	<b>Total staff</b>	<b>7</b>		
	<b>Admn costs</b>			
6	Lumpsum	1	20	240
	<b>Travel costs</b>			
7	Lumpsum	1	35	420
	<b>Total</b>			<b>2340</b>
	<b>Rounded off</b>			<b>2350</b>
	<b>Cost/ GP/ year</b>			<b>47</b>

#### Assumptions:

1. A team of about 10 professionals will work in about 50 GPs in a block
2. The admn costs include: office rent, communications, electricity, water
3. The travel cost is for the team to travel to villages regularly
4. Other costs related to training , exposure visits etc are budgeted separately

#### Broad activities of the SO are:

1. The main objective is to provide hands-on support to the GPs/ VWSCs.
2. Community mobilization and local institutions building (VWSCs etc)
3. Support VWSCs in groundwater and water demand estimates and preparing water budget
4. Support VWSCs in preparing water security plans
5. Support VWSCs in implementing water security plans
6. Organize/ coordinate training of VWSC members and local leaders from time to time
7. Coordinate with Block/ districts/ PHED and other important departments
8. Monitor progress, document and report on a quarterly basis to DWSM/ Block in-charge.



**Water Security Planning and Implementation Pilot Programme**  
**Budget Estimates for 2 years**

Sr.No	Category	Activity detail	Unit	Units/ Block	Cost/ unit	Cost/ Block
					Rs Lakhs	Rs Lakhs
1	<b>Software</b>					
1.1		Support Organization	50 blocks*2Years	100	0.47	47
1.2		Exposure visits	Elected reps/ officers 4 per GP	200	0.1	20
1.3		Training	SO staff/ VWSC reps 5 per GP	250	0.05	12.5
1.4		Measuring equipment	electrical sounders,tilti raingauge station etc	50	0.3	15
1.5		Software -GIS maps etc	Lumpsum			5
1.6		Field test kit refills	1 refill/GP/year=50*2	100	0.01	1
		<b>Sub total-1</b>				<b>100.5</b>
		<b>Rounded off</b>				<b>105</b>
2	<b>Hardware</b>					
2.1		Roofwater harvesting	Institutional buildings	250	0.8	200
2.2		Source protection/ conservation	Checkdam/ ponds etc.*	100	7	700
2.3		Augmenting/ new water	GP	50	10	500
		water supply systems				
		<b>Sub total-2</b>				<b>1400</b>
		<b>Rounded off</b>				<b>1400</b>
		<b>Total rounded off cost/ Block</b>				<b>1505</b>
		<b>Cost/ GP</b>				<b>30.1</b>
<b>Assumptions:</b>						
1. About 50 GPs in each block will be the target for software activites, in batches						
2.Each GP has about 150 hhs and 1000 people and 5 institutional buildings on an avergae						
3. Software activities will be carried out in all GPs, clustered in hydrological units						

	4. All the activities will be carried out in 2 years time
	5. Hardware activities will be carried out in needy villages as given below:
	5.1 About 5 institutional roofwater harvesting structures of 20,000 litres in all 5a0 GPs
	*5.2 Source protection, conservation measures like checkdams, percolation tanks, gully plugs, recharge pits, injection wells etc.planned in each GP
	5.3 Funds from other programs like MNREGS and IWMP will be converged for taking up source protection measures
	6. O&M will from O&M Funds, other funds like Finance Commission grants, user charges etc.
	7. These are rough estimates and final estimates will be developed during the GP level planning phase