

**Twelfth Five Year Plan – 2012-2017**

**Report of the Working Group on  
Rural Domestic Water and Sanitation**

**Ministry of Drinking Water and Sanitation**

**Government of India**

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## Executive Summary

**Domestic Water:** The Ministry of Drinking Water and Sanitation administers the National Rural Drinking Water programme (NRDWP), and the Total Sanitation Campaign through which support is extended to the states for implementing rural domestic water supply and sanitation schemes. Under the NRDWP powers to sanction individual projects is given to the states through their State Level Scheme Sanctioning Committees. Activities like, water quality monitoring and surveillance programme, management information system, IEC, Capacity and Communication Development Unit (CCDU) were brought under the umbrella of NRDWP. The achievement measured by habitations where the population is fully covered with adequate (40lpcd) and safe drinking water, as per information entered by States on the online monitoring system of the Ministry, is about 72% of total rural habitations. The rest are either partially covered or have drinking water sources contaminated with chemical contamination. The achievement as estimated by independent studies like the NSSO 65<sup>th</sup> Round Survey of 2008-09 shows that about 90% of rural households obtain their drinking water from improved sources. However coverage of piped water supply is still poor at 35% as per IMIS. Issues like slippage from fully covered to partially covered due to depleting groundwater sources, contamination of sources, poor Operation and Maintenance, lack of adequate involvement by the community or Panchayats continue to dog the system, leading to poor service delivery. Therefore the sector requires further strengthening on various aspects in order to successfully and effectively provide at rural households with safe and adequate domestic water supply available at all times. In order to achieve this, the following are the major activities recommended in the 12<sup>th</sup> Five year plan.

All out efforts should be made during the plan period to improve full population coverage in all habitations taking into consideration aspects of quantity, quality, distance, timeliness, regularity and reliability of supply by the implementing agencies so as to ensure reasonable and reliable water supply to all including the poorest sections. One of the important recommendations is to aim to cover at least 55% of the total rural households with piped water supply, with house connection as far as possible. A mix of all the systems, such as piped sources, spot sources, water harvesting systems, protected sources etc according to the feasibility should be provided. Piped water supply or improved spot sources within 100 metres radius and within 10 metres elevation in hilly areas from the dwelling unit is proposed. In the changed context of providing importance to piped water systems in rural areas quantity is defined as providing a minimum of 55 litres per capita per day (lpcd) to all. It is recommended that Govt of India focus its funding on piped water supply with a small percentage for handpumps in difficult areas so as to provide higher levels of service. States can continue to provide handpumps out their own resources.

Drinking water security can be best ensured by building capacity of local communities to monitor and measure their water resources, prepare water budgets and take steps to self-regulate demand for water from irrigation and industry. Therefore, Aquifer management plans by villages and panchayats should be an integral part of ensuring drinking water security especially in water stressed and quality affected areas. Sustainability of drinking water sources has to be ensured by convergence with MNREGS, NRDWP Sustainability component and IWMP. Detailed Project Reports should contain not just construction elements but also aspects like provision for water supply, demand and budgeting, community and VWSC/GP capacity building, recharge and conservation structures for drinking water sources, O&M Plan, management plan and waste water management by convergence with MNREGS, TSC.

One of the important and increasingly difficult problems that require focused attention during the plan period is of water quality, more specifically, fluoride and arsenic besides bacteriological contamination. Jalmani programme should be continued with funding under NRDWP Quality component.

Participation of the beneficiaries in water supply schemes should be ensured right from the planning stage spanning over construction and post scheme completion management stages, including O&M. The report envisages providing enabling support and environment to the Village Water and Sanitation Committees, Panchayati Raj Institutions and local communities to manage and carryout operation and maintenance of at least 60% of rural drinking water sources and systems, by devising suitable mechanisms locally adaptable to the community with guidance and assistance from the Block Resource Centres, District Water and Sanitation Missions, State Resource Centre and Regional/District Resource Centres. Subsidiarity principle will be followed in implementing water supply schemes. Decisions with regard to issues such as location, implementation, O&M and management etc of the scheme should be made at the habitation level while retaining an umbrella role for the GP. At least 5 members of each VWSC should be given 2-3 days initial training and one day orientation every year thereafter.

IEC efforts, one of the less emphasised aspects of water supply and sanitation should be strengthened in all aspects, with innovative approaches. IEC for habitations affected with fluoride and arsenic etc. in drinking water and in LWE districts, should be taken up on the same scale as that of IEC campaigns for HIV/AIDS & Pulse Polio Campaign.

Sustainability of source at the local level, including that of ground water and surface water should be ensured and appropriate water harvesting structures are to be constructed. A water security plan based on overall water resources planning needs to be prepared for all habitations facing problems of arsenic, fluoride, iron, salinity and ground water depletion by the Village Water and Sanitation Committee, with suitable

guidance. Participatory ground water monitoring stations and rain gauges should be set up in Gram Panchayats in water stressed areas.

In order to ensure sustainability of systems and water sources, appropriate cost recovery measures need to be incorporated. Allocation for O&M in the NRDWP should be increased from 10% to 15% of the allocation. At the time of transfer of the scheme to the Managing Committee/ VWSC, an O&M Corpus fund amounting to 10-15% of the project cost should be granted to the Committee to supplement their income for O&M. A minimum collection of 50% of O&M cost (including electricity charges) through user charges is advocated. Water metering, both bulk and individual household, should be promoted in all piped water supply schemes to reduce unaccounted for water.

Earmarked funds are provided for the implementation of water supply to weaker section of society, such as Scheduled Castes, Scheduled Tribes, other weaker sections of society, Integrated Action Plan districts, DDP areas and North Eastern states. It is recommended that 10% of the NRDWP allocation be given to IAP districts.

There is an urgent need to strengthen the institutional structure in the states by setting up a multi-disciplinary organisation, Rural Water and Sanitation Management Organisation to bring in holistic planning, implementation and management of schemes. It should have personnel with suitable academic qualification and experience to oversee work relating to water security planning, water conservation and recharge, construction of civil and engineering works, community mobilization, financial planning & management, accounting, mass communication, training, etc.

Convergence with TSC to ensure that all villages with piped water supply systems become ODF and to give priority to villages with higher level of toilet coverage in selection for coverage with piped water supply schemes is recommended. An integrated housing and amenities project with a part of the NRDWP, TSC and IAY allocation set apart for providing rural houses with piped water supply, bathroom and toilet facilities is recommended.

It is proposed to specify a Management Devolution Index to calculate the allocations to States from the Incentive Fund for panchayats managing water supply schemes. A further incentive fund to incentivise greater investment on piped water supply systems, on preparation of complete DPRs and setting up of multi-disciplinary organisation at State level and incentives to GPs for collection of user charges are also recommended. In states where coverage of piped water supply is far below the national average, a specific project is recommended with financial assistance from multi-lateral agencies.

Monitoring of water and sanitation systems needs to be strengthened substantially in both centre as well as in the states, districts and blocks. It should focus on service

delivery aspects in addition to infrastructure creation. Social auditing at each stage should be made mandatory and the DWSSM should see that all the processes of social auditing are carried out by the gram panchayat. Community organisations and Civil Society Organisations should be provided with increased role in many activities, including that of training and preparing the community, piloting innovative approaches, IEC, social audit, monitoring and evaluation etc. with appropriate checks and measures wherever required, ensuring transparency in governance.

**Sanitation:** TSC is a demand driven, community led project based programme taking district as a unit. The campaign is being implemented in 607 rural districts of the country. Past performance during last one decade has resulted in continued improvements in access to sanitation, increased attention to usage of toilets and sustenance of hygienic behaviour change, and safe conveyance and disposal of sullage at the community level to reap the benefits of improved health, personal hygiene and environmental sanitation.

TSC has seen an increase in the number of households having access to sanitation facilities increasing by about 6.6% average annually over the past decade. The TSC programme was given a further boost with the introduction of the Nirmal Gram Puraskar (NGP) in 2003, an innovative incentive scheme for Gram Panchayats, Blocks and Districts, that have attained cent per cent sanitation coverage. Cent per cent sanitation coverage includes eradicating the menace of open defecation, provision of sanitation facilities in all households and educational institutions, promoting hygiene education at school level and maintaining environmental sanitation in the village. The system of NGP is proposed to be continued during the next plan period also, with appropriate modifications wherever required.

Some of the factors responsible for achievements as reported are a nation-wide enabling policy framework, decentralized planning, implementation and monitoring at Gram Panchayat levels, transparent national-level reporting and monitoring and independent validation, states' adoption of the incentive awards and recognition of communities achieving total sanitation, promotion of a range of appropriate and affordable technology options to suit different areas and communities, and support to the supply-side of sanitation material and products through alternate delivery mechanism.

However, a decade's experience in implementing the sanitation challenge has also brought forward issues that need to be addressed in the 12<sup>th</sup> Plan to take forward the sanitation coverage from the present levels to perhaps **cent percent rural sanitation coverage** by the last year of 12<sup>th</sup> Plan i.e. 2017. Some of these issues that need to be addressed are sustaining toilet usage and behaviour change, variable performance across states and districts, accelerating the programmes to address the uncovered as

well as population growth, improved targeting of the poorest households, addressing solid and liquid waste management, improving accountability for performance, and improving data-collection systems and reconciling different estimates of coverage and behaviour change.

The Ministry has also finalized through extensive stakeholders' consultations, a **'National Rural Sanitation and Hygiene Strategy 2012-2022'** to achieve sanitation related goals in a time-bound manner linked to Plan periods. Other efforts required include performance benchmarking of states and districts, improving behaviour change communication strategies, streamlining and strengthening institutional structures, for planning, implementation and monitoring of sanitation at all levels, attention to incentives and capacity building issues, and according special attention to special segments and difficult areas during the 12th plan period.



## Chapter 1 – Introduction

The Ministry of Drinking Water and Sanitation administers the National Rural Drinking Water programme (NRDWP) instituted from 1/4/2009, through which support is extended to the states for implementing rural domestic water supply schemes. Powers to sanction individual projects is given to the states through their State Level Scheme Sanctioning Committees. Activities like, water quality monitoring and surveillance programme, management information system, IEC, Capacity and Communication Development Unit (CCDU) all were brought under the umbrella of NRDWP. However it requires further strengthening on various aspects in order to successfully and effectively provided at rural households with safe and adequate domestic water supply available at all times.

### **1.1 Rural Water Supply since independence**

A brief account of the evolution of the planning process in the domestic water front and the salient land marks are summarised in the Table 1.1 below.

<b>Table 1.1 - Drinking Water Supply Programs &amp; Policies at a Glance</b>	
<b>Year</b>	<b>Event</b>
1949	The Environment Hygiene Committee (1949) (Bhor Committee) recommends the provision of safe water supply to cover 90 per cent of India's population in a timeframe of 40 years.
<b>1950</b>	The Constitution of India specifies water as a state subject.
<b>1969</b>	National Rural Drinking Water Supply program launched with technical support from UNICEF and Rs.254.90 crore is spent during this phase, with 1.2 million borewells being dug and 17,000 piped water supply schemes being provided.
<b>1972-73</b>	Introduction of the Accelerated Rural Water Supply Program (ARWSP) by the Government of India to assist states and union territories to accelerate the pace of coverage of drinking water supply.
<b>1981</b>	India as a party to the International Drinking Water Supply and Sanitation Decade (1981-1990) declaration sets up a national level Apex Committee to define policies to achieve the goal of providing safe water to all villages.
<b>1986</b>	The National Drinking Water Mission (NDWM) launched to accelerate the

	process of coverage of the country with drinking water.
<b>1987</b>	First National Water Policy drafted by Ministry of Water Resources giving first priority for drinking water supply.
<b>1991</b>	The National Drinking Water Mission (NDWM) renamed as Rajiv Gandhi National Drinking Water Mission (RGNDWM).
<b>1994</b>	The 73 <sup>rd</sup> Constitution Amendment makes provision for assigning the responsibility of providing drinking water to the Panchayat Raj Institutions.
<b>1999</b>	Formation of separate Department of Drinking Water Supply in the Ministry of Rural Development, Govt. of India. For ensuring sustainability of the systems, steps are initiated to institutionalize community participation in the implementation of rural drinking water supply schemes through sector reform. Sector Reform ushers in a paradigm shift from the 'Government-oriented supply-driven approach' to the 'People-oriented demand driven approach'. The role of the government reoriented from that of service provider to facilitator. Total Sanitation Campaign (TSC) as a part of reform principles initiated in 1999 to ensure sanitation facilities in rural areas with the specific goal of eradicating the practice of open defecation. TSC gives strong emphasis on Information, Education and Communication, Capacity Building and Hygiene Education for effective behavior change with involvement of PRIs, CBOs, and NGOs
<b>2002</b>	Scaling up of sector reform initiated in the form of Swajaldhara programme. The <b>National Water Policy</b> revised; priority given to serving villages that did not have adequate sources of safe water and to improve the level of service for villages classified as only partially covered. India commits to <b>the Millennium Development Goals</b> to halve the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015, from 1990 levels.
<b>2005</b>	The Government of India launches the Bharat Nirman Program, with emphasis on providing drinking water within a period of five years to 55,069 uncovered habitations, habitations affected by poor water quality and slipped back habitations based on 2003 survey. Revised sub Mission launched as component of ARWSP for focussed funding of quality affected habitations.
<b>2007</b>	Pattern of funding under Swajaldhara changed: 50:50 centre-state share.
<b>2009</b>	National Rural Drinking Water Programme launched from 1/4/2009 by modifying the earlier Accelerated Rural Water Supply Programme and subsuming earlier sub Missions, Miscellaneous Schemes and mainstreaming Swajaldhara principles.

<b>2010</b>	Department of Drinking Water Supply renamed as Department of Drinking Water and Sanitation
<b>2011</b>	Department of Drinking Water and Sanitation upgraded as separate Ministry of Drinking Water and Sanitation

## 1.2 Investments in the Plan Periods

The following investments were made in rural domestic water supply and rural sanitation in the preceding Plans since the era of planning started in the country after Independence.

<b>Table 1.2 Investments in Domestic Water and Sanitation – 1951 to 2012 (Rs. In crore)</b>		
Plan Period	Investment Made - <b>Water</b>	
	Centre	State
1 <sup>st</sup> (1951-56)	0	3
2 <sup>nd</sup> (1956-61)	0	30
3 <sup>rd</sup> (1961-66)	0	48
4 <sup>th</sup> (1969-74)	34	208
5 <sup>th</sup> (1974-79)	157	348
6 <sup>th</sup> (1980-85)	895	1530
7 <sup>th</sup> (1985-90)	1906	2471
8 <sup>th</sup> (1992-97)	4140	5084
9 <sup>th</sup> (1997-2002)	8455	10773
10 <sup>th</sup> (2002-2007)	16254	15102
11 <sup>th</sup> (2007-2012) Proposed	39490	
11 <sup>th</sup> Plan Actual	40150	49000
<b>Total</b>	<b>71991</b>	<b>84597</b>

Despite the combined efforts of both the Centre and the States by investing more than Rs 1,35,000 crore the goal of providing safe and adequate domestic water to every rural person in the country still remains to be fully achieved. Though there are several reasons for this, it is necessary that the challenges should be identified and the future direction laid down to overcome these challenges.

### 1.3 12<sup>th</sup> Five Year Plan – Working Group

A Steering Committee was constituted under the chairmanship of Dr. Mihir Shah, Member, Planning Commission to formulate the 12<sup>th</sup> Five Year Plan (2012-2017) on Domestic Water and Sanitation (Urban and Rural).

The Planning Commission also had 6 consultations with Civil Society organisations covering all the states in the country. All the six regional consultations were attended by eminent personalities from NGO's, Panchayats and Academics. Deliberations were held on water quantity and availability, quality, accessibility and issues of sustainability. The recommendations of these regional consultations also have been considered in drafting the report of this working group.

Further a Working Group on Rural Domestic Water Supply and Sanitation was constituted under the Chairmanship of Shri. Joe Madiath, Chairman, 'Gram Vikas,' and Co Chairmanship of initially Shri. Arun Kumar Misra and later Shri Navin Kumar, Secretary, Drinking Water & Sanitation, Govt. Of India to deliberate on the problems faced in the sub sector and formulate proposals. The composition and terms of reference of the Working Group are at Annex-I.

In the above context the first meeting of the Working Group on Rural Domestic Water Supply and Sanitation was held on 10-02-2011 under the chairmanship of Shri Joe Madiath and co-chairmanship of Shri Arun Kumar Misra, Secretary, Drinking Water and Sanitation. Ten sub groups were formed to make in an depth analysis of different aspects as indicated below.

<b>Sub-Group</b>	<b>Subjects allocated</b>
1	Appropriate Technology
2	Issues of Governance, Sustainability of sources and schemes
3	Capacity building and IEC in water and Sanitation
4	Right to water and equity issues
5	Incentives and subsidy in Domestic Water and Sanitation

6	Coverage of Rural domestic water and sanitation
7	Approach to Sustainability - Water
8	Water quality – Monitoring and mitigation
9	Nirmal Gram Puraskar
10	Approach to Sustainability – Sanitation

The Working Group in its subsequent meetings held on 17-03-2011, 5-05-2011 and 7-7-2011, 19-8-11 and 6-9-11 considered, discussed and debated the reports of these sub groups. The minutes of these meetings are at Annexure II. The salient points of the discussion are briefly narrated here under.

- (i) Coverage should be redefined incorporating aspects like distance to source, availability of adequate water, perenniality of supply, waiting and queuing time, quality and time of availability of supply, intermittence and duration of supply, etc.
- (ii) Basic piped water supply wherever feasible, with a mix of household connections, stand posts, hand pumps, protected systems, water harvesting etc. should be ensured during the plan period.
- (iii) Piped water supply schemes should have a design of minimum 55 lpcd for stand posts and 70 lpcd for house connection/yard taps with cost effectiveness to the extent possible. In extreme cases where hand pumps alone are feasible or in desert areas and quality affected areas a minimum of 40 lpcd of water satisfying the physical, chemical and bacteriological standards should be ensured.
- (iv) People should have access to water from any of these sources in at least a radial distance of 50 meters. There is a need to reassess coverage status of every habitation on the basis of the new criteria.
- (v) Ensure that all households, schools including those under private ownership and Anganwadis in rural India have access to and use adequate quantity of safe drinking water of required quality.
- (vi) Utmost priority should be given to villages affected by quality of water such as fluoride, arsenic, iron and other chemical and natural contaminants. Efforts should be explored to check such contamination.
- (vii) Provide enabling support and environment to the Village Water and Sanitation Committees, Panchayati Raj Institutions and local communities to manage and carryout operation and maintenance of at least 60% of rural drinking

- water sources and systems, by devising suitable mechanisms locally adaptable to the community with guidance and assistance from the District Water and sanitation Missions.
- (viii) The inclusive process of economic growth as envisaged in the Twelfth Five Year Plan should also be incorporated while the panchayats and other local bodies carryout their work.
  - (ix) The State Departments, Panchayats and other local bodies should incorporate public participation in all aspects of drinking water supply, right from its planning, formulation of strategies, implementation, monitoring and on operation and maintenance of systems. VWSCs should have more than 50% women members from all communities. Necessary guidelines can be evolved at the State level based on specific requirements of the state.
  - (x) Sustainability of source at the local level, including that of ground water and surface water should be ensured and appropriate water harvesting structures are to be constructed. Plans should be prepared and executed with the help of technical personnel and Gram Panchayat with suitable convergence with MNREGS wherever feasible.
  - (xi) Allocation of plan outlay for SCs and STs should be based on the percentage of their population in each State.
  - (xii) Conventional and cost effective water treatment technologies have to be propagated and scaled up where ever feasible, so that the burden of O&M can be minimised.
  - (xiii) Just like the participatory forest management, drinking water supply systems also should ensure participation of the community in the management and activities of operation and maintenance.
  - (xiv) IEC efforts should be strengthened in all aspects along with further follow up measures for its effectiveness. Measures adaptable and suited to local conditions and culture, level of education etc. of the local community have to be considered while making such strategies. The State Water and Sanitation Mission and District Missions may formulate IEC guidelines suitable to local conditions, so as to make IEC impact more long standing and sustainable within the community.
  - (xv) Augmentation and ground water recharge techniques should be taken up in a big way and in a mission mode, as almost 85% of the sources are ground

water based. Wherever no other option is feasible, inter basin transfer of water may be resorted to.

- (xvi) In coastal areas desalination technologies and decontamination technologies have to be effectively implemented and monitored so as to ensure water security to the vulnerable community specifically and the coastal inhabitants in general.
- (xvii) A water security plan based on overall water resources planning needs to be prepared for all habitations facing problems of arsenic, fluoride, iron, salinity and ground water depletion by the Village Water and Sanitation Committee, with suitable guidance from either the local body or the technical personnel or from District Water and Sanitation Missions..
- (xviii) Advisory group consisting of technical personnel, teachers in the local area, and other prominent persons should be formed in each panchayats and they should be consulted by the gram panchayat before making decisions concerning water. Objections if any by the group should be properly addressed.
- (xix) Participatory ground water monitoring stations have to be instituted in all Gram Panchayats with guidance from technical persons. Restrictions have to be imposed on groundwater extraction in places where ground water is already over exploited or nearing a critical level. NGO's and technical personnel are to be involved in educating local youngsters on hydrogeology, aquifer identification, quality problems, maintenance of recharge structures, water use efficiency, preparation of village level sustainability plans and awareness campaigns.
- (xx) No comprehensive data are available nor any study done on the impact of climate change on drinking water in Indian conditions. Before launching any mitigation strategies a comprehensive study need to be carried out on different aspects, so that mitigation strategies on all levels right from the village up to the country can be evolved. Inter-sectoral implications and linkage effects also need to be analysed in this context.
- (xxi) While ensuring right to water for meeting basic needs for all, appropriate pricing strategies have to be evolved in respect of piped schemes so as to at least meet the Operation and maintenance expenditure.
- (xxii) Inter-sectoral water resource allocation must be discussed both in the Sub-Committees of the panchayat and in the panchayat especially water budgeting and allocation among various competing uses like agriculture,

- industry, drinking and other purposes, domestic animals etc. The Panchayat raj institutions must be provided with suitable training and technical assistance by the MDWS and State Water and Sanitation Missions. This should be carried out without jeopardising the locally prevailing conventional practices if they are advantageous.
- (xxiii) In order to ensure water security for drinking purposes, no bore well other than for household consumption should be allowed at least in 500 metre radius of the existing drinking water sources. The regulation has to be enforced by the panchayats and no sanction should be provided under any circumstances for the development and exploitation of ground water within this 500 meter for any other purpose other than household consumption.
  - (xxiv) With enhanced out lays both at the central level and in the states and considering the priority of the basic need of drinking water and sanitation there is an urgent need to strengthen the PHEDs in the states and the Ministry of Drinking Water and Sanitation in the centre. Suitable qualified professionals with advanced training should be inculcated into all the organisations according to need and necessity, and professionalise the organisation for better results and easy implementation of programmes. Similarly the District Water and Sanitation Missions also need to be strengthened with suitable infrastructure and personnel for the smooth implementation of projects and programmes.
  - (xxv) Substantial social engineering input at the gram panchayat level from the planning stage, up to the completion of a rural water supply scheme and its handing over to the village water and sanitation committees is a pre requisite to ensure sustainability.
  - (xxvi) Social auditing at each stage should be made mandatory and the DWWSM should see that all the processes of social auditing are carried out by the gram panchayat.
  - (xxvii) States and District Panchayats should be provided with sufficient powers and flexibility to allocate funds exclusively for non covered habitations of SCs and STs. States that need more resources for coverage of SCs and STs should earmark more of their resources for coverage.
  - (xxviii) Presently the Water Quality Assessment Authority is under the Ministry of Environment and Forests. In order to ensure smooth functioning and considering the increasing problems of arsenic, fluoride, iron, salinity, nitrate etc. in drinking water, a separate Drinking Water Quality Assessment



Authority should be constituted and brought under the purview of Ministry of Drinking water and Sanitation or Ministry of Health and Family Welfare.

- (xxix) Data collection and data base of the Ministry is inadequate to meet the increasing need and also to utilise the Integrated Monitoring and Information System (IMIS). This need to be suitably strengthened with induction of more professional experts into the system. Data have to be collected, maintained and analysed, and the quality of data so collected should be of superior quality. Professionalism need to be brought in into the IMIS, including training of personnel and ensuring quality of the information collected.
- (xxx) It was agreed by all the members that financial support under the TSC should continue on an enhanced basis, keeping in view the socio-cultural and economic aspects of villages.
- (xxxi) Regarding financial support beyond BPL, members were of the view that such support should cover all APLs with focus on SC,ST,OBC, minorities and small and marginal farmers, as most people under these categories generally do not generate the required financial resources to construct toilets for achievement of ODF status, for which government support is necessary.
- (xxxii) It was discussed that at present the implementer of the programme itself is the regulator .Therefore, there was a need for an independent regulator to check programme implementation and actual progress at state/district level.
- (xxxiii) Regarding rehabilitation of defunct, disused and misused toilets, it was suggested to have provisions in the scheme to rehabilitate such toilets to restore them to proper use without which total sanitation would not be achieved. New financial provisions are required to upgrade toilets which are not-in use due to various levels of defects.
- (xxxiv) Many constructed toilets are not in use due to lack of water. There is a direct link between availability of water and sanitation. Conjoint approach to water and sanitation was necessary for attaining sanitation goals.
- (xxxv) All the members were of the view that more effective IEC & capacity building initiatives need to be worked out. . New IEC strategies are therefore need of the hour to generate effective and sustainable demand for sanitation facilities.
- (xxxvi) Sustainability of achievements was a major concern that needs to be built into the approach to the scheme.

- (xxxvii) Concern was expressed about unavailability of proper solid liquid waste management technologies, mechanisms and funding resources in rural areas.
- (xxxviii) Principle of basic points in any monitoring related requirement i.e. Scope, Integrity of information, Harmonization of information and Accessibility of information should be implemented for both, water and sanitation.
- (xxxix) Coverage of sanitation should be viewed in terms of individual as well as community levels. Construction of toilets as per TSC guidelines should be with appropriate superstructure for their proper use. For community, where people don't have space or fund or both to have their own toilets, provision of community sanitary complexes is the best option to improve sanitation.
- (xl) Solid and Liquid Waste Management in rural areas is the part of Nirmal Gram Puraskar, hence need to be appropriately funded.
- (xli) There was a need for more technological options to be evolved through R&D process.
- (xlii) Integrating bathing facility along with toilet which would add to privacy and dignity to women also need to be explored.
- (xliii) Members showed concern that role of NGOs is slowly diminishing from the campaign. There is a need to integrate and involve NGOs at each stage of implementation for optimum results.
- (xliv) Role of Civil Society Organizations (CSOs) and Panchayati Raj Institutions (PRIs) need to be highlighted for successful implementation of programmes relating to sanitation.
- (xlv) Separate strategy for implementation of TSC in NE states need to be evolved keeping in view their hydro-geological conditions.
- (xlvi) It was discussed that Ministry should progressively work towards recognizing water and sanitation as legal right in the country.
- (xlvii) It was considered that possibility should be explored to extend financial support under TSC to all the rural households covered under the Food Security Act.

The report of the Working Group consists of two parts. Part – A deals with Domestic Water and Part – B is on Sanitation.

**Part A – Domestic Water**

## Chapter 2 - Methodologies, Terminologies and Definitions

### 2.1 Introduction

Methodologies and definitions have varied considerably over the years in the water and sanitation sector depending on the changes needed. Improvements on these have been incorporated with a view to accommodate the changes in the hydro-geological conditions, provision and improvement in the services from time to time, changes in the technological innovations over periods and the felt needs of the population.

**2.2 Current Terminologies and Definitions:** There are two issues involved in this, one on the coverage of habitations and the other is on the per-capita availability of water in the covered areas. Table 1 shows the definition of coverage.

Table 1 – Definition of coverage	
ARWSP	NRDWP
<p>The criteria for a habitation to be considered as 'Fully Covered' are —</p> <p>(a) 40 litres of safe drinking water per capita per day (lpcd) and additional 30 lpcd for animals in the Desert Development Program Areas;</p> <p>(b) one hand pump or stand post for every 250 persons; and</p> <p>(c) the water source should exist within the habitation or within a distance of 1.6 km. in the plains and within 100 metres elevation in the hilly areas.</p> <p>Drinking water is defined as safe if it is free from bacterial contamination, chemical contamination viz. fluoride, iron, arsenic, nitrate, brackishness in excess or beyond permissible limits.</p>	<p>Percentage of people within habitation getting basic minimum quantity of potable water (40 lpcd in non-desert, 70 lpcd in desert areas) within a distance of 500 meters from the household in the plains and 50 mts in the hills from either a public or a community source</p> <p>While planning for schemes in any year priority is to be given to habitations where there is no coverage or partial coverage of population with access to adequate and safe drinking water. The habitations can be categorised based on percentage of population covered. States have flexibility to adopt better norms of coverage.</p>

**2.3 Issues in Terminologies of Coverage:** The major issues that were pointed out in the definitions of coverage in the Working Group are:

- Habitation as a unit is not synchronous with the planning unit i.e. a gram panchayat or a village; probably households in a village could be

considered as the unit of measurement, with village and gram panchayat as further layers of units of measurement.

- Seasonal scarcity and water quality fluctuations are not accounted;
- does not account for access round the year;
- does not account for reliability in terms of timing of supply;
- Does not account for the time taken to get the basic quantity , both in terms of travel distance as well as in terms of terminal pressures;
- Does not account for the breakdowns;
- Does not account for seasonal variations in water quantity and quality;
- Hygiene behaviour of the inhabitants or the local institutional capacity is not considered.

Hence, it was suggested to have a change in the existing definitions of coverage.

As regards terminology it was felt that the current norm of per capita availability should be changed in order to ensure drinking water security. The Working Group is of the view that the focus is on the availability of source by and large and very little attention is paid to access. It is also of the view that the status of sources need to be suitably updated based on the field data. The chances of interchangeability of “availability” with “supply” is high, and this could possibly lead to errors in reporting and data.

The question of how the litres per capita per day (lpcd) is calculated needs some review. The requirement of lpcd under the ARWSP was calculated based on the criteria shown in table 2.

Table 2 – Quantity requirements arrived at for domestic water supply	
Purpose	Quantity (LPCD)
Drinking	3
Cooking	5
Bathing	15
Washing Utensils and House	7
Ablution	10
TOTAL	40

The Working Group felt that the above norms are inadequate to capture the water security in a village. Hence it is necessary to have an alternative framework. The following definitions are suggested:-

#### **2.4 Suggested Terminologies and Definitions in the 12<sup>th</sup> Five Year Plan:**

The following terminologies and definitions are suggested in the changed context of rural water and sanitation in the country.

- (i) Access: Access to drinking water supply is defined as those households that are having access to piped water supply or improved spot sources within 100 metres radius and within 10 metres elevation in hilly areas from the dwelling unit.
- (ii) Quantity: In the changed context of providing importance to piped water systems in rural areas quantity is defined as minimum of 55 litres per capita per day in non desert areas and 85 lpcd in desert areas.
- (iii) Quality: Quality of water is defined in terms of BIS: 10500 permissible limits.
- (iv) Time for collecting water: Time spent for collecting domestic water should be less than 30 minutes per day per household.
- (v) Regularity of supply: At least twice a day.
- (vi) Number of hours of supply per day: Two hours per day minimum.
- (vii) Frequency of supply: One hour's continuous supply – twice a day
- (viii) Reliability of supply: Supply from any improved source throughout the year.

States would have flexibility to adopt better norms of coverage. However, for purposes of comparability and reporting at the national level the above norms should be used.

Though incorporating all these indicators is difficult, all out efforts need to be made by the implementing agencies to incorporate them so as to ensure reasonable and reliable water supply to all including the poorest sections.

## **Chapter -3 Review of Performance in 11<sup>th</sup> Five Year Plan**

### **3.1 Review of Performance in 11<sup>th</sup> FYP**

Since the First Five Year Plan (1951-1956), Government of India (GoI) and State governments have till end of 2010-11 spent about Rs. 1,35,000 crore on rural drinking water. Under the current Eleventh Five Year Plan (2007-2012), the total expenditure is likely to exceed Rs. 90,000 crore, and it is certain that investment in rural water supply will increase even more. In the Eleventh Plan document, it was decided that the major issues which need tackling during this period are the problem of sustainability, water availability and supply, poor water quality, centralized vs. decentralized approaches and financing of O&M cost while ensuring equity in regard to gender, socially and economically weaker sections of the society, school children, socially vulnerable groups such SC, ST, Minority and people residing in LWE districts etc.

#### **3.2.1. ARWSP**

Under the Accelerated Rural Water Supply Programme (ARWSP) India made good progress in terms of coverage. The Uncovered habitations as of 1<sup>st</sup> April, 2005, were 55,067 (4,588 Not Covered, and 50,479 partially Covered) of which 55067 uncovered habitations were covered as on 01<sup>st</sup> April, 2011. However, out of the total number of 16, 64,186 habitations in India, the States reported that 477426 habitations, 28.69 (%) were partially covered and 7.2 (%) habitations were water quality affected as on 1<sup>st</sup> April, 2011. The reasons for this include: a) the inclusion of newly formed peri-urban habitations and small habitations with less than 100 persons in line with NRDWP guidelines. b) Slippage of covered habitations due to poor O&M and drying up of sources. c) Increase in population and growth of settlements. d) increasing contamination of sources due to natural and manmade causes e) Increased testing of sources and improved knowledge of quality affected areas. f) changing norms of coverage adopted by the States due to flexibility given under NRDWP.

#### **3.2.2 Swajaldhara (2002 – 2009)**

Reforms in the rural drinking water sector were adopted in 1999 through Sector Reform Project (SRP) on a pilot basis and have been scaled up throughout the country in the form of Swajaldhara launched on 25th December 2002. The programme is a paradigm shift from supply driven to demand driven, centralized to decentralized implementation and Government's role from service provider to facilitator. The fundamental reform principles in Swajaldhara are adhered to by the State Governments and the Implementing Agencies in terms of adoption of a demand-responsive approach with community participation. It is based on empowerment of villagers to ensure their full

participation in the project through a decision making role in the choice of the drinking water scheme, planning, design, implementation, control of finances, management arrangements including full ownership of drinking water assets. The community has to share partial capital cost either in cash or kind or both and 100% responsibility of operation and maintenance (O&M). An integrated service delivery mechanism is also promoted which includes taking up conservation measures through rainwater harvesting and ground water recharge systems for sustained drinking water supply. The principles of Swajaldhara have been mainstreamed in NRDWP.

### **3.2.3 NRDWP (2009-2012)**

In order to address the above issues flagged in the Eleventh Plan document., the Rural Water Supply Guidelines have been revised w.e.f. 1.4.2009. The revised guidelines known as National Rural Drinking Water Programme (NRDWP) focus on the following areas:

- Moving forward from achieving habitation level coverage towards household level drinking water security & coverage.
- Moving away from over dependence on single drinking water source to multiple sources t h r o u g h conjunctive use of surface water, ground water and rainwater harvesting.
- Ensuring sustainability in drinking water schemes for which 20% of NRDWP allocation is provided on 100% Central share basis.
- Encouraging water conservation methods including revival of traditional water bodies
- Convergence of all water conservation programmes at the village level ;
- Ensuring household level drinking water security through water budgeting and preparation of village water security plans.
- Giving flexibility to States to adopt better service norms for determining coverage viz distance to handpump, persons per handpump, quantity of water per person etc.
- Incentivising States to hand over management of rural water supply schemes to Panchayats..
- Subsuming support activities like WQMS, IEC, HRD, MIS, R&D, STA in NRDWP and providing it 5% allocation in NRDWP funds.
- Consciously moving away from high cost treatment technologies for tackling arsenic and fluoride contamination to development of alternative sources in respect of arsenic and alternate sources/dilution of aquifers through rainwater harvesting for tackling fluoride contamination.

### **3.2.4. Bharat Nirman Phase I (2005-2009) & II ( 2009-2012)**

Bharat Nirman, a programme to build rural infrastructure, was launched by the Government of India in 2005. Phase I of the programme was implemented in the period



2005-06 to 2008-09. Phase II is being implemented from 2009-10 to 2011-12. Rural drinking water is one of the six components of Bharat Nirman. During the Bharat Nirman Phase – I period, 55,067 un-covered and about 3.31 lakh slipped-back habitations were to be covered with provisions of drinking water facilities and 2.17 lakh quality-affected habitations were to be addressed for water quality problem.

While prioritizing the addressal of the water quality problem, arsenic and fluoride affected habitations have been accorded priority followed by iron, salinity, nitrate and other contaminants. To ensure that habitations once provided with drinking water supply infrastructure do not slip back and face drinking water problem, sustainability of drinking water sources and systems has been accorded high priority. To achieve drinking water security at village/ habitation level, conjunctive use of water i.e. judicious use of rainwater, surface water and ground water is promoted.

### **3.3 Physical Progress in Bharat Nirman**

**i) Uncovered habitations:** Against 55,067 un-covered habitations to be covered during the Bharat Nirman period, 54,440 habitations have been covered during Phase-I. During 2009-10, 251 habitations out of 586 targeted habitations were covered. In 2010-11, 376 habitations have been reported as covered upto 31.03.2011.

**ii) Slipped back habitations:** In Phase I (2005-06 to 2008-09) 3.58 lakh slipped back habitations were reported as covered by the States against the target of 3.31 lakh habitations. However, as on 1/4/2009, the States reported that a further 4.94 lakh habitations were partially covered. In 2009-10 and 2010-11, 2.10 lakh partially covered/slipped back habitations have been covered. In 2011-12 states have targeted to cover 1.15 lakh partially covered habitations.

#### **ii) Quality-affected habitations:**

As reported by the States, 3,10,698 quality affected habitations were addressed by sanctioned projects and of these 50,168 habitations have been fully covered with completed projects to provide safe water supply during Phase-I. As on 1.4.2009 at the beginning of Bharat Nirman phase-II, states reported that 1,79,999 quality affected habitations were remaining to be covered. Of these during 2009-10, 32,734 and **during 2010-11, 27.107 habitations have been reported as covered.** Thus, in all during Bharat Nirman phase-I and II, 110009 quality affected habitations have been fully covered with completed schemes. In 2011-12, States have targeted to cover 29790 quality affected habitations.

**3.3.1 Sub-Mission:** Under the ARWSP and subsequently NRDWP, chemical contaminants which are sought to be tackled are excess arsenic, fluoride, iron, salinity

and nitrate. Except for nitrate, all others occur naturally. Nitrate occurs in drinking water due to leaching of chemical fertilizers and sewage. Though a target of 2.17 lakh quality affected habitations was identified at the beginning of Bharat Nirman, the States submitted an action plan for covering only 1,95,813 such habitations. As on 1.04.2006, there were 7,067 habitations reported to be affected with arsenic and 29,070 habitations with fluoride contamination, of which 2832 and 5070 were covered with completed schemes upto 31/3/2011. There were 3716 and 21110 remaining habitations affected with arsenic and fluoride. Priority has been given to address the problems in these habitations. It must be admitted however, that due to expansion of testing, more areas are getting identified as having problems of quality.

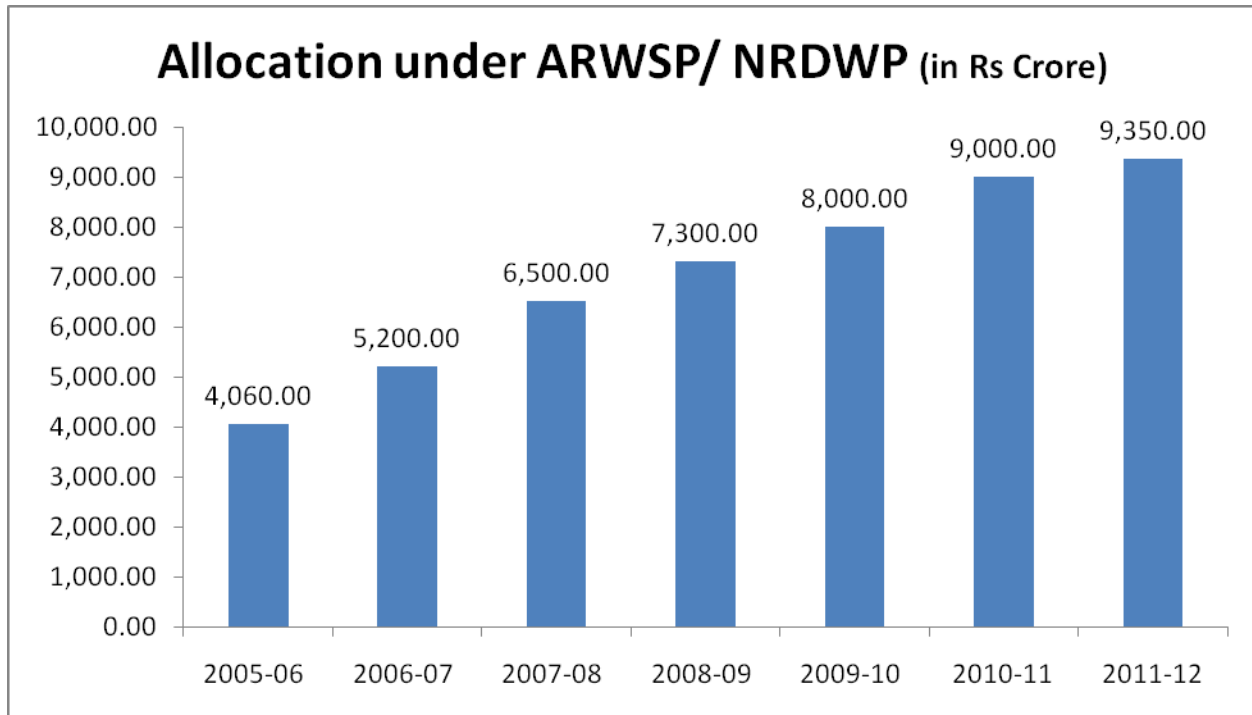
At the beginning of the Bharat Nirman period there were 1,04,437 rural habitations affected with excess iron in drinking water sources, of which 15476 were covered upto 31/3/2011 and 64539 were remaining as on 01/4/2011. The focus of the Ministry is to tackle excess iron problem through aeration based technology or low-cost terra-cotta based filtration technique.

In respect of salinity, 12,425 habitations were having a problem at the beginning of Bharat Nirman period, but due to more testing and deeper drilling the number of habitations with drinking water sources contaminated with salinity has increased to 25,945 as on 1/4/2011. Although there are a number of technologies like distillation, ion-exchange, reversible osmosis, electro-dialysis etc., these being expensive solutions the focus of the Ministry are to tackle this problem through dilution of groundwater through artificial recharge of groundwater.

The strategy of the Ministry to tackle excess nitrate is by improving sanitary conditions. At the beginning of Bharat Nirman period, 19,387 habitations were afflicted with excess nitrate, of which 17222 were covered upto 31/3/2011 and 2165 were remaining as on 1/4/2011.

### **3.4 Financial Progress in Bharat Nirman Period**

For the rural water supply, component of Bharat Nirman, it was envisaged that Rs. 25,300 crores would be required as Central share during 4 years. The year wise allocations for ARWSP/NRDWP (Rural water supply component) of Bharat Nirman is given in the chart below.



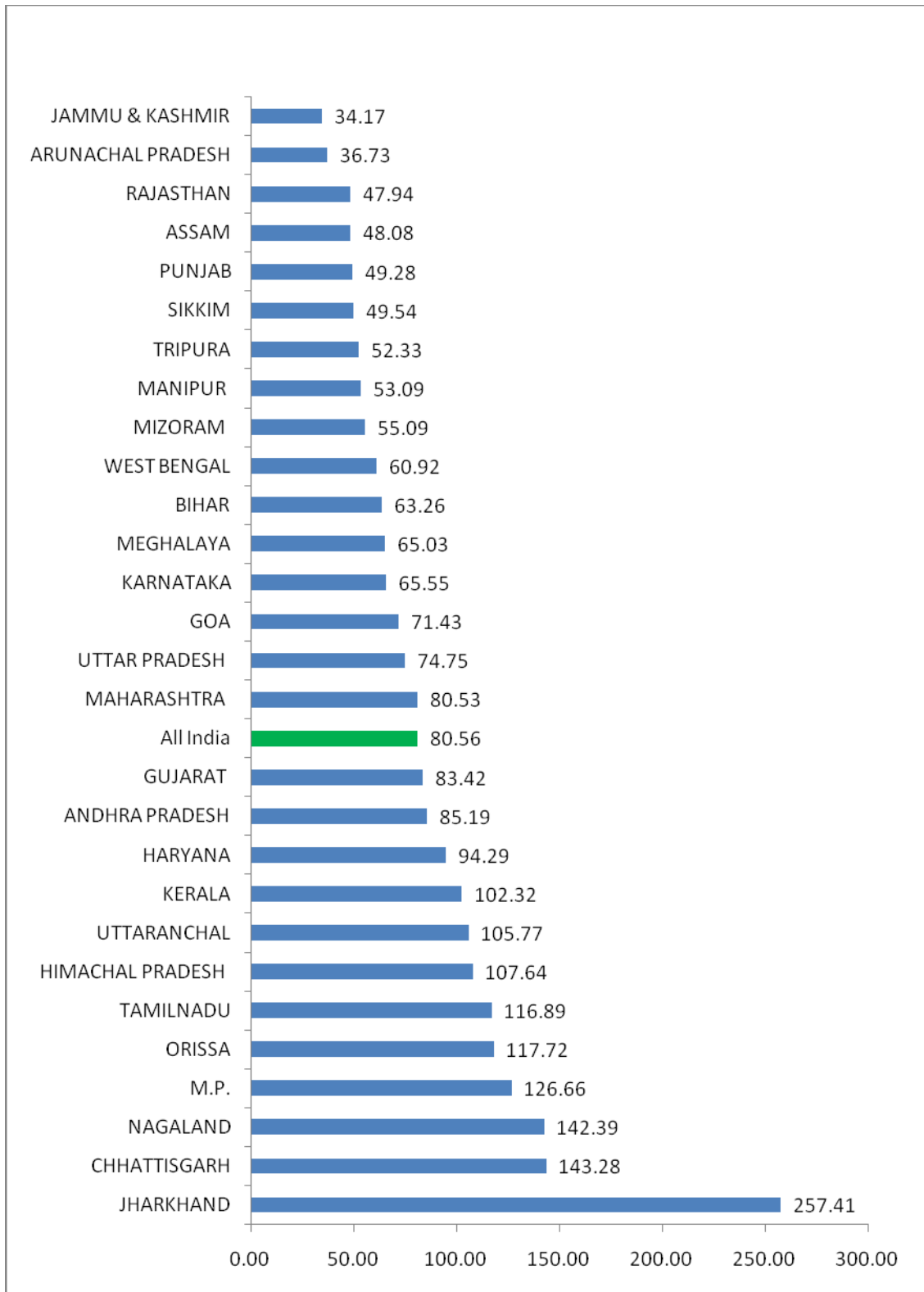
### **3.5 Review of the performance in the 11<sup>th</sup> Five year Plan- National and State wise:**

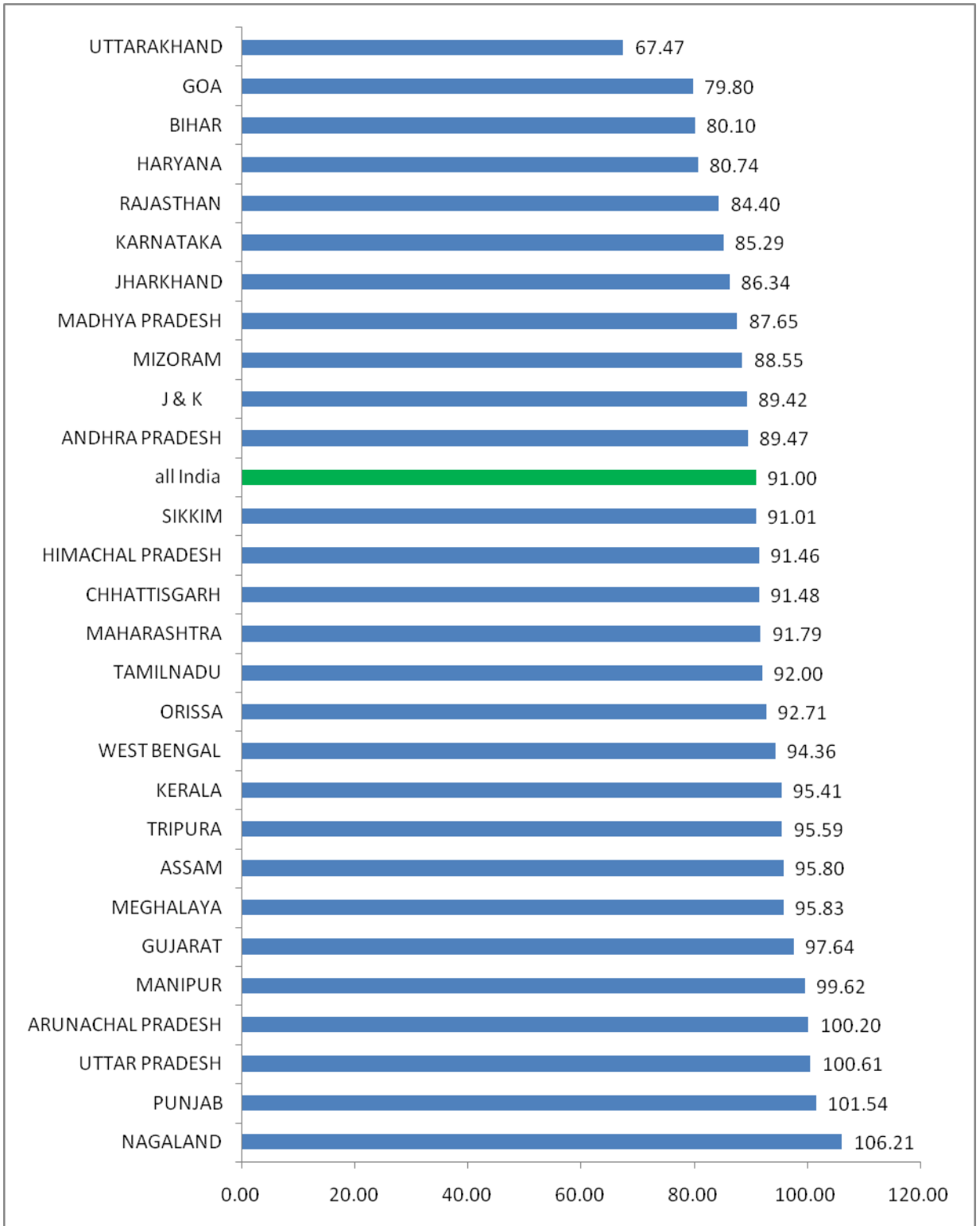
#### **(a) Physical performance**

It may be seen that as against the target of 653798 habitations to be covered during the 11<sup>th</sup> Five year Plan, the coverage up to 31<sup>st</sup> March 2011 was 526667(80.56%). As shown in table below the States of Jharkhand, Chhattisgarh, Nagaland, M.P., Orissa, Himachal, Tamilnadu, Kerala and Uttarakhand have shown exceeded their targets whereas Sikkim, Punjab, Assam, Rajasthan, Arunachal Pradesh & Jammu & Kashmir have reported low (less than 50%) achievement against targets.

#### **(b) Financial performance**

Total allocation during 11<sup>th</sup> plan (till 31<sup>st</sup> March,2011) is Rs.28190.16 crore and Rs.26105.33 crore expenditure is reported against the release of Rs. 28687.22 crore, i.e. 91% of expenditure is reported against amount released. The performance during the above period is quite good. As against the planned outlay of Rs 39,490 crore for Rural Drinking Water Supply in the 11<sup>th</sup> Five Year Plan the actual outlay is Rs. 40,150 cr. and the anticipated utilisation is Rs 40,068 crore i.e. (101.46%).





**x-i**

State wise Cumulative Eleventh Plan Performance (2007 to 31st March,2011)								
S.No.	State/UT	Financial				Physical (Coverage of habitations)		
		Allocation (in crore)	Amount Released (in Crore)	Expenditure (in crore)	Percentage of expenditure to amount released	Target	Achievement	Percentage Achievement
1	ANDHRA PRADESH	1617.94	1796.40	1607.30	<b>89.47</b>	41156	35062	<b>85.19</b>
2	ARUNACHAL PRADESH	561.88	653.06	654.38	<b>100.20</b>	6908	2537	<b>36.73</b>
3	ASSAM	1187.27	1188.14	1138.28	<b>95.80</b>	67048	32234	<b>48.08</b>
4	BIHAR	1418.42	978.90	784.08	<b>80.10</b>	115076	72799	<b>63.26</b>
5	CHHATTISGARH	472.65	471.44	431.25	<b>91.48</b>	22249	31879	<b>143.28</b>
6	GOA	18.27	4.98	3.97	<b>79.80</b>	7	5	<b>71.43</b>
7	GUJARAT	1545.75	1667.18	1627.91	<b>97.64</b>	10499	8758	<b>83.42</b>
8	HARYANA	652.28	694.49	560.75	<b>80.74</b>	3732	3519	<b>94.29</b>
9	HIMACHAL PRADESH	531.20	649.15	593.71	<b>91.46</b>	19694	21198	<b>107.64</b>
10	J & K	1624.74	1597.83	1428.85	<b>89.42</b>	12607	4308	<b>34.17</b>
11	JHARKHAND	589.77	406.08	350.59	<b>86.34</b>	15300	39384	<b>257.41</b>
12	KARNATAKA	1974.29	2092.67	1784.81	<b>85.29</b>	43876	28759	<b>65.55</b>
13	KERALA	483.31	502.94	479.85	<b>95.41</b>	8993	9202	<b>102.32</b>
14	MADHYA PRADESH	1388.79	1400.08	1227.12	<b>87.65</b>	31625	40055	<b>126.66</b>
15	MAHARASHTRA	2362.67	2418.87	2220.35	<b>91.79</b>	53202	42841	<b>80.53</b>
16	MANIPUR	204.96	182.16	181.47	<b>99.62</b>	1213	644	<b>53.09</b>
17	MEGHALAYA	236.13	282.95	271.16	<b>95.83</b>	4779	3108	<b>65.03</b>
18	MIZORAM	169.72	209.91	185.87	<b>88.55</b>	875	482	<b>55.09</b>
19	NAGALAND	206.76	206.86	219.70	<b>106.21</b>	854	1216	<b>142.39</b>
20	ORISSA	859.54	992.04	919.68	<b>92.71</b>	35799	42142	<b>117.72</b>

21	PUNJAB	302.85	333.76	338.90	<b>101.54</b>	11452	5643	<b>49.28</b>
22	RAJASTHAN	3778.75	3690.19	3114.36	<b>84.40</b>	63470	30429	<b>47.94</b>
23	SIKKIM	78.71	96.38	87.72	<b>91.01</b>	1082	536	<b>49.54</b>
24	TAMILNADU	1070.06	1190.20	1094.98	<b>92.00</b>	29236	34174	<b>116.89</b>
25	TRIPURA	210.25	247.50	236.57	<b>95.59</b>	4879	2553	<b>52.33</b>
26	UTTAR PRADESH	2799.49	2822.33	2839.56	<b>100.61</b>	9260	6922	<b>74.75</b>
27	UTTARAKHAND	462.43	436.48	294.50	<b>67.47</b>	5665	5992	<b>105.77</b>
28	WEST BENGAL	1371.08	1474.25	1391.16	<b>94.36</b>	33079	20152	<b>60.92</b>
29	A&N ISLANDS	1.01	0.00	35.50	<b>0.00</b>	98	0	<b>0.00</b>
30	D&N HAVELI	1.47	0.00	0.00	<b>0.00</b>	15	15	<b>100.00</b>
31	DAMAN & DIU	0.61	0.00	0.00	<b>0.00</b>	0	0	<b>0.00</b>
32	DELHI	4.62	0.00	0.00	<b>0.00</b>	0	0	<b>0.00</b>
33	LAKSHADWEEP	0.24	0.00	0.00	<b>0.00</b>	27	0	<b>0.00</b>
34	PUDUCHERRY	1.85	0.00	1.00	<b>0.00</b>	43	119	<b>276.74</b>
35	CHANDIGARH	0.40	0.00	0.00	<b>0.00</b>	0	0	<b>0.00</b>
	<b>Total</b>	<b>28190.16</b>	<b>28687.22</b>	<b>26105.33</b>	<b>91.00</b>	<b>653798</b>	<b>526667</b>	<b>80.56</b>

### **3.6 Joint Monitoring, NSSO report & MD Goals**

**3.6.1 Joint Monitoring Programme:** As per the WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation, improved water sources could be any of the following: i) piped water into dwelling, plot or yard, ii) public tap/standpipe, iii) tube well/borehole, iv) protected dug well, v) protected spring, and vi) rainwater collection. As per JMP rural population in India having improved water supply in 1990 was 66% while in 2008 it stood at 84%.

**3.6.2 NSSO 65th round (July 2008- June 2009):** In rural areas, there has been a gradual increase in the share of both the sources 'tap' and 'tube well/hand pump', and a corresponding decrease in the share of 'well'. In 1993, nearly 19 per cent of the rural households used 'tap' as source of drinking water, which rose to 30.1% in 2008-09. In respect of 'tube well/hand pump', this was 45 per cent of rural households in 1993 rose to nearly 55 per cent in 2008-09. The coverage from the improved sources of drinking water was 90 per cent in rural areas. This implies that India has achieved its MDG for rural drinking water supply.

While in 2002 37% of the rural households had drinking water facility within premises this increased to 41% in 2008-09. The proportion of rural households required to travel beyond 500 metres to access the major source of drinking water decreased to nearly 2% in 2008-09. About 9% travelled a distance between 200 mts and 500 mts to access drinking water. However, 86% of the rural households got sufficient drinking water throughout the year from the first major source. The shortage of drinking water is mostly in the summer months of April, May and June.

### **3.7 Water Quality Monitoring and Surveillance**

In order to develop understanding and appreciation of safe and clean drinking water among rural communities and to enable them to determine the quality of drinking water, National Rural Drinking Water Quality Monitoring and Surveillance Programme was launched in February 2006. The programme aimed at empowering rural communities by:

- Bringing awareness through Information, Education & Communication (IEC) activities to address ownership of the systems, health hazards due to poor drinking water quality, hygiene, sanitary survey, importance of environmental sanitation, etc.
- Training 5 grassroots workers in each Gram Panchayat, who may be ASHA, Anganwadi worker, science teacher, high school girl child, panchayat member, ex-serviceman etc.
- Provision of field test kits to each Gram Panchayat for indicative testing of chemical and bacteriological contamination.



### **3.7.1 Physical & Financial Progress**

Under the programme, 100% financial assistance was provided to the states for this task. Under the National Rural Water Quality Monitoring and Surveillance Programme upto 31/3/2009, a total of Rs. 248.97 cr. was released to States/UTs for awareness generation, training, field test kits etc. The States have reported expenditure of Rs.147.75 cr. as per latest reports received.

With effect from 1.4.2009, the Water quality monitoring and surveillance programme has been subsumed under the NRDWP and these activities are now supported from the Support fund. As per the IMIS, from inception of the programme till 30/6/2011, 9.17 lakh grassroots level workers had been trained to test their drinking water sources. About 2.89 lakh field test kits and 734.45 lakh bacteriological vials have been distributed. Local people have reported testing of 10.38 lakh water samples by 30/6/2011. Further, 690 water testing laboratories have been set up at the district level and 811 at the sub-division level. 7.68 lakh water samples were tested in the district and sub-divisional labs in 2010-11 as per IMIS.

### **3.8 Drinking water in rural schools and Anganwadis**

As per 2009-10 DISE data, there were about 70.425 rural Government schools without drinking water facilities. It has been decided to provide drinking water facilities to the new rural schools set up under Sarva Shiksha Abhiyan (SSA) of the Ministry of Human Resource Development while existing schools will be covered from funds under NRDWP. During 2007-11, the states have targeted to cover one lakh schools, of which 63786 rural Government schools have reportedly been provided with drinking water facilities under ARWSP/NRDWP.

As per the information on IMIS only 1, 98,067 rural Anganwadis has been entered. Of these, 77,530 do not have drinking water facility. The targeted Anganwadis for the year 2010 – 11 was 16,836 and the coverage was 9,525. In 2011-12 13,301 Anganwadis are been targeted to be covered. However, figures obtained from Ministry of Women and Child Development that are specific to rural areas or to Anganwadis run in Government and community buildings, show that 48.33% of the total 10, 51,401 Anganwadis in the country do not have drinking water facility.

#### **3.8.1 Jalmani - Installation of standalone water purification systems in rural schools**

With the objective of providing children studying in water quality affected rural schools with safe and clean drinking water, the Jalmani programme was launched in 2008-09 for installation of standalone water purification systems in such schools. So far Rs. 200 crore has been made available to the Ministry of Drinking Water and Sanitation for providing 100% financial assistance to States for this purpose. To identify suitable water treatment technologies to be used under the programme, a high level technical committee under the chairmanship of Secretary, Department of Science & Technology, Government of India was formed. The committee identified 6

technologies and suggested 47 products, to be used in the programme. The States were given the suggestive list of technologies and products with the flexibility to select the appropriate technology and products. Detailed guidelines for implementation of Jalmani were also issued.

Keeping in view the average cost of Rs. 20,000 per school, Rs. 100 crore in 2008-09 and a similar amount in 2009-10 have been allocated among 28 States with a target to cover 1,00,000 schools under the programme. Of these, upto 30/6/2011 'Jalmani units' have been reported as installed, in 63777 schools.

### **3.9 IEC**

Since IEC is key to awareness generation and behaviour change ,in the 11<sup>th</sup> Plan the states were provided 100 % financial support for planning and implementation of IEC activities upto 2009-10 were under Communication and Capacity Development Unit (CCDU) and thereon with fund allocation (5%) under NRDWP Support. In the context of non-availability of data on allocation and expenditure under IEC ,the extent of emphasis given by the states on IEC can be gauged by having a glance through the on-line data on IEC in 2010-11.Out of Rs 54.17 Crore proposed expenditure for IEC activities, the states could spend only Rs14.13 Crore, so to say only 26% of the allocation under IEC . It would be relevant to note that out of the total proposed expenditure of Rs350.47 Cores under Support Activities , Rs 54.17 Crore; so to say only 15.46 % was for IEC.

In 2010-11 MDWS has formulated and circulated Guideline on IEC for being implemented at Central, State and lower levels.

### **3.10 HRD & Capacity Building:**

A National Human Resource Development Programme(NHRDP) was launched in 1994. The primary objective was to build up capacity and capability of rural beneficiaries to promote more active community participation and on elevating the performance and productivity levels of sector professionals, with a view to ensure sustainability of water supply and sanitation schemes. The programme had been revamped by introducing a concept of Communication and Capacity Development Unit (CCDU) and accordingly CCDUs have been set up most of the states. In the 11<sup>th</sup> Plan under HRD(CCDU) and under 5% Support Fund the states were given 100% financial support fund for organizing trainings and workshops .In 2010-11 alone Rs 71.11 Crore was the proposed expenditure, against which the states have utilized Rs 9.33 Crore ,thereby utilizing only 13.12 % of the proposed expenditure for training.

#### **3.10.1 National KRCs:**

With a view to augment the quality and quantum of capacity building various categories of functionaries, PRIs, social mobilizers etc. in the 11<sup>th</sup> Plan in 2010-11

MDWS have identified and approved 15 KRCs across the Country. Rs.3.02 cr. were released to the KRCs for conducting training programmes and workshops in 2010-11.

### 3.11 Institutional Strengthening

During the 11<sup>th</sup> Plan period the Ministry was strengthened by setting up a National Resource Centre with Senior Consultants and Consultants in specialised fields to act as a knowledge bank and provide technical support to the Ministry in its activities. States have also set up State Water and Support Organisations and have been permitted to recruit specialist Consultants in fields like Hydrogeology, MIS, IEC, HRD and supporting staff. At the district level District Water and Sanitation Missions can recruit 5 experts as Consultants in the fields of Hydrogeology, IEC, HRD, Sanitation etc.

A major step taken to provide support to Gram Panchayats and VWSCs in this Plan is the provision for setting up of Block Resource Centres staffed by 1-4 Block and Cluster Coordinators to provide continuous motivation, build capacity, take up awareness generation of GPs and VWSCs.

### 3.12 Preparation of Hydro-geo-morphological (HGM) or ground water prospect Maps

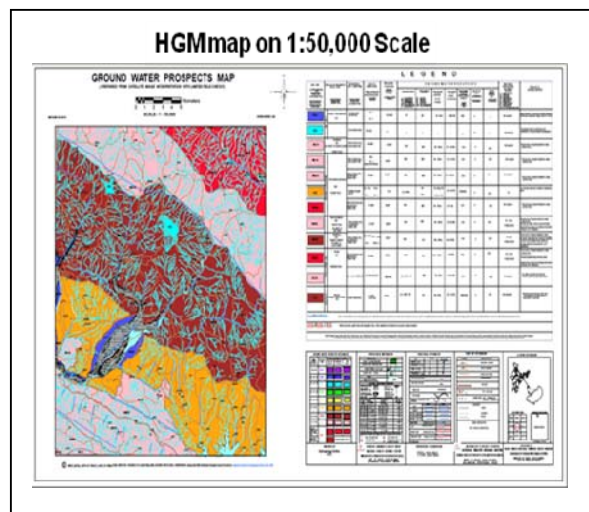
The Ministry started generating HGM maps using the services of National Remote Sensing Centre, Hyderabad since 1999-2000. The main objectives of preparing HGM maps are to arrive at -

- (1) Prospective ground water zones,
- (2) Prioritization of areas of planning recharge structures
- (3) Tentative sites for taking up recharge structures to improve the sustainability of drinking water sources in the problematic habitations.
- (4) Creation of a digital database

Preparation of HGM maps in AP(part), Assam, Karnataka, Kerala, Rajasthan,

Chhattisgarh, Madhya Pradesh, H.P.,

Gujarat, Orissa, Uttarakhand and



Jharkhand States have been completed and handed over to the respective States. Preparation of similar maps in Andhra Pradesh (remaining part), Maharashtra, Punjab, Haryana, West Bengal (part), UP (part), Arunachal Pradesh, Uttaranchal, Assam and J&K States are in final stages of completion. It is also proposed to complete preparation of HGM maps in all remaining States in a phased manner by 2012-13.

Based on the feedback received by NRSC from States, more than 90% success rate has been achieved in drilling for sources, on average. Similarly, 9,057 nos. Of recharge structures have been constructed using the maps.

### **3.13 Issues, Problems encountered during the Plan Period**

**General Issues:** The challenge is to sustain and broaden the scope of the growth process, to overcome the many inequalities that exist in lagging rural areas, for SC/ST, poor and marginalized households and habitations, and to ensure that more people have better access to the basic infrastructure and public services of water supply and sanitation.

In facing these challenges, the sector is beset with problems. Ground water sources are deteriorating, many areas are classified as water quality affected, and poor operation and maintenance has resulted in dilapidated facilities. The causes behind this situation are to do with competing demands on scarce water resources, weak institutional governance, insufficient support structures and professional capacity at all levels. These need urgent attention. Looking to the future, there will be rising demand for higher quality of services to match those found in urban centres, intense competition for water from agriculture and industry, and increasing scarcity and variability of water resources due to population growth and climate change. Above all, Indian citizens, across a broad spectrum of economic and social circumstances, are demanding transparency in “how decisions are made, how money is spent and to what end, and who the beneficiaries are”.

**3.14 Institutional Issues:** Until recently there were two basic models for implementing rural water supply programme at the state level: Public Health Engineering Department (PHED) under the direct control of the state government, or an Autonomous Board/Water & Sanitation Board. Although these institutions have done a commendable job in terms of coverage of the habitations with water supply they suffer from technical and/or management problems such as poor hydro-geological investigations; a relatively high percentage of improper designs, which led to substantial cost overruns; and limited quality assurance despite a comprehensive set of built in controls that appear to be inherent in the underlying supply driven 'design and construct' character of sector agencies responsible for rural water supply delivery.

As per the 73rd Constitutional Amendment (1992), the States are in the process of transferring development activities and responsibilities to the Panchayati Raj Institutions (PRIs). In general, there has been some delegation of responsibilities without the requisite devolution of powers, staff and financial resources. Moreover, the devolution process is constrained by many problems which are inherent in the makeup of Panchayats themselves. These include a history of reliance on central/state government directions and funding, weak capacity, high politization and limited resources in general, which inhibit them from taking advantage of even the limited autonomy offered.

In the case of the rural water supply and sanitation sector, the Panchayats have had the responsibility for sector operations and maintenance thrust upon them, while the Public Health Engineering Department (PHED) have not retreated from the position of asset owners and purveyors of technology and service delivery. Thus while the 73rd Amendment provides the needed policy and legislative framework for devolving responsibility for rural water supply and sanitation to the PRIs., the devolution of management and financial management responsibility to the Panchayats has been at best half-hearted. The ground realities that must be considered when designing community involvement strategies for RWSS are: The social organisation in Indian villages is often very heterogeneous with different caste groups and large disparities between rich and poor .The basic social constraints such as high levels of illiteracy in some States especially among women and the poor, should also be recognised in this context. Furthermore, the size of local governments, including Gram Panchayats, varies significantly in India. The smaller sized Panchayats are easier to plan for and easier to administrate but are less viable whereas larger units require more administrative and organisational infrastructure but are more viable.

### **3.15 Technology**

The choice of technology and system proposed should not only be based on the demand of the beneficiaries, but should also take into account their affordability in terms of sharing the capital and recurring cost and the sustainability of the source and system. Equally important is that the technology proposed to be adopted must be understandable and within the capacity of the people responsible for operation and maintenance. It should also be culturally acceptable to the users.

An impressive number of installations i.e., more than 31.73 lakh handpumps and over 350 thousand piped water supply schemes have been constructed so far as per the IMIS data of the Ministry. During the 1980s more than 90% of the population were served through handpumps and dug wells. In 2010, it was estimated that less than 70% of the total population are served by handpump technology and dug wells. There is a trend towards constructing more number of single, multi village and regional piped water supply (PWS) schemes, moving away from installation of handpumps.

Large numbers of water treatment plants viz. de-fluoridation plants, Iron Removal Plants, Desalination plants etc. installed in various states to tackle specific chemical toxicity in drinking water sources have not met with much success. Technologies developed and tested to remove fluoride, iron etc., have shown satisfactory results in a laboratory environment. The complexity, high cost, and inconvenience of these technologies, compounded by lack of trained and specialized manpower in rural areas however, have constrained their implementation and sustainability in the field conditions.

The selection of a suitable technology is not an isolated activity, but needs to be based on delivering the choice level of service in a way, which will be effective, equitable, sustainable, efficient and replicable. Crucially, the technology must be within the capacity of the responsible institutions i.e. community, Panchayati Raj Institutions, line department of the government (PHED). It is evident that sustainability is dependent on financial, social, institutional and environmental factors, but the choice of technology is also central to achieving sustainable systems.

### **3.16 The current situation**

There is no question that India has been successful in providing access to basic water supply facilities for more than 90% of rural households. The challenge now is how to provide higher levels of service with sustainable sources and systems that provide good quality water to a growing population.

The number of piped water supply systems in rural areas is rapidly increasing, driven in part by water resource constraints, but increasingly because people want a higher level of service. In 2010, about one third of rural households already use piped water, and about one third of these have house connections. However it should be noted that there are significant inequalities between the rich and the poor and this needs to be addressed in moving forward. For example, while about 32% of the rich people have piped connections on their premises, only about 1% of the poorest have this facility.

## **Chapter 4 – Issues in domestic water data base**

### **4.1 System of IMIS followed in the 11<sup>th</sup> FYP**

The Ministry of Drinking Water and Sanitation has developed an Integrated Information Management System (IMIS) for monitoring the various programmes and schemes for rural drinking water supply. The IMIS is a comprehensive web based information system that enables the Centre, States, districts, blocks and panchayats to monitor the progress of coverage of rural habitations, schools and anganwadis, through common monitoring formats. In addition to this, the progress of Sustainability schemes and schemes for tackling quality affected habitations proportion of total, SC and ST population covered can also be monitored. This system also gives the list of all habitations including quality-affected habitations and slipped back habitations along with reasons for slippage.

The list of Government, Government Aided and local body aided schools and anganwadis in all villages is displayed indicating the status of drinking water and sanitation facility that is available. Linking of habitations covered with potable water supply with census villages on the IMIS platform has been done.

However, it may be noted that at any point of time there is a lag between ground realities and the report generated at the National level both in-term of physical and financial progress. Moreover the status of the coverage of habitations is based on survey carried out at different point of time e.g. the last National Survey was carried out by all the States was in the year 2003. Since 2009 states update the coverage status of habitations on an annual basis.

Online monitoring system has been introduced to strengthen monitoring mechanism and ensure transparency. State Governments have been urged to report the physical and financial progress online on a monthly basis and update the habitation wise data on an annual basis. State officials responsible for online data entry have been imparted training to undertake this task. Besides, periodic review meetings are conducted to review the physical and financial progress in the implementation of schemes in all the states. After launch of Bharat Nirman Programme, from 2005 onwards, there was a fundamental change in the monitoring process whereby villages/ habitations have been targeted by names for coverage (and not in terms of cumulative numbers as before). Their physical progress in terms of asset creation is being monitored. The system is accessible in the online monitoring page of the Ministry's website - <http://ddws.gov.in> and [indiawater.gov.in](http://indiawater.gov.in). The present system of coverage is based on the coverage of habitations irrespective of number of households or population in the habitation. The population worked out in the (IMIS) is based on the coverage reported by the states and districts. This by and large matches with the population coverage reported in sample surveys like

NSSO, DLHS or NFHS. However, data entry on all fields in the IMIS still requires a lot of improvement. Efforts should be made to ensure complete data entry of all fields of water supply in the IMIS in the next five year plan.

#### **4.2 Status of domestic water supply available on IMIS, NSSO, NFHS, DLHS, Census 2011**

IMIS contains information on financial data relating to budget allocation, allocations to states, release under various schemes and their expenditures, the physical and financial progress under Jalmani schemes, information on water quality affected habitations, interventions initiated and the physical and financial progress etc. However, the percentage of population covered with the minimum requirement of 40 lpcd or higher varies from 65.05%% in Jammu & Kashmir, 66.96 % in Assam to nearly 100% in some of the states. The overall coverage as reported by the States on IMIS, as on 1/4/2011, is 87.76% of population with protected sources. Coverage of weaker sections such as Scheduled Castes/ Scheduled Tribe concentrated habitations, LWE affected districts, source and quality wise information and school details are also available in the IMIS at present. The NSSO figures on the other hand give us a picture that around 90.3 % of the population are drawing water from protected sources, including protected wells. While IMIS considers water quality, it is not available in the NSSO surveys nor it is measurable in a socio economic survey with much perfection and accuracy. Issues like time taken to fetch water; who fetches water in the household and how water is treated within the household are available only in the NFHS. Only about 42% households have water in their premises and another 43% households have to travel up to 30 minutes, while 14.4 % have to go farther. In almost 73% households' no further treatment of water is carried out. The DLHS also provides information on source of water to the household. Though a bit outdated, the information more or less corresponds with that of other surveys. Morbidity statistics, more specifically diarrhoea, is another measure of the impact of drinking water and sanitation and are available in all the three sources of data – NSSO, NFHS and DLHS. However despite the availability of these information on drinking water and sanitation, sufficient information to initiate policy decisions is lacking. There is a felt need to improve the collection of information both in the IMIS as well as conduct an exclusive NSSO survey.

#### **4.3 Suggestions for strengthening IMIS during 12th FYP**

Strengthening of IMIS in the 12<sup>th</sup> FYP needs to be carried out both on the hardware aspect as well as on the software. Further there is a need to make it more people oriented and at the same time upgrade it using modern technology, specifically mobile technology and communication devices. There is an urgent need to set up a Cell to undertake monitoring through IMIS in the Ministry of Drinking Water and Sanitation with appropriate personnel consisting of Database Administrator, GIS Specialist, Programmers, Data Entry Operators, Statistician, Economist and Public Health personnel working together.



#### **4.4 Emphasis on Monitoring Service delivery**

There should be shift in focus from monitoring just construction of water supply systems to monitoring of service delivery. Service delivery parameters should be specified and monitored. IMIS should be revamped to capture service delivery aspects like quantity of water supplied, frequency, regularity, quality etc.

#### **4.5 Steps to address issues related to inconsistency of data**

Inconsistency of data is one of the problems that is quite often faced in the information system. In order to make it error free one way is to introduce checks and devices in the data entry itself. The other is to make those who enter the data, responsible for wrong entry. The third is to have a sample verification of IMIS reported data by independent agencies on a regular basis that will provide feedback to the Ministry and the States on the deficiencies in reporting and spur them to action. The fourth is to have alternative means of collecting data from users.

It is recommended that there should be an evaluation of the status of drinking water projects every two years. The M&E division can engage independent agencies to undertake monitoring and verification of the status of drinking water supply projects and of sanitation.

#### **4.6 Public Feedback on IMIS**

IMIS should be developed as a feedback mechanism. Provision should be made for receiving public inputs in the IMIS data by taking feedback from consumers/ users/ other citizens on the functioning of water supply systems. These should be attended to and feedback given by the Ministry or the States on action taken to consumers/users.

#### **4.7 Improved procedures of data collection**

In the context of the thrust given to piped water supply in the country, the formats and reporting of IMIS have to be tuned appropriately so that household and population level information should be available. The instruments presently used for monitoring need to be examined thoroughly and redrafted to accommodate all aspects and requirements. It should also be transparent and user friendly. The data as far as possible is open to the public for scrutiny, evaluation and observation without any password requirement. Suitable formats should be designed considering all the aspects of information, its quality, availability etc. Appropriate hardware and training also should be imparted to the personnel working on IMIS. It is high time that MDWS also should induct the mobile based monitoring system linked with IMIS. Software such as (CASPRO) available from secondary sources also could take care of the compatibility of mobiles and computers.

#### **4.8 Setting up of a robust M&E Division in MDWS**

One of the fundamental drawbacks as of now in MDWS is that field monitoring of the implementation of schemes is completely absent. Monitoring missions from MDWS to the states can considerably improve the quality of information as well as the quality of implementation of projects. The monitoring missions in the MDWS should consist of experts from fields such as Data Managers, Economists, Statisticians, and WATSAN experts. A Monitoring & Evaluation Division should be set up in MDWS headed by Director (Monitoring) and consisting of Statisticians and Secretarial staff. A similar division should also be set up in each State head quarters. The team should not only monitor and evaluate the progress of schemes implemented but should also conduct in-depth analysis on various problem issues and advise remedies.

#### **4.7 Strengthening of IMIS at state and district level**

At present only a system of review of projects is being carried out in the state headquarters, which needs to be strengthened substantially giving attention to service sustainability and functionality aspects of piped water systems and sanitation. For this hardware, software and staff support are required. However considering the importance of the program it is essential to set up a MIS Cell with Database Manager, Programmer, GIS Specialist, Statistician and DEOs at State level and MIS Consultant and DEOs at District level.

#### **4.8 Inter-sectoral Sharing of Information**

MDWS requires strong inter-sectoral linkages on sharing of information with other stake holders in water resources such as Irrigation, ground water management, Health, Environment etc. The National Drinking Water and Sanitation Council set up in the Centre and SWSMs in each States could forge stronger linkages for sharing of information.

Contamination of drinking water with chemical and bacteriological sources, particularly of arsenic, fluorides, nitrates and iron have increased considerably in recent years. Water quality testing data needs to be captured and reported both from FTKs and from PHED labs. In addition Water quality data from CGWB, CPCB, SPCBs, State Ground Water Departments, Health Departments etc should be integrated to provide a better picture of water quality both chemical and bacteriological.

#### **4.9 Separate Survey by NSSO**

The data provided in the 65<sup>th</sup> Round of NSSO is limited to availability of water, type of facility, distance etc. This is inadequate for policy purposes. Data on many aspects like, time of supply, time of waiting at the point source, quantity availability per water point, number of hours of supply, changes in environment and water resources, hours of supply, frequency of supply, household and personal hygiene

etc are not available. Hence the NSSO should conduct an exclusive survey on drinking water and sanitation on the lines of the NSSO 54<sup>th</sup> Round including all these aspects. The Survey on Domestic Water Supply and Sanitation must be carried out once every five years regularly as in the case of many other socio economic surveys. This would not only be useful for the MDWS but for many other agencies including for computation of environmental accounting in National accounts.

#### **4.10 Preparation of Hydro-geo-morphological (HGM) or ground water prospect Maps**

The Ministry started generating HGM maps using the services of National Remote Sensing Centre, Hyderabad since 1999-2000 with the objectives of assisting State PHEDs in locating drilling sites for drinking water sources and sites for locating recharge and water conservation structures.

Preparation of HGM maps in 13 States have been completed and handed over to the respective States. Preparation of similar maps in 4 is in final stages of completion. It is also proposed to complete preparation of HGM maps in all remaining States in a phased manner by 2012-13. The feedback received from States reveals that using HGM maps more than 90% success rate, on average has been achieved in drilling of borewells and 9,057 recharge structures constructed to improve the sustainability of drinking water sources.

Efforts should be made to put HGM maps in the departmental website as pdf files for easy accessibility by engineers at field level.

#### **4.11 Research & Development**

Research & Development in the field of Rural Water Supply and Sanitation is one of the support activities of the Ministry of Drinking Water & Sanitation for which 100% funding to research organizations is provided. A Research Advisory Committee (RAC) under the Chairpersonship of Secretary, DWS was constituted primarily to promote research and development activities in drinking water and sanitation. With the new issues and challenges emerging in the rural drinking water and sanitation sector, RAC was reconstituted and renamed as Research & Development Advisory Committee (RDAC) on December 2009. In order to promote cost-efficient, easy to maintain and innovative ideas leading to drinking water security, developing improved sanitation and hygiene habits, seven priority areas were identified in 11<sup>th</sup> Five Year Plan. Since 2007-08, 14 R & D Projects with a cost of Rs 2. 70 crore have been approved. Overall, 155 R & D projects have been approved till March 2011 out of which 136 R&D projects have been completed and 19 R & D Projects are ongoing. To strengthen the R&D facilities in the concerned Departments in various States, State Governments are also encouraged to establish R&D cells with adequate manpower and infrastructure. Under 5 % NRDWP support fund, States can utilize take up State specific R & D activities.

The RDAC in its first meeting in January, 2010 discussed the core areas for research and felt that R&D projects should be based on multi-centric studies. A framework needs to be developed with a vision for taking up R&D for the next 5-years. It felt that governance and conflict resolutions in water and sanitation sector may be added. Specific R&D projects should be taken up in drought prone and flood-hit areas. Dissemination of efficient technologies is a challenge and should be taken up as R&D projects by encouraging Universities and organizations. There should be specific funds allocated for replicating good technologies. R&D projects as public-private partnership projects can also be taken up.

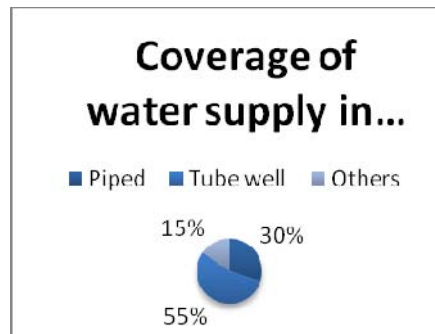
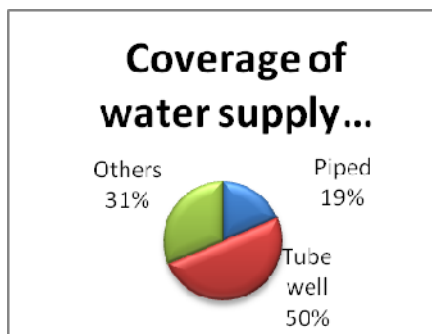
The Core areas identified for undertaking R & D Projects in the 12<sup>th</sup> Five Year Plan could be:

1. Various types of materials, structure, storage, etc for rain-water harvesting structures
2. Mobile instantaneous/ packaged water treatment plants for calamity-affected areas;
3. Chemicals to remove choking of tube wells in drought prone areas;
4. Development of deep tube well hand pumps made up of light weight materials as a multi-centric study;
5. Focus on detergents, fertilizers, toxic elements and blue green algae contamination of drinking water sources;
6. Integrated water management using specific systems like SCADA;
7. Large scale arsenic removal through pumping oxygen into arsenic rich aquifers
8. Use of traditional plants, seeds in water treatment
9. Impact assessment of various water quality parameters on human health.
10. Technology development for insecticides & pesticides in drinking water.
11. Identification and protection of possible safe water zones including paleo-channels.
12. Identification of core radionuclides in drinking water sources.
13. Detection of different viruses in drinking water.
14. Development of simple treatment technologies for removal of toxic metals from drinking water.
15. Identification of disinfection byproducts from drinking water resources emanating from ecosystems having rich NOM.
16. In-situ dilution of geogenic contamination in drinking water aquifers in different hydro geological zones.
17. Development of economic designs for sustainability structures in hilly areas.
18. Response of shallow aquifers to water impounding and recharge structures in different agro climatic zones.
19. Research on Water resource data base, community monitoring of ground water, rainfall, Water storages, Water quality data base.
20. Impact of climate change on domestic water supply, considering the hydro geological changes over time periods.
21. Communication needs assessment study.

## Chapter 5: Coverage

### **5.1 Introduction:**

In rural areas, there has been a gradual increase in the share of both the sources 'tap' and tube well/hand pump, and a corresponding decrease in the share of 'well'. According to the NSSO data in 1998, only about 19 percent of the rural households used 'tap' (PWS) as source of drinking water, which rose to cover more than 30 percent in 2008-09. Further there is an ever increasing demand for water in the rural areas from agriculture, and large water consuming industries. This ever increasing demand puts pressure on aquifers which may not be feasible in considering the inherent quantity and quality problems.



Source: Computed from NSSO

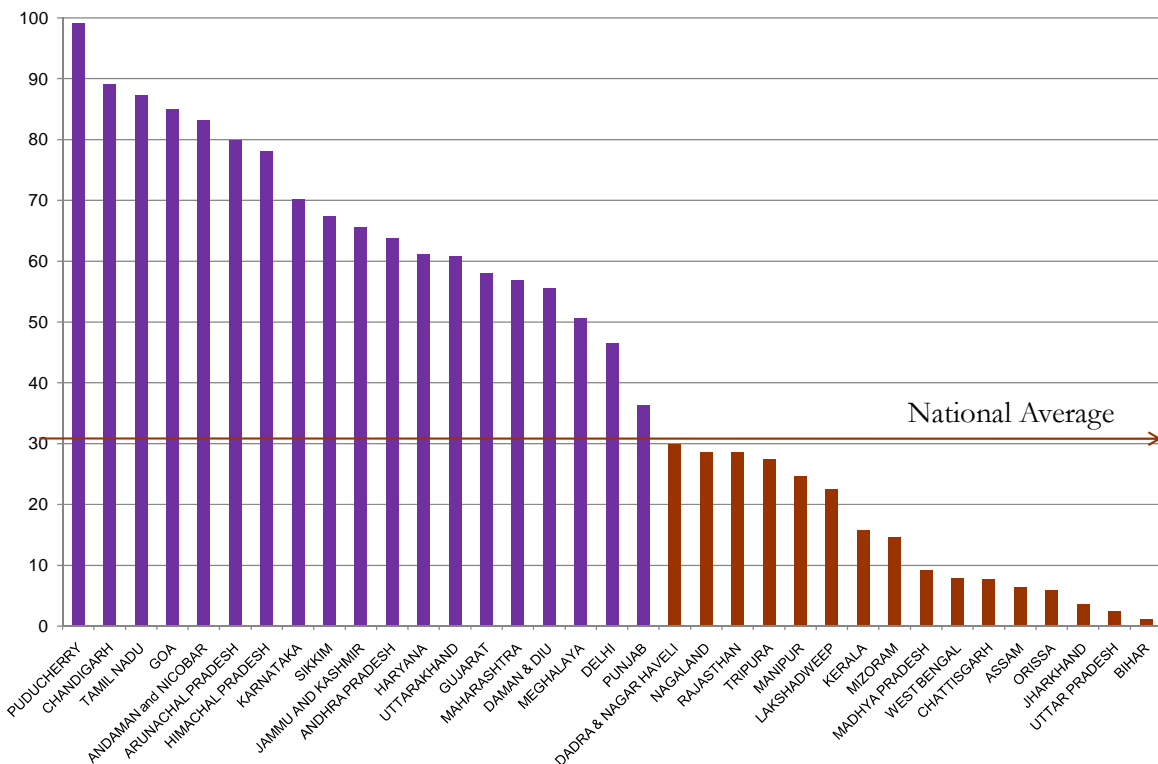
It may also be noted that, due to increased awareness; those who had been drawing water from unprotected sources have declined considerably in later years. There is only 5% increase in the effective coverage of population through tube well. Tube wells except in the alluvial areas are increasingly seen as sources are drying up in many seasons.

### **5.2 Distance travelled:**

In rural areas, majority of the households had drinking water outside the premises and had to travel to access the source of drinking water whereas in urban areas it is not so. In rural areas, nearly 41 per cent of the households had drinking water facility within the premises where as in the urban areas the situation was much better with nearly three-fourth of the urban households having drinking water facility within the premises. Majority of the households (nearly 57 per cent) in rural areas had to travel distances of upto 0.5 km. This results in drudgery and accelerated poverty especially among women and children who have to bear the responsibility of fetching water. It is the poorest of the poor who generally bear the brunt of the load.

## Piped Water Coverage Percentage Supply

Percentage Households with Tap Connections  
(household and public taps)  
NSSO Survey July 2008-June 2009



However there are large inter-state variations in the coverage of households with piped water supply. As the above chart shows the percentage of piped water supply varies from 1.1% in Bihar to 99.1% in Puducherry and 87.3% in Tamilnadu. There are 8 States viz. Bihar, Uttar Pradesh, Jharkhand, Orissa, Assam, Chhattisgarh, West Bengal and Madhya Pradesh that have less than 10% coverage of households with piped water supply. Special efforts need to be initiated during this plan to raise them up also at least at par with that of other states.

### 5.3 Right to Water

Right to life is not possible without provision of right to drinking and domestic water. India being a signatory to global agreements should progressively work towards the Right to Water and Sanitation although several difficulties in the practical implementation of these may arise, for which studies need to be carried out so that appropriate models suitable for India can be evolved. There should be simultaneous movement towards laying down a framework of laws/regulations that would support

such a right. Laws to regulate extraction of groundwater and to mandate in a phased manner drinking water quality standards are needed. In addition the technical and financial requirements for mandating such a right have to be studied. Water being a State subject the States and the local bodies, both urban and rural that are involved in the management of drinking water supply schemes would need to work out the implications and become prepared to take on the responsibility of administering a legal entitlement and justifiable right enforceable in a Court of Law. All these aspects need to be studied for progressing this direction.

#### **5.4 Strategic Plan**

As part of the process of preparation of the Strategic Plan for the Ministry, an extensive process of consultations were made with the states, NGO's, Civil Society organizations and other stake holders in 4 regional and one national workshop apart from online feedback. The results and opinion so gathered is reflected in the Strategic Plan for drinking water supply for the period 2011-22, prepared by the Ministry in March, 2011.

It is ideal that all rural households have access to piped water supply in adequate quantity with a metered tap connection providing safe drinking water, throughout the year, that meets prevalent national drinking water standards, leading to healthy and well-nourished children and adults and improved livelihoods and education. Considering these aspects and on the basis of the wide-ranging consultations held the Strategic Plan laid down the following goal for the period till 2017.

#### **5.5 Vision**

The vision for rural domestic water supply should be to cover all rural households with safe piped drinking water supply @ 70lpcd. Considering the fact that the norm of 40 lpcd has been continuing from the last 4 decades and there is a large population that has to be provided with the higher service level, it is recommended that as an interim measure the goal be kept at 55 lpcd for the 12<sup>th</sup> FYP.

##### **5.5.1 Goal**

To ensure that every rural person has enough safe water for drinking, cooking and other domestic needs as well as livestock throughout the year including during natural disasters.

By 2017, it is targeted that at least 55% of rural population in the country will have access to 55 lpcd within their household premises or at a horizontal or vertical distance of not more than 100 meters from their household without barriers of social or financial discrimination. Individual States can adopt higher quantity norms, such as 100 lpcd. By 2017 it is targeted that at least 35% of rural population have individual household connections.

It is recognized that States will adopt their own strategies and phased timeframes to achieve this goal. Three standards of service can be identified depending on what communities want:

- Piped water supply with all metered, household connections (designed for 70 lpcd or more) - with appropriate user charges as decided by States taking affordability and social equity into consideration.
- Basic piped water supply with a mix of household connections, public taps and handpumps (designed for 55 lpcd) -with appropriate costing as decided by States taking affordability and social equity into consideration.
- In extreme cases, handpumps (designed for 40 lpcd), protected open wells, protected ponds, etc., supplemented by other local sources – preferably free of cost.

Optimum use of rainwater should be an integrated element in all the three cases.

In the light of the above it is recommended that target during the 12<sup>th</sup> FYP be to cover 55% of the rural population through piped water supply as envisaged in the Strategic Plan for the Ministry.

### **5.6 Shift in focus from Infrastructure creation to Service delivery**

There should be shift in focus from construction of water supply systems to service delivery. IMIS should be revamped to capture service delivery aspects like quantity of water supplied, frequency, regularity, quality etc.

### **5.7 Focus on Piped Water Supply in 12<sup>th</sup> FYP**

It is recommended that the NRDWP should primarily focus on funding provision of piped water into the household premises either by piped water supply schemes from the nearest feasible sources or roof water harvesting in the 12<sup>th</sup> FYP. Handpumps can be implemented by the State Governments from their own resources. For remote, small, tribal, SC habitations the States can be allowed to spend 5-10% of the overall allocation on handpumps. The States should be encouraged to provide all households within the coverage area of a piped water supply scheme with metered connections

### **5.8 Universal access and participation**

#### **Community Participation**

1. Participation of the beneficiaries in water supply schemes should be ensured right from the conceptualization stage and the planning stage spanning over construction and post scheme completion management stages, including O&M. Planning, investment and implementation of all new single-village piped water supply schemes or in-village distribution systems of multi-village schemes should be preceded by constitution of Village Water and Sanitation Committees, their training, and their preparing their Village Water Security



Plan with approval by the Gram Sabha/GP and implementation by the GP/VWSC.

**Model Detailed Project Reports (DPRs) for Domestic Water Schemes**

2. Model DPRs should be made available to the State Govts for adoption after customizing them to suit the local conditions. Model DPR should inter alia, include sections on
  - a) Assessment of water needs sought to be met
  - b) Water security plan – water recharge and conservation measures
  - c) Specifications and life cycle as well as capital cost estimates of water works and distribution system
  - d) Water Safety Plan to ensure safety of drinking water source
  - e) O&M plan including the manner of its financing
  - f) Management structure for operating the completed system
  - g) Capacity building activities
3. Waste water management should be incorporated in all DPRs through low cost measures like stabilisation ponds and other options by convergence with MNREGS, TSC, etc.
4. All future domestic water supply projects should address all these aspects. SLSSC should ensure that all new drinking water supply schemes include all the above components in the DPR.
5. A Project Appraisal Cell at the State level and the State Technical Agency or some qualified technical body should vet the quality of the project proposals that are placed before the State level Scheme Sanctioning Committees. A State level organization like WASMO should be engaged to help States in preparing composite projects.
6. Communities should be enabled to plan and implement schemes to have piped water supply with metered household connections and volumetric tariffs with appropriate cross subsidy for SC/ST and BPL households.
7. Where households within a habitation are self providing (for example, they have installed their own shallow hand pump or open well), the GP/VWSC still has a responsibility to ensure that they have an adequate supply of safe drinking water. The GP/VWSC can (i) provide public taps/ handpumps, (ii) provide water quality tests, and (iii) provide the services of a qualified mechanic for preventative maintenance.
8. GPs/VWSCs should ensure a minimum level of safe drinking water and sanitation for transient communities. For example, enterprises and contractors should be held accountable for providing the minimum level of safe drinking water and sanitation facilities for migrant labourers and in their labour colonies.

**Case Study: Role of NGO in Decentralised Water Supply on 24x7 basis with Equity Gram Vikas, Orissa.**

Unique to Gram Vikas is the adoption of the social inclusion approach wherein all families of a habitation, irrespective of their economic, social and caste considerations, are provided the same infrastructure and service. Under the Gram Vikas scheme, every family gets access to good quality toilets and bathrooms, coupled with three taps per household and 24x7 piped water supply. Gram Vikas' scheme integrates the concepts of demand-led supply through decision making processes and cost sharing. In addition, this scheme differs from other approaches by breaking with the formula that equates poor people with low quality services and products. The quality, convenience and privacy of the design have really changed the daily lives of these poor rural communities and led to widespread behaviour change, inducing communities with no history of fixed point defecation to adopt new habits. Gram Vikas' Movement and Action Network for the Transformation of Rural Areas (MANTRA), as on March 31, 2010, has served about 2,50,000 people in 787 villages in 22 districts of Orissa.

9. All **government schools and anganwadis** should be provided with water supply for drinking and for toilets as per relevant quantity norms by convergence of NRDWP for existing schools and SSA for new schools set up under SSA. For private schools, supply of water should be ensured by enforcement of the provisions of the Right to Education Act by the Education Department.
10. All community toilets built with public funds and maintained for public use should be provided with running water supply under NRDWP.
11. It should be ensured that the allocations for SC and ST concentrated habitations under NRDWP are utilized for the planned purpose. Proportionate allocation and expenditure should be made under NRDWP in minority concentrated districts.
12. Women should be included in all aspects of decision making with respect to drinking water security planning, implementation, operation, maintenance and management.
13. Waste water treatment and recycling should be an integral part of every water supply plan or project. Management of liquid and solid waste should be promoted together with recycling and reuse of grey water for agriculture and groundwater recharge and pollution control.
14. Design of schemes for peri-urban areas should factor in the requirements of increasing population and increasing per capita demand in the planning stage itself so as to avoid wasteful expenditure. SWSMs can make special provisions to ensure peri-urban areas get the level of services demanded by the inhabitants.

### **Case Study: Beneficiary Groups executing and maintaining schemes**

Under the **Jalanidhi Rural Water Supply Project in Kerala**, instead of engaging contractors to build the water supply systems, Beneficiary Groups (BGs) directly procure materials and construct the schemes on their own, employing local workers – both skilled and unskilled. The community contracting system adopted in the implementation of the Jalanidhi Rural Water Supply Project in Kerala has successfully demonstrated the value of empowering communities to be responsible for the implementation and management of the water supply systems. Community contracting resulted in substantial reduction in the construction costs (about 15 percent less than the approved estimates), ensuring good quality construction and transparency. This approach also helped in mobilizing local resources, especially manpower for construction, and making the beneficiaries actively involved in the entire process whereby their ownership and sustainability of the schemes are enhanced. Equally important, the water supply schemes completed and commissioned are now being operated and maintained (many of these now for more than five years) by the BGs. Water tariffs have been fixed appropriately, corresponding to O&M expenditures, and are being levied and collected in all the schemes.

### **Village Drinking Water Security Plans and Implementation**

Efficient and effective operation depends upon sound village water supply strategies made up of (a) Water Source Sustainability Plan and implementation that provides sufficient quantity of good quality drinking water to meet demand throughout the year, including water harvesting and groundwater recharge measures for the drinking water sources, (b) Water Safety Plan that describes how water quality will be managed from source to mouth (point of consumption), (c) Operating and Maintenance Plan of the water supply scheme which describes standard operating procedures and balances expenditure and income, and (d) Service Improvement Plan summarizing provisions for new infrastructure, replacement, expansion and optimization of production cost.

In addition, there should be promotion of awareness directed at water conservation and household water storage and handling. (Issues such as hand washing, excreta disposal and solid waste management being covered under other government programmes).

### **5.9 Promotion of solar powered pumps**

Many remote habitations and habitations with irregular power supply are deprived of piped water supply due to lack of regular power. Some States have used solar powered pumps for providing piped water supply in such habitations at reasonable cost and with simple O&M requirements. It is proposed that solar powered schemes should be promoted for implementation in such habitations especially in IAP districts by converging subsidy available under Ministry of New and Renewable Energy and funds from Sustainability component of NRDWP on 100% Central share basis for the solar powered pump.

## **Chapter 6: Ensuring drinking water security**

### **6.1 Introduction:**

One of the most critical challenges that face rural villages is to secure an adequate source of water in terms of quantity and quality. With increasing growth of the population the per capita water availability has fallen from over 5,000 m<sup>3</sup>/year to about 1,700 m<sup>3</sup>/year. This results in is due to massive over-exploitation of groundwater mostly to meet irrigation demand, resulting in an increasing scarcity for drinking water during summer months. The status of groundwater development is more than 100% in the States of Delhi, Haryana, Punjab and Rajasthan. More than 15% of the total blocks in the States of Andhra Pradesh, Delhi, Gujarat, Haryana, Karnataka, Punjab, Rajasthan and Tamil Nadu are over-exploited or critical in terms of ground water development. Due to deeper drilling of aquifers, drinking water sources are increasingly becoming contaminated with natural contaminants like fluoride, arsenic and salinity.

In terms of water resources regulation, the critical issues facing the sector concern inter-sectoral distribution, bulk water tariffs and water resource management. In particular, ensuring that drinking water receives priority especially during scarcity and drought is a challenge because irrigation demand dominates water demand. The current distribution of water resources in the country is about 86% percent for agriculture, 6 percent for industries and 8 percent for domestic uses. With increasing industrialization the share of industry is set to rise. The comparable share of industry in rich industrialized countries is more than 50%. The share of domestic water use will also rise with increasing urbanization and demands of rural households for urban levels of amenities and services.

There is lack of a holistic approach to water resources management with communities taking the lead in preparing their own water balance to ensure that they manage their available surface water, groundwater and rainwater resources and competing demands for drinking water, irrigation and industry.

### **6.2 Primacy for Drinking Water in Water Resource Allocation**

As per the provisions of the National Water Policy, drinking water has the first priority in allocation, of all available water. However, it is often seen that in surface water harvesting or water impounding projects, requirements of drinking water are not given appropriate priority. **States should review existing water resource allocations for irrigation, drinking water etc. in cases of new demands for improved or augmented drinking water supply in rural and urban areas. Water policy should also provide for review and reallocation of water resources among competing user groups giving primacy to drinking water supply.**

### 6.3 Protection of Water sources

Moving it to a higher level of sanctity of sources, rather than mere protection should be a guiding principle both to keep the sources sustainable in quantity as well as save the water from being contaminated beyond usability. This would involve **participatory integrated water resource management, conjunctive use of water and source sustainability measures**. It may also involve suitable legislative or regulatory measures including defining water source protection zones or water sanctuaries.

### 6.4 Participatory Aquifer and surface water management.

*A Holistic approach* with active community and PRI participation in villages at a **aquifer or a hydrological unit** level, especially in areas facing water stress in the whole or part of the year should be followed to ensure drinking water supply as in the Andhra Pradesh Farmer Managed Groundwater Systems project. This should take into account availability of water through groundwater, surface water, rainwater and seawater (where applicable) sources; allocation of water to irrigation, and for domestic purposes; and reuse and recycling of wastewater. Strategies should include a water budget with community monitoring of water tables to balance demand (especially irrigation and industrial demand) with available water as well as local measures for rainwater harvesting and groundwater recharge. States may also consider giving GPs more power over local water sources, so that agricultural and industrial use could be regulated so as not to jeopardize domestic water requirement. Waste water should be managed to prevent contamination and for reuse and recycling.

Andhra Pradesh Farmer Managed Groundwater Systems (APFAMGS) project's key premise is behavioural change leading to voluntary self regulation. In seven drought prone districts of Andhra Pradesh, thousands of farmers residing in 638 habitations have voluntarily taken a number of steps to reduce groundwater pumping, for tiding over the problem of groundwater depletion. The main intervention of the project is the capacity building of the farmers in the catchment Hydrological Units (HUs) on water budgeting and collective decision making.

The project introduced two key measurement devices. The first is the rainwater gauge to measure the rainfall in their areas. The second is the long rope scale to measure the depth of groundwater in observation wells. The farmers groups were trained to collect and use data from these two sources to calculate the potential ground water availability in each season. This knowledge has empowered the farmers to collectively make their own decisions on water entitlements, crop water budget (CWB), changing crops to suit the water availability and planning recharge measures to enhance groundwater recharge potential.

The efforts have led to significant changes in the overall situation in a short 3 year period from 2005 to 2008. Out of 53 Hydrological Units (HUs) the groundwater balance has increased in 57% HUs, remained constant in 34% HUs and decreased only in 9% HUs. Similarly out of 58HUs the groundwater pumping has reduced in 55% HUs, remained constant in 31% HUs and increased only in 14% HUs. About 4800 farmers in the 638 habitations have voluntarily adopted water saving methods in one form or the other without losing the incomes from agriculture. This project demonstrates the power of building capacity of local organizations to collect real time data, process it and make local decisions and regulate water use.

#### **6.4.1 Integrated Water Resources and Aquifer Management - National level:**

1. The MDWS, through the National Water Mission and the National Drinking Water and Sanitation Council, should prepare a convergent approach with the Ministries of Water Resources, Agriculture, Environment and Forests, Power, Industry and others. The Central Ground Water Authority should be requested to regulate drilling of non-drinking water supply wells in over-exploited blocks. The Water Quality Assessment Authority, Central Pollution Control Board and the National River Conservation Directorate should be requested to identify and take steps for suitable prevention and regulation of pollution of drinking water sources.

#### **6.5 Regulation of Groundwater Development**

85% of the supply of drinking water is based on ground water sources. Availability of drinking water during lean periods becomes a major issue. One of the major causes is that groundwater is over-extracted for industry and agriculture leading to depletion of drinking water sources. Farmers literally engage in a race to the bottom in drilling deeper and deeper borewells and falling into debt traps. Public need should triumph over private interest. For this regulation of ground and surface water extraction is necessary. It should also be effectively implemented. The Ministry should work with the **Ministry of Water Resources on suitably incentivising States for enacting a comprehensive Ground and Surface Water Development legislation and its effective enforcement especially in over exploited blocks.**

#### **6.6 Need to notify all Over- Exploited Blocks**

The Central Ground Water Authority should be requested to take the initiative to notify all over exploited Blocks, so as to regulate ground water abstraction in such blocks, other than for public water supply. The overuse of ground water resources is critically affecting the availability of drinking water in such blocks. Even in those blocks which have been declared as over-exploited blocks, the regulation of ground water exploitation requires tremendous improvement. **The District officers need to be pro-active in**

**this and action should be initiated to establish farmer managed Ground Water associations in these block compulsorily.**

#### **6.7 Upscaling of Farmer managed Aquifer and Surface water resources model**

However, legislation alone is not sufficient. There is need to create awareness about the finite nature of aquifers and surface water resources. As has been shown in the Andhra Pradesh Farmer Managed Ground Water Systems programme if farmers are given the necessary awareness and skills to measure and monitor their water resources, community monitoring and self-regulation of water resources, both ground and surface water, becomes a reality. This is needed to ensure sustainability of drinking water supply. This has to be done by investing in awareness generation and capacity building of the Panchayats and communities. **The lessons of the APFMGS should be upscaled in all over-exploited blocks through the schemes of Ministry of Water Resources and Ministry of Agriculture.**

#### **6.8 Promotion of drip and sprinkler irrigation systems in water stressed areas**

Programmes for promotion of micro-irrigation by the Ministry of Agriculture and by State Departments may not have sufficient funds to saturate all eligible land holdings in all blocks in the country. **It may therefore be considered for targeting these programmes on water stressed States, districts and blocks based on groundwater development in those areas.** For instance they could be targeted at the 839 over-exploited, 226 critical and 550 semi-critical blocks in the country.

#### **6.9 Water security planning and implementation at village, district and State levels.**

Participation of local government and communities is the cornerstone for sustainable development. States, districts and villages should adopt a mix of top-down and bottom up planning approaches to service delivery based on Water Security Planning and implementation with training institutions, NGOs and the local private sector providing a supporting role. At the village level, GPs and VWSCs should be guided to make informed choices regarding appropriate technologies so that they get the services they want. The NRDWP prioritises coverage of remaining uncovered habitations, slipped back habitations and water quality affected habitations. Water supply schemes should have cost-effective and optimal design and timely implementation to reduce capital and O&M costs. Planning and implementation of schemes should prioritise SC/ST, poor and minority households/habitations and the role of women, makes provisions for schools, anganwadis and livestock, and adopt strategies to cope with natural disasters. Cases of isolated rural houses

where households have their own private safe and adequate drinking water sources would be considered as covered.

#### **6.9.1 State level:**

The SWSM with the Irrigation, Agriculture, Environment and Forests, Power, Industry and Aquaculture Departments among others, would promote a common State Water Policy addressing the availability of overall water resources and water requirements of irrigation, rural and urban drinking water, and industry. In this context, the steps to be taken to meet the needs of domestic water, as the priority, should be agreed by the different sectors. This would include monitoring of ground water levels and rainfall at sub-block levels, monitoring and regulating over-abstraction of ground water in over-exploited blocks, water efficient agricultural practices, recycling and reuse of wastewater, water treatment by industry, and environmental water protection from industrial effluents, fertilizers, pesticides and untreated sewage. Stress should be laid on the roles of Irrigation and Agriculture Departments in increasing efficiency of water use in agriculture.

#### **6.9.2 District level:**

The DWSM should prepare a District Water Vision based on the availability of overall water resources and water requirements for irrigation, rural and urban drinking water, and industry. It should systematise the monitoring and recording of groundwater levels and rainfall at sub-block or GP level. Based on this plan it should take steps in coordination with Agriculture and Irrigation Departments for diversification of cropping patterns, appropriate sowing calendars to reduce abstraction of groundwater, improve water-use efficiency in irrigation, ensure reduction, reuse and recycling of water by industry, environmental protection of drinking water sources, ensure open-defecation free villages, and cost-effective management of solid and liquid wastes. It should draw up plans for water harvesting and groundwater recharge structures to benefit drinking water sources on a watershed basis using Ground Water Prospects maps, GIS and Watershed Development Department technical inputs. These should be done on a priority basis for over-exploited, critical and semi-critical blocks. The works planned on this basis should be taken up under MNREGS, NRDWP (Sustainability) and IWMP.

#### **6.9.3 Village level:**

At the village level water security planning should start with knowledge of water resources management in the village, aquifer or watershed. A **water budgeting exercise** should consist of understanding water resources available, and methods of increasing the utilisation of available water resources, water requirements of different sectors like drinking water,



livestock, agriculture, industry and commerce. **Monitoring** of ground water levels and rainfall with rain gauges will lead to knowledge of availability of water resources. Understanding of **water conservation and recharge** should lead to planning of water harvesting and groundwater recharge structures which maximise recharge and minimise evaporation losses. **Demand management** of water by the irrigation sector would focus on use of less water intensive crops, efficient irrigation methods like drip and sprinkler, reuse and recycling of water, and regulation of groundwater over-abstraction. The **water budgeting exercise** should culminate in arriving at a shared **Village Water Vision** on managing this resource and equitable allocation for landless villagers and land holding agriculturists while protecting the domestic requirements. This collective approach requires considerable work with by trained persons with the villagers. The Village Water Vision should deal with the impacts of declining ground water tables, increasing competing demands and vagaries caused by climate change.

#### **Aquifer Management**

**Pune, Buldhana and Aurangabad Districts, Maharashtra.** The hydro-geological features of Maharashtra (93 percent hard rock, variability in rainfall) impose limitations on ground water availability. Competing demands on ground water, particularly for agricultural purposes through indiscriminate pumping, have led to an unsustainable situation, warranting innovative solutions through community partnership. The aquifer pilots implemented in Pune, Buldhana and Aurangabad Districts through the Jalswarajya World Bank-assisted project are a step forward in achieving sustainable aquifers through community participation. The pilot experiment has proved that the community at aquifer level can be brought together for participatory ground water management, and therefore it has emerged as a rational tool in ensuring the sustainability of ground water to meet the needs of the village community. The additional quantity of ground water retained in the aquifer translates to an availability of about 1,690 kilolitre of water per household per year; or it can irrigate an additional area of 3,900 hectare per year, in addition to providing round-the-year drinking water security to the villagers. The pilot has also resulted in cost savings of Rs. 88 lakh per year for the Government of Maharashtra by avoiding tanker supplies to villages.

## Chapter 7 – Water Quality

### **7.1 Impact of Water Supply and Sanitation on Health and Education**

Improved water and sanitation impact many areas of life, from health, education, time saving, and poverty reduction to maintaining a dignified way of life. One of the major outcomes of the provision and use of protected water, sanitation and practice of hygiene is avoiding morbidity. Several studies across the globe show improvements in health and education indicators, specifically the education of the girl child. As regards improvements in health, researches carried out show that water related diseases can be classified into water washed and water borne. Water washed diseases are prevalent in areas with inadequate water supplies for people to keep their hands, bodies and environment clean. Diarrhoeal diseases as well as skin and eye infections are easily spread under these conditions. Water borne disease transmission occurs through the consumption of contaminated water, and can affect those illnesses transmitted by the faecal – oral route, including diarrhoea.

Murray and Lopez (1996) calculated that in 1990, 5.3% of all deaths and 6.7% of all DALYs lost are associated with diarrhoeal diseases and selected parasitic infections, stemming from inadequate access to water and sanitation. Latest estimates available (WHO, 2007) shows that in India alone estimated total deaths by diarrhoeal deaths are estimated at 45.64 million, mostly among children. The estimated loss of DALYs is to the tune of 1525.4 million in India. Estimates of deaths caused by water borne and water washed diseases shows that it is of the order of 1037.85 million and that of loss of DALYs 2999.10 million (WHO, Geneva.).

Cairncross et. Al. (2010) are of the view that both quality and quantity of water and hand washing hygiene practices are of importance in reducing the prevalence of diarrhoea occurrence and consulting practitioners. The authors are also of the view that proper sanitation reduces diarrhoea to the tune of 36%.

Esrey et. Al.(1991) are of the view that the total reduction in morbidity can be divided under the following proportions.

<u>Improvement</u>	<u>% reduction</u>
Quality of water	16%
Quantity of water	25%
Quantity and Quality of Water	37%
Safe excreta disposal	22%

But the impact of water, sanitation and hygiene is not limited to reduction in morbidity alone. WASH conditions are also determinants of nutritional status. Multi-country

analysis carried out by Esrey (1996) shows that improvements in sanitation were associated with increase in height among children. It is estimated that 25% of all stunting among children of two years or less is attributable to having five or more episodes of diarrhoea.

The risk among girl children being deprived of the opportunity to attend school is higher, because of their water collection responsibilities. Girls are also quite often more likely to drop out of school, and their parents are more likely to withdraw them, if schools lack appropriate sanitation facilities which offer privacy and dignity.

Studies carried out by Water Aid (2004) shows that a 15% increase in Bangladesh school attendance is noticed when water hauling time is reduced. A 12% increase in Tanzanian school attendance is found when water is available within 15 minutes instead of being more than an hour away. 11% more girls attend to schools when there are sanitation facilities available in the school offering privacy. For every extra year of maternal education, child mortality rates reduce by 8%.

It is no wonder that in a poll of experts and readers on the greatest medical advance in the last 150 years, sanitation, including sewage and clean water, piped anaesthesia and antibiotics to be voted the top medical advance. Sanitation received 1,795 votes. Antibiotics was a close second with 1,642 votes and anaesthesia took third. The average human life expectancy increased nearly 35 years over the span of the 20th century. Roughly 30 of those 35 years are attributable to improvements in sanitation and living conditions that have dramatically reduced the toll of infectious diseases, malnutrition and exposure to the elements.

A major focus area of the 12<sup>th</sup> FYP is health. While investing on health, there should be greater investment on the preventive and public health aspect of health than on the curative aspect going by available evidence. In this context improvements in health are possible only with concomitant investments in sanitation and safe water supply to households.

## **7.2 Water related disease burden**

Disease burden among the people can be either water related or water borne. Water related disease burden can be due to chemical contamination either due to earth's crust or due to man-made effluents reaching water sources. Further it could also be because of biological contamination (water borne).

### **7.2.1 Contamination of drinking water with chemical contaminants and disease burden**

As on 1/4/2011, about % of habitations remain that face water quality issues due to chemical contamination.. These contaminations are either natural or associated with over-exploitation of groundwater.

The main chemical contaminants and affected habitations are presented in the table below.

Contaminant-wise number of Quality affected Habitations and States		
Nature of problems	No of States affected	No of Habitations
Arsenic	8	5339
Fluoride	19	23107
Salinity	15	24522
iron	21	64212
Nitrate	12	3866
Source: Computed from IMIS data		

A close look at the trend of chemical contamination in drinking water sources indicate that there is a direct correlation between over-exploitation and increasing fluoride, and salinity levels. Arsenic is found mostly alongside the Ganga and Brahmaputra rivers with a few pockets in Chhattisgarh and Karnataka (due to arsenopyrites) and therefore, it is expected that the number of arsenic affected habitations may not increase steeply in future. The number of nitrate affected habitations is bound to increase due to leaching of untreated sewage and use of excess fertilizers. Unless a minimum distance is maintained between the latrine systems and water sources, the problem of nitrate contamination can aggravate as the pace of construction of pit latrines goes up. Salinity (sea water) intrusion is another issue which is closely related to climate change. Over abstraction of sub-surface water near the estuaries may result in increasing salinity level in rivers. In the near future water quality analysis also needs to focus on heavy metal/ radio-active contamination like chromium, cadmium, uranium, nickel, zinc, mercury, etc. in drinking water sources due to discharge of untreated or partially treated industrial waste-water. Leaching of pesticides and fertilizers contaminating ground and surface water is also a growing problem.

The strategy of the Ministry is to prioritize addressing the problems of arsenic and fluoride in drinking water through alternative surface water sources. The treatment technologies that are available for removal of excess arsenic and fluoride are still not foolproof in respect of reject management and operation & maintenance issues

Over-exploitation and consequent ground water development is inducing more chemical contamination in aquifers. Therefore, wherever feasible hydro-geologically,

the States are being asked to go in for artificial recharge of groundwater for insitu dilution of chemical contaminants.

### **7.2.2 Bacteriological contamination of drinking water and related disease burden**

Bacteriological contamination of drinking water sources is more evenly spread out in the country, especially during rainy season due to poor sanitation, poor O&M and hygiene leading to water borne diseases impacting on morbidity and mortality, more specifically among children.

It may occur due to broken hand pump platforms, leaky pipelines, vicinity to leach pit latrines, vicinity to sewer lines and improper collection, storage and handling of drinking water. While awareness drive amongst the community is required for consuming safe water, it is more important to focus on personal and environmental hygiene habits, which the Ministry has identified as a thrust area. Data reveals that there is an increasing trend in the occurrence of diarrhoeal diseases in the country.

The first step to reduce the disease burden is to make rural people aware of what are drinking water quality standards, how to test them and what parameters could impact their health. The National Health Profile-2007 and 2008 based on information received from States/UTs shows that in states where female literacy is more, the trend of occurrence of diarrhoeal diseases burden is seen to be falling. On the other hand in states where literacy among females is low, it is on the rise. Hence IEC policies have to be tuned to influence women and children.

The main issues in dealing with water quality are related to: weak legislation and enforcement of water quality standards and testing protocols, exploitation of sources contaminated due to deteriorating groundwater levels, poor Operation & Maintenance, weak provider accountability with respect to quality of water provided and lack of awareness amongst rural citizens about the importance of safe water and poor environmental and domestic hygiene.

### **7.3 Ensuring drinking water safety and source protection**

Existing drinking water sources and freshwater resources in general should be protected by implementation of the Total Sanitation Campaign to make villages open-defecation free and maintain a clean environment; by safely disposing of solid and liquid wastes; by ensuring the control and treatment of industrial effluents; and by raising awareness about impacts of use of high concentration of fertilisers and pesticides on water. The regulatory authority of the CPCB, SPCBs and the Water Quality Assessment Authority should be applied to protect the quality of drinking water sources polluted by industrial effluents and untreated sewage.

The first step towards protection of drinking water sources is testing of 100% sources for important water quality parameters in IS-10500, recording the GPS coordinates and preparing GIS layer.

When contamination is detected, source protection could be ensured by following means:

- Spot sources – includes handpumps, borewells, tube wells and open wells. The following procedure could be adopted for source protection:
  - Sanitary inspections to detect and plug leaks, broken hand pump platforms, relocating leach pit latrines stagnating and waterlogged soakage pits, etc.
  - Generate awareness amongst the community to differentiate contaminated sources from safe sources by painting them red, etc. Also awareness generation amongst community is required to locate a separate place for washing of clothes and cleaning of utensils as this waste-water might also contaminate drinking water sources.
  - Flushing/ reboring of hand pumps, borewells before onset of monsoon could also reduce bacteriological and chemical contamination.
  - In favourable places, hydro-fracturing could lead to joining of perched aquifers thereby diluting the contamination level in groundwater based drinking water sources
- Surface sources – The following procedure could be adopted for source protection in all surface water bodies, ponds, tanks:
  - Introduce series of chain-linked boulder mesh dams to reduce velocity of water and arrest silt loads entering into the water bodies. Ensure complete elimination of open defecation in the catchment areas and fencing the water bodies.
- Flowing water systems – Piped water supply.
  - Introduction of standalone water purification systems is another option for providing safe drinking water but these should be limited to community buildings, as it is a costly option at the household level.

### **7.3.1 Convergence of Drinking water supply and Sanitation**

Convergence between drinking water supply and sanitation should be strengthened by concrete measures to reduce bacteriological contamination. It is recommended that all villages that are covered with piped water supply be taken up for coverage to attain open defecation free (ODF) status on priority. Villages with 100% sanitation coverage and achieving ODF status should be provided piped water supply on priority basis. Similarly villages that have achieved certain milestones, say 50% of coverage, in reaching ODF status in terms of household coverage should be selected for provision of piped water supply schemes on a preferential basis. For villages with lower household coverage of toilets a public handpump should be

provided within 100m of every household. Construction of toilets should be completed within 3-6 months of completion of a pwss.

## **7.4 Prevalence, impact, treatment technologies, strategies to tackle different contaminants**

### **7.4.1 Arsenic**

West Bengal, Bihar, Uttar Pradesh and Assam are the major States where arsenic contamination is prevalent in groundwater. Rough estimates show that about 16 million people are at risk of Arsenicosis (Keratosi s & Melanosis) due to excess arsenic in drinking water sources. In order to tackle the arsenic menace in West Bengal, three types of mitigation measures have been taken up so far.

- Short term measures : Hand pump fitted tube wells at deeper aquifers; Ring wells
- Medium-term measures : Arsenic treatment unit with existing hand pump fitted tube wells; Arsenic removal plants for existing ground water based piped water supply schemes; Large diameter deeper aquifer tube wells for existing/new piped water supply schemes; New ground water based piped water supply schemes.

Long-term measures: Treated Surface water based water supply

Several Arsenic removal technologies are available and have been tested.

But most of them have proved to be unsustainable due to poor O&M viz skilled manpower, chemicals, spare parts etc.

This approach could be followed for tackling arsenic in other States also. If sufficient resource are available, States can take up long-term measures immediately.

### **7.4.2 Fluoride**

Fluoride contamination is mostly prevalent in nineteen States. It is estimated that about 66 million people are at risk of fluorosis due to excess fluoride in groundwater based drinking water sources in the country. The first sign of fluorosis is seen in children in the age group of 8-10 years in the form of dental fluorosis. Prolonged consumption of fluoride leads to skeletal fluorosis and osteosclerolosis. Nutritional intervention like consumption of milk, calcium rich diet, etc. have to be promoted by the Health Department with support from the Water Supply Department of the State.

The approach followed in terms of short, medium and long-term measures for tackling arsenic may also be followed for fluoride affected areas.

## **Case Studies: Water Quality Management**

### **Tackling Arsenic contamination**

**In West Bengal**, arsenic contamination of ground water was first detected during the early 1980s in different districts adjoining Bhagirathi/Hooghly rivers. Investigation showed that arsenic beyond permissible limit of 0.05 mg/l existed in the ground water. The arsenic problem was found to be geogenic, i.e., due to the presence of excessive arsenic in the geological formation. Ground water was the main and staple source of drinking water in such areas due to its easy, inexpensive and location specific abstraction. Therefore, the drinking water supply systems in the affected areas received a serious setback owing to arsenic contamination of ground water.

Ground water in 79 Blocks (out of 341 blocks in the state) in the Districts of Malda, Murshidabad, Nadia, North 24 Parganas, South 24 Parganas, Howrah, Hooghly and Bardhaman is at risk of arsenic contamination. In order to tackle the arsenic menace in West Bengal, three types of mitigation measures have been taken up so far:

- **Short-term Measures:** Hand pump fitted tube wells at deeper aquifers; Ring wells
- **Medium-term Measures:** Arsenic treatment unit with existing hand pump fitted tube wells; Arsenic removal plants for existing ground water based piped water supply schemes; Large diameter deeper aquifer tube wells for existing/new piped water supply schemes; New ground water based piped water supply schemes
- **Long-term Measures:** Surface water based water supply schemes

### **Tackling Fluoride contamination**

**Andhra Pradesh** is among the worst fluoride affected states in the country, with an estimated

1,881 habitations reporting fluoride incidence in addition to other types of contaminations (physical and bacteriological). The incidence and intensity of water pollution is higher among poor households. Provision of safe drinking water in a sustainable manner, therefore, is crucial for improved quality of life in the rural areas, in general, and that of poor households, in particular. During the mid 2000, some NGOs such as Byrraju Foundation, Water Health International, Naandi Foundation, Centre for Water and Sanitation (CWS), Smaat Aqua, etc., established water treatment plants in different parts of the state. These NGOs worked in collaboration with technology providers like Water Health International and TATA Projects for developing technologies at one end and with the communities and PRIs for establishing and the running the plants on the other end. Some of the technologies adopted in the state are:

- Roof water harvesting methods promoted by both Government of Andhra Pradesh and some NGOs
- Household defluoridation methods promoted by some NGOs as well as Government of Andhra Pradesh
- Private enterprisers selling water in rural areas particularly in coastal districts and Nalgonda
- Water treatment plants with ultra violet (UV) and reverse osmosis (RO) technology with
- public private participation
- Micro filter technologies promoted by some of the organizations to the government and other agencies



### **7.4.3 Salinity**

Salinity (in terms of Total Dissolved Solids) is predominant in Rajasthan, Karnataka, Maharashtra, West Bengal, Gujarat and Orissa. As per the IMIS, as on 1/4/2011, about 9 million rural people are still at risk due to salinity problems in the country.

To address salinity problem in drinking water, various technological options like tapping of alternate safe surface water sources, reverse osmosis, electro-dialysis, ion exchange, roof-top rainwater harvesting and in situ dilution through artificial ground-water recharge, solar stills, single stage flash distillation, multi-stage flash etc., could be adopted.

### **7.4.4 Iron**

As on 1/4/2011, about 27 million rural people in 64212 habitations are at risk due to excess iron in drinking water sources.

The approaches that could be followed for provision of safe water in excess Iron contaminated areas include tapping of alternate safe surface water, oxidation (aeration), terra-cotta filters, roof top rainwater harvesting and in-situ dilution through artificial ground-water recharge. In addition, specific iron removal plants have also been developed by Defence Research and Development Organisation, National Environmental Engineering Research Institute, etc. The best option for tackling iron is oxidation (aeration) or terracotta filters.

### **7.4.5 Nitrate**

Nitrate contamination in drinking water sources is not found to be of geogenic origin. Nitrate contamination occurs mainly due to runoff from areas of excessive use of fertilizers, untreated/ partially treated domestic sewage. The States that reported major nitrate contamination in drinking water sources include Karnataka, Rajasthan, Maharashtra and Gujarat. As on 1/4/2011, about 4 million people in the rural areas of the country are at risk due to excess nitrate in drinking water sources.

For providing potable water in nitrate contaminated areas, options include tapping alternate safe surface water, reverse osmosis, ion exchange, roof-top rainwater harvesting and in-situ dilution through artificial ground-water recharge. The best option to reduce nitrate contamination in drinking water sources is to minimize/ eliminate domestic sewage pollution and/or reduce excessive use of fertilizers and pesticides.

### **7.4.6 Insecticides and Pesticides**

Pesticide pollution and impacts on human health due to endosulphan was first reported in Kannur in Kerala in the year 2000. Increasing pollution of pesticides including Malathion and others is another threat to potable water, which needs

proper surveillance on consumption of safe drinking water. There is no firm data on pesticides pollution in the country as on date.

#### **7.4.7 Radio-nuclides**

Uranium contamination is traced recently in 4 districts of Punjab. The Ministry has supported 100% testing of all drinking water sources in the suspected areas for radiological contamination in Punjab. There could also be a high risk of people drinking water in the areas in and around uranium mines. Special studies are required to prove the health hazards and also to devise strategies for mitigating it.

#### **7.4.8 Toxic/ Heavy metals**

Though testing of dissolved iron is done in the country, the associated metal i.e., manganese detection is rarely done. This could be one of the focus areas of water quality testing during the XII five year plan.

### **7.5 Steps for tackling remaining and new water quality affected areas**

#### **Ensuring and adopting Water Safety Plan**

- States should adopt the drinking water safety planning and implementation approach for rural supplies to prevent contamination. In order to address water quality problems, the VWSC must prepare and implement a Water Safety Plan.
- For chemically contaminated sources, as a first step testing, marking, including colour coding, and switching of sources, before exploring other options on the mitigation ladder with higher costs and benefits.
- As a short term measure dual water supply may be adopted, in cases where treating all supplied water or providing minimum quantity of safe water is not feasible in rural habitations facing acute water quality problems. In these habitations a minimum of 10 lpcd of safe water may be provided which would be sufficient for drinking and cooking purposes and the remaining may be provided from untreated/ sources for other domestic activities.
- As an interim step before provision of safe tap water, point of use treatment such as boiling and filtration of water should be promoted through intensive awareness generation campaigns.
- Setting up of Reverse Osmosis or any other water treatment plants should be restricted to only places where there is no other option available, considering its prohibitive cost, wastage of water and other environmental hazards attendant on the technology.

Conventional water treatment plants with surface water bodies as alternate sources are the most sustainable solution for addressing water quality problems in the longer run. This system is suggested especially for tackling arsenic, fluoride and

salinity problems as reject management is a major issue in case of insitu treatment plants.

Development of alternate systems like rainwater harvesting in ponds, artificial recharge of groundwater, roof-top rainwater harvesting are amongst the solutions that could augment drinking water demand and ensure sustainability.

## **7.6 Water quality Monitoring and Surveillance**

Appropriate and effective water quality monitoring mechanism should be evolved and instituted at all levels starting with VWSC, Gram panchayats, Blocks and DWSSM and for the states, incorporating Primary health centres, NGO's, Schools and other organisations to ensure periodic testing and surveillance.

### **7.6.1 Decentralized water quality testing using Field test kits**

**The decentralised process of drinking water quality Monitoring and Surveillance programme launched in 2006 should be continued with greater emphasis in the 12<sup>th</sup> Five Year Plan period also, with suitable modifications wherever required.**

During the Plan discussions held with States, they have been requested to conduct refresher training courses and awareness camps on water quality testing. States can continue to use NRDWP-Support funds for procurement of refills for chemical kits and procurement of bacteriological vials.

## **7.7 Strengthening of State, District and sub-district laboratories; capacity building for technicians**

The following issues of implementation need to be reemphasised in this regard:-

- Establishment of full-fledged district water quality testing laboratories in all districts
- Strengthening of existing district laboratories with required manpower, equipment and space.
- Creation of new sub-district water quality testing laboratories in water-quality problem areas
- Providing/ hiring trained manpower in all laboratories
- Building capacities of chemists and assistants working in the laboratories with the help of institutions like NEERI. This issue is proposed to be taken up by engaging services of NEERI, Nagpur
- Technology transfer of field test kits developed by NEERI and training of State chemists so that refills can be prepared by the State labs themselves.

In order to standardize procedures at the State, district and sub-district water testing laboratories, an Expert Committee under the chairmanship of Director,

NEERI, Nagpur, has been constituted for providing recommendations on the following issues:

- Specific laboratory requirements (including space and building requirements) at State, district and sub-district drinking water testing laboratories
- Frequency of testing of drinking water sources
- Baseline testing for all parameters as listed in IS-10500
- Suggestive list of instrumentation, glassware, equipments, chemicals

### **7.8 National Centre for Water Quality**

The Standing Committee on Rural Development suggested that the Ministry shall also have a national level laboratory so as to take up specific water quality problems and provide solutions to the States. In this regard, it is recommended to create a Centre of Excellence for Water Quality in NEERI, Nagpur with its regional laboratories to deal as regional level centres. To work out modalities, an expert team under the chairmanship of Director, NEERI has been set up. This shall be implemented during the XII plan period.

### **7.9 Water Quality Standards**

The Ministry should pursue with the WQAA for notification of drinking water quality standards based on BIS Standard IS-10500 after consultations with Ministry of Urban Development and the States, to come into force in a phased manner, after building necessary capacities of the water supply agencies and of State, district and sub-district water quality testing laboratories.

### **7.10 WQAA – role in drinking water quality**

The Ministry of Environment & Forests, Government of India constituted the Water Quality Assessment Authority (WQAA) in exercise of the powers conferred under Section-3 of the Environment (Protection) Act., 1986. The WQAA should play a bigger role in ensuring drinking water quality assessment and monitoring. All States shall be asked to set up a “Water Quality Cell” attached to the office of State Secretary dealing with rural water supply. They should conduct independent assessment of drinking water quality provided to the people and advise the implementing agency on regular basis. This cell could coordinate with the State level Water Quality Assessment Authority to be set up in all States under the WQAA notification.

### **7.11 Jalmani – continuation as part of NRDWP Coverage and Quality**

The present Jalmani programme of providing stand alone safe drinking water to schools should be mainstreamed and continued under the NRDWP as part of its

quality component in the 12<sup>th</sup> Five year plan, until all the schools are covered with safe water supply systems. Suitable corrective measures should be taken on the basis of the recommendations of the independent third party evaluation study carried out on the Jalmani programme.

#### **7.12 Assessment of Impact of the technologies/types of water purification systems used at the household level.**

States, NGO organizations and private companies have developed several household water purification technologies. An expert team shall carry out an assessment of efficacy of these technologies and their reject impact on environment, during the 12<sup>th</sup> plan period.

## **Chapter 8 – Source Sustainability**

### **8.1 Sustainability - Introduction**

The maintenance of desired quantity and acceptable quality standards of water supply services throughout the design life of the water supply systems is a must,. The system as well as the water supply source must fulfil these criteria. The sustainability is with reference to:

- Source – quantity and quality
- System – infrastructure. This is addressed in the chapters on Operation and Maintenance and Institutional Mechanism

### **8.2 Source Sustainability planning and implementation:**

#### **8.2.1 Factors affecting sustainability of water sources:**

- The depletion or lowering of water levels in groundwater and surface sources
- Sea water ingress in the aquifers in coastal areas.
- Change/degradation of water quality due to over drawal, excess or deficiency in certain chemical parameters of permissible drinking water standards, or contamination by domestic/industrial wastes/ waste water.

#### **8.2.2 Source sustainability planning:**

1. Sustainability Plans should be prepared especially for over-exploited, critical and semi-critical blocks for taking up scientifically located recharge measures and water harvesting structures on a watershed or aquifer basis. These should be prepared using Ground Water Prospects (HGM) maps, GIS and GPS techniques to ensure maximum water conservation to benefit drinking water sources in a cost effective manner. These plans should be financed by convergence of NRDWP Sustainability MNREGS as well as Watershed Development Programmes.

### Sustainability Plan

Sustainability of drinking water sources is probably the most important factor determining whether a rural drinking water supply system will function satisfactorily for an appreciable length of time. Interventions to ensure source sustainability include **Software** inputs (raising awareness on need for recharge, avoiding water wastage and the need to plan for balancing availability and consumption) and **Hardware** inputs (Building physical structures which can capture rainwater and surface water runoff, and/or help recharge ground water like ooranis, check dams, subsurface dykes etc.).

The following steps are suggested for the preparation of a *Sustainability Plan* with a view to appropriately locating sustainability structures to sustain drinking water sources.

i. Prioritising Difficult Areas - Identification of overexploited, critical and semi-critical blocks, areas with water stress in the whole or part of the year and quality affected areas, identification and testing of all sources there.

ii. Identifying the respective micro watershed/aquifer/hydrological unit - hydro geo morphological study of the area

iii. Preparation of a plan for recharge, water impounding (optimizing evaporation losses) and roof top harvesting with peoples participation.

iv. Preparing Estimates, Building Capacities and Institutionalising the System

v. Financing the Plan by converging NRDWP-Sustainability, MNREGS and Watershed Development Programmes.

2. All plans and estimates of new schemes for drinking water supply should include provision of source sustainability measures, wherever feasible and required using groundwater prospect maps and GIS tools.

#### **Alwar District, Rajasthan.**

Solutions to ensure drinking water security in highly water stressed areas as in Rajasthan exist. This has been amply demonstrated by the successful experience of local communities in Alwar District in Rajasthan, supported by the NGO Tarun Bharat Sangh (TBS) and its founder Mr. Rajendra Singh. It is possible to harvest and augment water resources through the construction of small water harvesting structures called "*Johads*" and the implementation of local water governance. Since

1985, 8,600 *Johads* have been built in 1,086 villages. This has resulted in the rise in water levels in the shallow aquifer, increase in the area under single and double crops, increase in forest cover and drinking water supply security.

#### **Protection of spring sources**

Under the **North-Eastern Region Community Resource Management Project for Upland Areas**, Spring Trap Chambers (STCs) have been promoted with the objective of protecting natural sources of drinking water. Two STC designs have been developed by the project in consultation with PHED staff : i) design for the plains; and ii) design for hill locations.

Protection of drinking water sources that serve a population of approximately 7,12,500 has been enhanced as a result of the IFAD project. Existing rules relating to catchment protection (such as timber felling, ban on hunting and fire control) have been enforced more effectively. Multiple use of water from STCs has been emphasized (drinking water, clothes washing, livestock rearing and kitchen gardens). The average annual household economic benefits derived from the use of STCs are in range of Rs. 84,550,000 in Meghalaya alone. In addition to economic benefits derived from livestock rearing, households also derive non-economic benefits through enhanced food security provided by kitchen gardens (mustard leaves, beans and cabbage).

### **8.3 The hydro-geological aspects of source sustainability**

It is imperative to take into account, the hydro-geological diversity of India, diversified terrain condition, and uneven rainfall distribution, while planning for source sustainability of groundwater based sources.

Analysing the hydro-geologic conditions in India,, it is found that source sustainability is a function of not only local conditions, and local Geology or hydro-geomorphology, but also of a regional hydrogeological environment, and hence regional exploration, and regional planning of groundwater resources is obligatory for source sustainability. Distribution of groundwater in time and space has to be analysed and a long term plan has to be prepared for managing the groundwater resources, since the results of groundwater recharge activities may take years to appear. Dependence on deeper aquifers has to be reduced, and for this, special efforts for recharge of shallow aquifers need to be initiated.



## 8.4 Source sustainability Implementation

- **Orientation of implementing agencies/officers:** Source sustainability implementation requires a basic understanding of the concepts of Hydrogeology, Hydrology and land and water management among the implementing agencies/officers. An integrated and multi disciplinary approach is to be inculcated in the implementing agencies for the field implementation of sustainability activities.
- **Investigation of Sustainability Sites:** For such studies data and information is crucial. It is also necessary to define what data is required, where to access it, or how to access it, if not available. Suitable technologies for data acquisition must be identified and standardised. For example source location is very important in order to have a regional planning and implementation of sustainability. The locations have to be identified using Ground Water Prospectus (HGM) maps, by GPS and recorded on a map. These locations also need to be integrated. Now this process has to be standardised so that quality of data accessed is good and usable. Similarly the remote sensing, geophysical, and hydrogeological studies required for planning, locating, and designing of sustainability structures should be standardised.
- **Selection of sustainability measures/technology/ methods:** Selection of a particular sustainability measure/ technology/ method or a combination of different technologies / methods should be done on the basis of a systematic step by step investigation starting with regional analysis, and continuing through various technical aspects, finally to the implementation at micro level target sites. Water harvesting and groundwater recharge structures should be planned on watershed basis. However, hydro-geologists should assess overall impacts of reduced runoff including reduced inflows to tanks.
- **Construction of sustainability structures:** After finalisation of the designs and locations, final field implementation of the structure requires nodal agencies. These nodal agencies should work in co-ordination with the VWSC/ PRI's in order to have local micro level inputs for better execution as well as for the sustainability of the structure itself. Convergence of various departments/ programs engaged in rural development activities should be envisaged while planning, and finally incorporated while execution.
- **Periodic maintenance of sustainability structures/ systems:** Periodic maintenance of sustainability structures systems is also needed. One of the reasons of failure of many available technologies in the field situation is that required repairs, skilled personnel, raw materials, & periodic maintenance are either not available or become expensive. Some funds should be earmarked for the maintenance of sustainability structures or alternatively the service provider should be engaged to provide periodic maintenance. Skill

upgradation of technicians for periodic maintenance activities must also be included in the training activities.

- **Regulatory / administrative measures to ensure source sustainability:** . Regulatory measures, in the form of control over withdrawal, as well as utilisation is imperative.
- A Manual for planning and implementing source sustainability should be prepared and disseminated to State and District level.

### **8.5 Conjunctive use of surface, ground and rain water**

Water harvesting systems have been successfully utilized by people in many parts of the country. The application of water harvesting techniques although potentially high is still actually low in practice. In order to meet the water demand for various purposes, sustainable systems of water harvesting and managing should be developed. Local approaches and indigenous experiences have to be encouraged and be applied easily at both village and household levels.

#### **Case Study : Conjunctive Use of water**

**Jepar of Chuda Taluka in Surendranagar District, Gujarat**, is a village that embraced the decentralized community managed water supply system in 2006. It has developed a water distribution system, which allows all 160 households to have tap connections and enjoy 24x7 water supply. The village's two sources of water – a dug well based piped water system and surface water based Narmada piped water supply system – supplement each other to ensure regular safe water supply to the village. The total storage capacity is an Elevated Storage Reservoir (ESR) of 50,000 litres and one sump of 20,000 litres.

Before the village adopted 24x7 water supply system in 2006, the supply was available for about two hours a day and the average consumption of water was around 400 litres per day per household. When each household was assured of 24x7 supply, the consumption per household reduced to 250 litres per household, thus saving 25,000 litres per day which represents 38 percent of the water previously distributed. Power consumption reduced too by 4.39 units per day or a decrease in one-third of the previous electricity bill; an annual saving of about Rs. 7,900. The reduction in consumption of water occurred primarily because people abandoned the practice of storing water to cover several days' needs. Now, 125 villages in Gujarat are successfully operating the 24x7 water supply system.

**8.5.1 Rooftop rainwater Harvesting:** Rooftop rainwater harvesting is one of the most feasible techniques for almost the entire country. However a special drive to popularize the technique is suggested. The following measures are proposed for popularising, and better application of the technique:

1. Standardisation of the technique, and material used in Rainwater Harvesting Systems.
2. Properly designed systems with calculated capacities.
3. Rooftop rainwater harvesting should be incorporated in all government and private buildings at the design stage.

### **8.5.2 Traditional Rainwater harvesting systems**

India has a rich tradition of water conservation, and different geographical regions have different traditional water harvesting structures commensurate with the rainfall, hydrogeology and climatic conditions. Such traditional water harvesting systems as Tankas of Rajasthan, Khantis of Himachal Pradesh, Haveli System of Central India, Chandela talabs of Bundelkhand, Ooranies and Tanks of South India are still relevant. These traditional water harvesting systems, if adapted at the village level, support the sustainability of the sources. These traditional water harvesting systems should be protected, rejuvenated and developed wherever they are, and the possibilities of putting up these structures in fresh areas should be explored.

### **8.5.3 Surplus water from surface water storage structures / rivers:**

Efforts must be made to utilize the overflow from the surface water storage structures during floods and during normal flows, to recharge groundwater. A regional plan of action taking the riparian rights of the downstream river water users into consideration needs to be prepared and implemented for this.

### **8.5.4 Surface water optimisation:**

Surface water reservoirs have many drawbacks, and special measures are required for negotiating these drawbacks.

Evaporation: Large open water areas are exposed, during several months and even years, to high evaporation rates leading to water losses sometimes exceeding 20 percent of the average annual runoff. Evaporation control measures are to be promoted and special pilot studies need to be taken up in different agro-climatic zones of the country

Sedimentation: Soil erosion in the catchment results in siltation in the surface reservoirs and in the equivalent reduction of the storage capacity. The sedimentation therefore needs to be tackled by proper catchment area treatments and promoting vegetative covers for the soils prone to erosion. Distribution of plants for plantations, to the farmers having their lands in the catchment area of a reservoir may be one of the actions to be taken up under MNREGS, IWMP.

**8.5.5 Water Budget:** The concept of water budget at watershed level has to be brought in, demand assessment must be made at watershed and village level, and utilisation of surface and groundwater must be divided in space and time, depending on the demand assessment in terms of geographical area and the demand season.

**8.5.6 Groundwater sanctuaries:** Groundwater assessment must be done at watershed level, aquifer boundaries must be determined by preparing the fence diagrams through systematic hydrogeological studies, and groundwater sanctuaries may be created in areas having very high groundwater potential. These groundwater sanctuaries must have a recharge plan using rainwater, and a discharge plan based on drinking water needs of the habitations in the particular watershed. The surplus groundwater may be allocated for other uses including irrigation while the withdrawals are closely monitored by village level water user committees. However, water stressed villages in nearby watershed having poor groundwater potential must be connected to the groundwater based schemes from this surplus groundwater zone, and their demand assessment must also be taken into account for lean periods.

#### **8.4 Impact of industrial and mining activities on sustainability of drinking water sources**

The drinking water sources come under stress due to various commercial activities, chiefly industries with high water demand, such as textile spinning, food processing, distilleries, water bottling plants and the mining sector with impact on the hydro-geological, and environmental framework of the region, have a direct bearing on the drinking water sources.

**8.6.1 Regional Planning for water based Industries:** With a regional water use planning, industries with high water demand may be allocated lands only in areas identified as having high water potential. Such industries should be discouraged from being setup in over exploited regions. Such industries should also take the onus of excessive water use, and adopt villages in the surrounding areas for various water management activities ensuring drinking water security, and supporting sustainability activities under their Corporate Social Responsibility. Effluent treatment should be strictly monitored, and no effluent disposal be allowed in such a way that pollutes or harms in any way, an existing / proposed drinking water source. If water is contaminated, the treatment of water so contaminated should be the responsibility of the industry, and providing safe drinking water of desirable standards to the habitation should be ensured by the industry.

**8.6.2 Impact of Mining and mineral related industries:** Various mining activities such as Bauxite Mining, refinery, and smelters, Coal and Lignite mining, Limestone and Marble mining, and quarrying for minor mineral mining have major consequences in terms of excessive withdrawal, deteriorating water quality, damage to aquifers and surface water bodies such as rivers, ponds etc.

While mining is an important economic activity which cannot be done away with, a careful planning and monitoring of the mining and allied activities shall result in these activities being carried out with minimal damage to the security of drinking water

sources, and thereby reducing the risk of a lesser sustainability. Mining activity should not be allowed at any cost near major drinking water sources if it threatens the safety and sustainability of the source. If the drinking water source is affected due to mining or related activities, the cost of providing a new and sustainable source should be borne by the mine owner.

The open cast mines or the quarries which have stopped operations and are now abandoned can be used positively by altering them into recharge ponds, and percolation tanks, or rainwater harvesting ponds with suitable technical alterations.

### **8.7 Summary of Steps for improvements in sustainability activities:**

- Regional planning of Groundwater resources of the country
- Reduced dependence on deeper aquifers and a long term plan for recharge of shallow aquifers.
- Watershed to be considered as the unit for water resources planning rather than administrative boundaries.
- Preparation of Water budget, and assessment of water resources for every watershed.
- Integrated multi disciplinary approach for site selection and designing of sustainability structures.
- Orientation Programs for implementing agencies in the fields of Civil Engineering, Hydrogeology, Remote Sensing, and GIS
- Use of advanced techniques for Data acquisition, integration, interpretation, and analysis, like Ground Water Prospects Maps, Remote Sensing, GIS and Geophysical studies for selection and design of sustainability structures.
- Pilot studies for different agro climatic zones, and different hydrogeological regions of the country
- Involvement of VWSC, PRIs, CSOs and NGO's at the planning and implementation stage of sustainability activities.
- Periodic maintenance of sustainability structures, skill upgradation of technicians for the same.
- Regulatory/ administrative measures on groundwater withdrawal, and utilization of water.
- Community participation and increasing role of government for empowering user groups/gram panchayats for sustainable management of drinking water assets and integrated water management and conservation.
- Rooftop Rainwater Harvesting activities need to be popularised more.
- Conjunctive use of rainwater surface water and groundwater must be promoted.
- Traditional rainwater harvesting systems should be protected & preserved, developed and promoted.

- A regional industrial plan should be prepared and water based industries should be discouraged from being put up in overexploited regions, and rather be strategically placed in regions with good water potential.
- Strict monitoring of impact of mining and related activities on drinking water sources should be done, and the drinking water security and sustainability in villages around such activities may be a responsibility of the mine owner.
- It should be made obligatory on the part of the mining company to modify abandoned mines and quarries as percolation tanks or rainwater harvesting tanks.
- Sustainable water systems should provide adequate water quantity and appropriate water quality for a given need, without compromising the future ability to provide this capacity and quality

### **8.8 Evaluation of Sustainability of Water Supply Systems**

Nationwide or state wide sustainability evaluation of water supply systems, specifically the piped water supply systems, have to be carried out periodically. Measurement of sustainability in the changed context of piped water supply and increasing quality problems should incorporate the following

1. Sustainability of Source
2. technology and quality,
3. Community , Social and cultural aspects,
4. Operation and maintenance and financial aspects
5. Community participation and training.

An aggregate sustainability index and grading is required for each of the systems based on the criteria for evaluation and all water supply systems should be ranked.

## **Chapter 9 – Operation and Maintenance and Service Delivery**

A major challenge is to move from a project mode which focuses on creating infrastructure, to a programme mode which focuses on providing, improving and sustaining high standards of drinking water supply services. The PHEDs have been concerned with physical progress and financial disbursement, not longer term sustainability. There has been poor interaction with communities to involve them in planning, implementation and managing their own schemes. As a result, the dominant approach to service delivery has remained supply driven and characterized by large investments in schemes and works, followed by deterioration of the infrastructure and long periods with low levels of service while communities wait for the government to rebuild the schemes.

For sustainability of the RWS schemes all the completed schemes are to be handed over to PRI/VWSC for operation and maintenance for which incentive fund of 10% of State allocation has been provided in the NRDWP guideline.

The 13<sup>th</sup> Central Finance Commission has recommended separate grants to PRIs, which could be used to partly meet the operation and maintenance expenditure incurred by the PRIs on ensuring potable drinking water supply. 10% NRDWP O&M funds are allocated among States/UTs for O&M and States/UTs make matching contribution, which along with funds provided under the Finance Commission's recommendations as grants to PRIs is used to meet the O&M expenditure on drinking water supply. It would be desirable to deposit such O&M contributions in a corpus fund linked to the project operated by PRI itself.

### **9.1 Sustainable O&M and Service delivery**

All water supply schemes within the GP shall be maintained by the VWSC, a standing committee of the Gram Panchayat.

Management by VWSC, metered supply, partial recovery of O&M cost and provision of O&M corpus fund to the VWSC/GP should form the basis of sustainable service delivery.

For multi –village or bulk water supply schemes the source, treatment plants, rising mains etc., shall be maintained by Joint Scheme level Managing Committee/PHED or the concerned agency while the distribution and other components are to be maintained by the GP. State Governments shall endeavor to develop sustainable sources of funding for maintenance of rural water supply schemes and shall ensure that the Central and State Finance Commission and O&M funds release by MDWS are properly utilized.

## **9.2 State Operation and Maintenance Policy:**

States should draw up a State O&M policy for rural drinking water supply focusing on ensuring sustainable service delivery at the village level and laying out the roles of VWSCs, GPs, PHEDs, operators, outsourcing agencies. The policy should also lay down standard operating procedures for O&M of handpumps and piped water supplies. It should build capacities of GPs and water operators and incentivise GPs/VWSCs to maintain accounts of their income and expenditure on O&M, improve collection of water charges and generate surplus for replacements. States should consider imposing conditions of continued maintenance of a scheme for 3/5 years and building local capacity for taking over the scheme, on the contractor who is entrusted with execution of the scheme.

## **9.3 O&M Plan**

An O&M Plan should be included in the DPR of all schemes. The community and the VWSC should be engaged in developing the O&M Plan. A simple and practical O&M manual should be handed over along with the formal transfer of the scheme to the Managing Committee/VWSC.

## **9.4 Increased allocation for O&M**

The weakest aspect of rural water supply is O&M and there is need for raising O&M allocations. Allocation for Operation and Maintenance should be increased to take care of Capital Maintenance costs of pipes, pumps etc. to improve reliability of service delivery. It is recommended that allocation for O&M be increased from 10% of NRDWP allocation at present to 15%. These allocations should be given to GP/VWSCs on a per capita/per source basis.

## **9.5 Financial viability & Cost Recovery:**

Cost recovery for O&M is integral part of Gol policy. But in most of the States although the tariff structure is in place, cost recovery from beneficiaries is marginal. Continued subsidization of sector services by the Government distorts the signals to users of the scarcity value of water. Without an effective mechanism in place to recover costs of providing water services, the government's objective of bringing sustainability of rural drinking water supply may be hard to achieve.

Full cost recovery of the recurring cost of simple spot (handpump & dug well) and gravity based PWS scheme is found generally affordable for the vast majority of the rural population. In case of PWS schemes based on high lift the cost of the electricity is the major component. Electricity tariff in PWSS works out to more than 40% which is not affordable by GP/beneficiaries. Hence States may propose that electricity charges for RWS is either at par or below the domestic electric charges. A progressive tariff with different pricing tiers for different uses and different classes of consumers can be considered at various administrative levels i.e. the Gram Panchayat, District and State as appropriate. Incentives may be provided to the GPs



for collecting user charges from the beneficiaries. A minimum collection of 50% of O&M cost (including electricity charges) through user charges is advocated.

### **9.6 Corpus Fund and User charges for O&M**

Schemes should be transferred to the MC/VWSC together with an O&M Corpus fund amounting to 10-15% of the project cost. This fund should be kept in a Post Office Monthly Income Scheme account. The interest accrued should be used for partially meeting O&M expenditure. This should be supplemented by recovery of user charges from the user households. The quantum of user charges should be determined by the MC/VWSC.

### **9.7 Distribution of O&M funds**

Per capita expenditure on O&M can be worked out and a grant of say, Rs 75/- per capita per year, may be given to the VWSCs every year for maintaining the in-village water supply systems (excluding electricity charges). The cost could be shared with 25% coming from the Centre and 25% from the State government. The remaining 50% could be borne by the VWSCs from user charges. For SC/ST dominated Panchayats, Government support could be higher say, 75%.

### **9.8 Implementation Plan**

#### **(a) Institutional arrangements and Management**

- 1) In single village schemes the scheme should be handed over to the VWSC for O&M.
- 2) In multi-village schemes or large water grids, bulk supply should be managed/operated by Managing Committees/PHEDs or private operators with tariffs set by the State government/PRI's/water resources regulator.
- 3) Joint Scheme Level Water and Sanitation Managing Committees consisting of heads of VWSCs/GPs benefited by the scheme overseen by the Block or District Panchayats should be handed over multi-village schemes for O&M.
- 4) In many states maintenance of single village schemes by GP has performed well. For multi village schemes, the model of providing bulk supply to PRI's up to the village entry point and subsequently the management of in village system by the PRI is a good model and worth replicating.
- 5) Other options for management of schemes can also be adopted by GPs. (Model of Maharashtra of outsourcing to SHGs; GP outsourcing to PHED or ZP on payment basis; and GP managing by their own resources). Participation of local private parties, NGO's, CBOs as well as mechanics at the village level in O&M particularly the hand pumps is a good option.
- 6) GPs/VWSCs must also prepare and implement service improvement plans for prioritising repairs, replacement and expansion of source and system parts.
- 7) Zilla Panchayats should have a Water Supply O & M Wing to provide continuous technical support to GPs in managing their water supply schemes.

- 8) Federation of VWSCs can also take up major maintenance, renovation and modernization of rural water supply schemes with technical and staff support from PHEDs/Corporations/Boards. They can reduce costs by engaging local technicians trained in vocational institutes or industrial training institutes(ITIs) to provide services round the year. This would significantly mitigate deficiencies of technical capacity and manpower availability at block and lower levels.

#### **(b)Operating procedures**

- 9) States should introduce standard operating procedures for O&M of handpumps and piped water supplies and GPs/VWSCs should identify and assign key functions to the appropriate person/agency such as the handpump caretaker or operator.
- 10)Every State should work out maintenance cost norms for all water supply schemes (Hand pumps, PWS, MVWS etc) for all components, so that proper monitoring can be done and measurement for cost cutting can be ensured.
- 11)Maintenance cost norms for different system and also a component of maintenance as a percentage of the capital cost exists. This needs regular needs updating linked to schedule of rates.
- 12) Accordingly cost norms for preventive/ scheduled and breakdown maintenance should be worked out.
- 13) Standard operating procedures for coping with natural disasters, including for drought and floods, should be laid down and disseminated through training and awareness generation programmes.

#### **(c)Finances**

- 14)Timely transfer of O&M, State plan and Finance Commission funds is necessary to enable GPs to operate and maintain schemes without service breaks. Wherever it is not yet adopted, NRDWP (O&M) and other funds necessary for drinking water supply to GPs should be transferred electronically to GP accounts.
- 15) For cost recovery of water supply schemes, including cost of electricity and man power, it could be ensured that about 50 % of total recurring cost should be recovered from beneficiary and the remaining 50% can be provided to PRI as subsidy.

#### **(d)Functionaries**

- 16)Field level engineering staff positions should be filled up at sub division, block and district level which is at present highly inadequate for maintenance of schemes. It is recommended that separate maintenance wings should be created at the block level.
- 17)Efforts should be made to provide local wage earners, women SHGs, Bharat Nirman Volunteers, local youth with training in masonry, plumbing, electricity through programmes like NRLM, BRGF etc. so that the VWSCs could hire their services as per their need for O&M of their water supply schemes.

- 18) For piped water supply systems with community standposts and/or household connections, the DWSM/BRC and VWSC needs to make sure that community based operators receive training to gain the technical and financial skills to do the job.
- 19) For handpumps, the GP or VWSC needs to be provided access to spare parts and trained mechanics by the DWSMs for regular preventative maintenance of all handpumps in the GP.
- 20) ZPs should equip and empanel private parties having skills in repair of water supply components and mechanical cleaning of latrine pits. Their training could be financed out of capacity building funds of NRDWP and TSC.

**(e) Materials, metering and technology**

- 21) For water treatment units with specific chemical contamination (arsenic and fluoride, salinity) special funding and training of maintenance staff is needed.
- 22) Customer consultation and grievance redressal mechanisms should be established such as provision of a toll free number, call centres, mobile SMSs, linking GPs and engineers electronically with Block and District IMIS systems, citizen report cards and community score cards.
- 23) Water audits, energy audits and measurement of Unaccounted for Water (UfW) and Non Revenue Water (NRW) should be introduced for bulk and distribution piped water supplies.
- 24) In time, optimisation of large water supply systems through technologies like SCADA should be promoted in all States.
- 25) Automated pumps should be installed, wherever feasible, in piped water supply schemes to ensure reliable water supply and reduce operator workload.
- 26) Appropriate design from the perspective of maintenance and ensuring provision of low maintenance pipes, star rated pumps and other quality fixtures will ensure long term sustainability of the system as well as reduction of breakdown frequency and cost thereof.

**9.9 Water Metering and Unaccounted for Water:**

Water metering, both bulk and individual household, should be promoted in all piped water supply schemes to reduce unaccounted for water. Initially all bulk water supply and retail water supply to commercial, industrial establishments and private institutions should be installed with volumetric metering. Gradually all household connections should be metered.

**Case Study: Impact of adopting metering**

**Dakshina Kannada, a coastal district in Karnataka bordering Kerala**, is situated on the western coast of India, which spreads from the Western Ghats to the Arabian Sea. The major part of its length lies along the seaboard. The population is about 1.3 million people (2001 census). The district is characterized by scattered habitation,

isolated households, hilly terrain and saline water in the coastal belt in the summer months. The district is made of five blocks and 203 Gram Panchayats (GPs) including 368 villages and 2,683 habitations.

In 2010, 128 of 203 GPs adopted meters for household connections coupled with volumetric-based tariff and computerized billing and collection in Dakshina Kannada District. This is unique in rural India. In 2010, there were about 43,000 metered connections against less than 4,500 prior to adoption of this practice. This has led to reduction of water losses, improvement of service delivery hours with GPs able to provide 24x7 water in some cases, improved collection of charges and financial sustainability of schemes.

### **9.10 Service Agreements**

GPs/VWSCs should explore options to access professional experience and skills for operation and maintenance, including qualified mechanics for handpump preventative maintenance and operators for piped water supplies. (See Section 5.3 on Outsourcing).

#### **Service Agreements**

Whether the water supply system is being operated by community based technical and operational staff, a public utility / department, or a local private entrepreneur, a service agreement is a very useful tool. Service agreements set out the operators' tasks and what they will be paid, and as such can be used to provide guidance and incentives to gather information, plan and implement as effectively and efficiently as possible. If local entrepreneurs are involved then other advantages include management expertise, tariff / financial discipline and access to private capital. In addition, performance indicators provide the basis for monitoring implementation and performance, including demand side outcomes.

## **Chapter -10. Safe Water to Disadvantaged Sections**

### **Women, Scheduled Castes, Scheduled Tribes and other Disadvantaged and Marginalised Groups.**

#### **10.1 Strategies**

India, with its large size and diversity has close to 40% of its population considered poor (Planning Commission 2010). These are mainly small and marginal farmers often belonging to socially backward communities. The distribution of the poor population is increasingly getting regionally concentrated in States like Orissa, Bihar and Madhya Pradesh. This is reflected in calculations done for the multi-dimensional poverty index (MPI). As per MDG norms, deprivation of access to water and sanitation are among the indicators in the index. The MPI shows an increase in incidence of poverty to 55%, and also shows regional concentration of poverty, with 8 States i.e. Bihar, Jharkhand, Chhattisgarh,, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal being home to about 421 million poor people.

Significantly, among the population categorised as poor as per the MPI, there is a concentration of Scheduled Tribes (81%) and Scheduled Castes (66%).

Health, an important social indicator has a strong link to access to WASH services. Nearly 1 in every 10 deaths in India is linked to poor sanitation and Hygiene. 5% of all deaths are caused by diarrhoea, with 88% being children below 5years of age. The impact of this is felt harder by socially deprived and spatially scattered communities, with lesser access to safe drinking water and improved sanitation infrastructure.

Exclusion to social services, has been indicated in various surveys like Census 2001 data, Human Development Reports, NSSO reports etc.

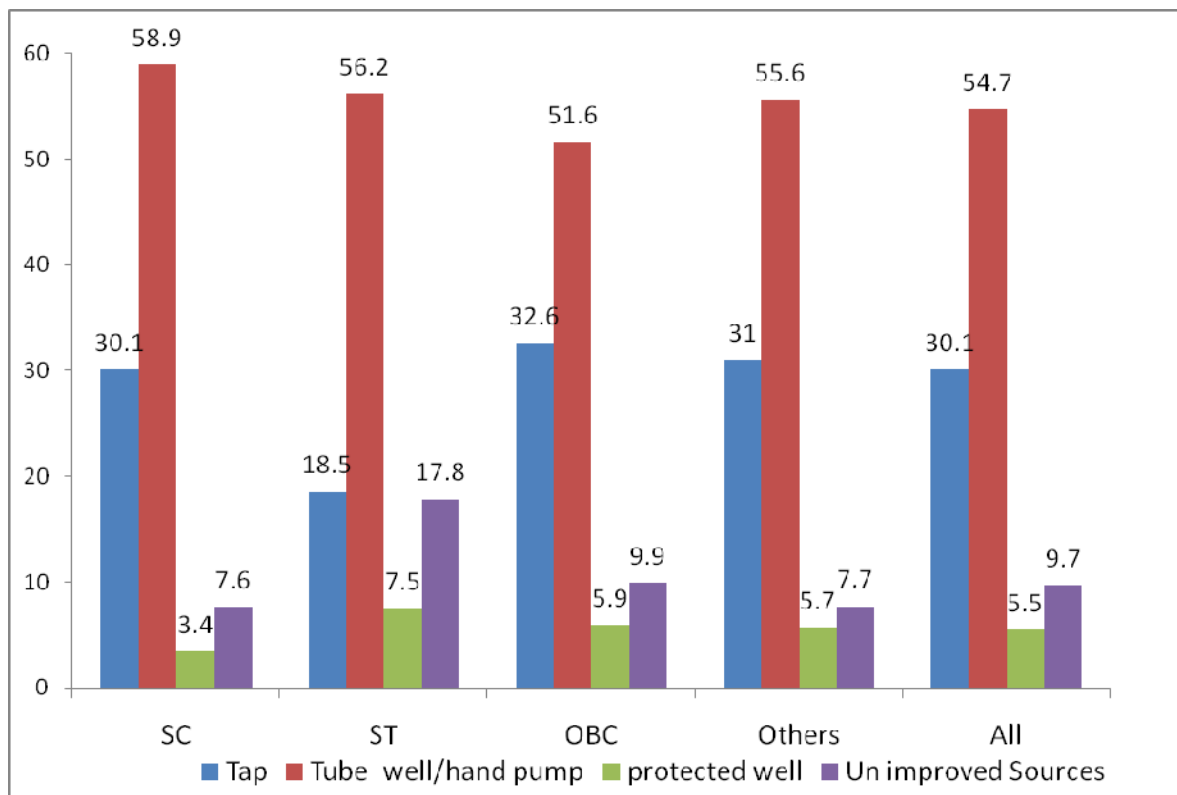
Several provisions, including Constitutional provisions have been made to focus resources on deprived social communities. The Scheduled Caste Sub Plan (SCSP) and the Tribal Sub Plan (TSP) are programmes which have focused on dedicated planning for developmental schemes benefiting SC and Tribal communities. While significant progress has been achieved in many areas, there are exclusions that are still seen in many pockets.

In the rural drinking water sector, under NRDWP from 2011-12, earmarking of funds for expenditure under the SCSP (22%) and the TSP (10%) has been made mandatory. It is also essential that technological innovations be used to ensure that focused targeted spending on weaker sections is achieved. Exclusion of habitations with concentrations of Scheduled Caste, Scheduled Tribe, minorities, and, remote habitations should be prevented by appropriate use of IMIS and GIS maps in the planning process.

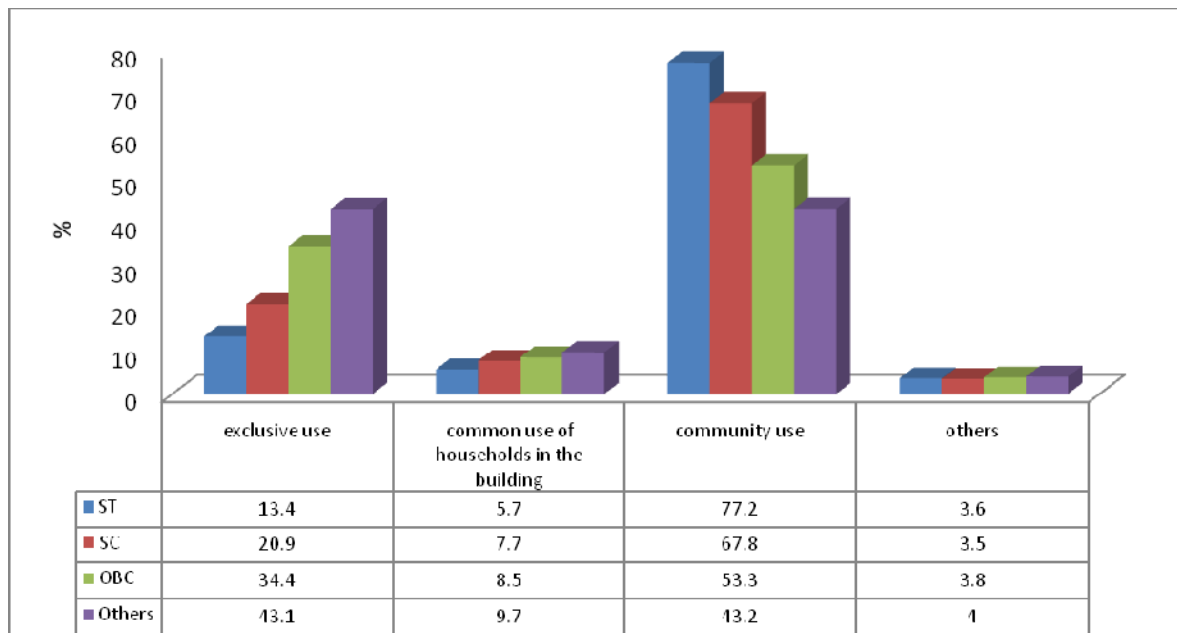
## 10.2 Findings of NSSO 65<sup>th</sup> Survey 2008-09

As per the NSSO 65<sup>th</sup> round survey report, the data regarding the major source of drinking water for social groups shown in the chart below reveals that while in SC households 30.1% depend on tap water, in ST households only 18.5% depend on tap water, compared to 30.01% among all households depending on tap water. Similarly as many as 17.8% of ST households depend on unimproved sources compared to 9.7% among all households.

**Chart No 1: Percentage of households by major source of drinking water in the social groups**

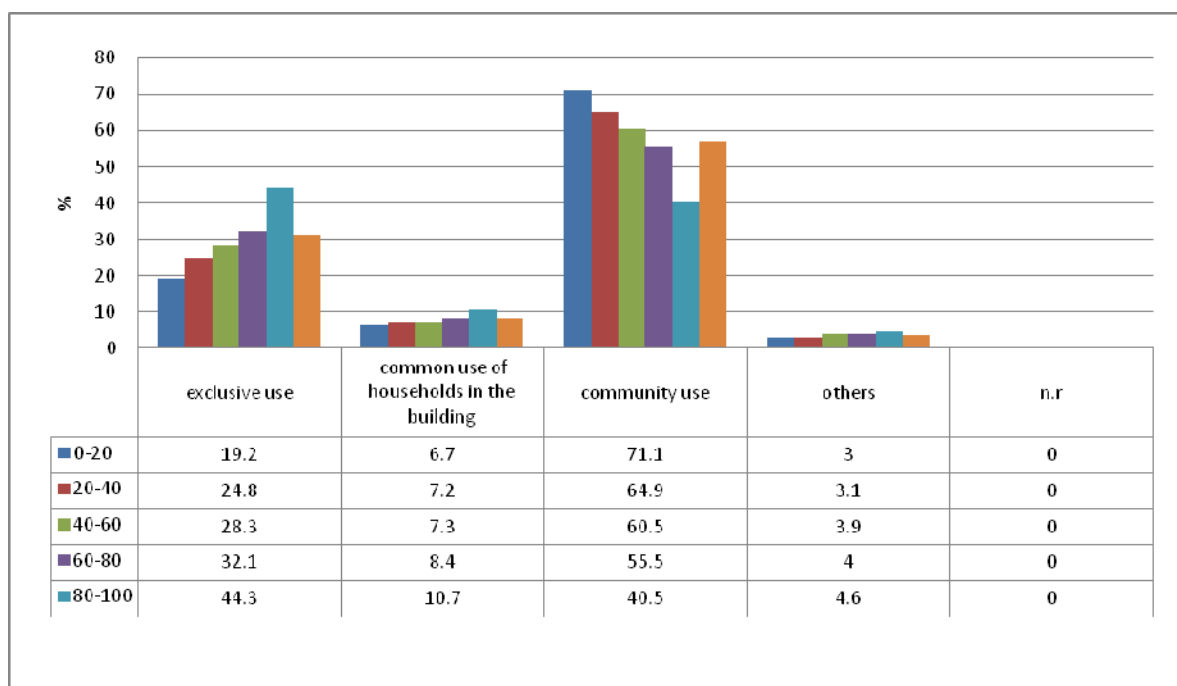


**Chart No 2: Percentage of households by use of drinking water facility by social group**



As per the NSSO survey, only 13.4% of ST households use drinking water facility exclusively, compared to SC 20.9%, OBC group 34.4% and Others 43.1%.

**Chart No 3: Percentage of households by type of use of drinking water facility by MPCE quintile class**



The usage of drinking water facility by MPCE quintile class shows that among the group belonging to the poorest 0-20 MPCE quintile only 19.2% have exclusive use compared to 24.8% among the 20-40 quintile 28.3% among the 40- 60 quintile, 32.1% among the 60- 80 quintile and 44.3% among the richest 80- 100 quintile.

### **10.3 Relaxation of State norms for SCs, STs and PTGs.**

NRDWP has given flexibility to States to have their own norms regarding population per handpump, per capital water supply, distance from households etc. States have their own norms regarding the per capita cost of construction in case of piped water supply etc. Due to the nature of terrain, remoteness, sparse density of population, and distances involved, higher per capita cost should not be an obstacle to cover SC, STs and PTGs. Norms of handpumps per population, minimum population for coverage with piped water supply schemes followed by some States should be relaxed in cases of SC, ST and PTG concentrated habitations.

States and District Panchayats should be provided with sufficient powers and flexibility to allocate funds exclusively for non covered habitations of SCs and STs. States that need more resources for coverage of SCs and STs should earmark more of their resources for coverage.

### **10.4 Inequities within habitations**

Inequities in water supply within villages especially in regard to SC, ST, OBC households need to be taken care of. A strong and effective monitoring unit with adequate staff and hardware at Central and State levels is needed to ensure that benefits are actually reaching the SCs, STs and minorities.

### **10.5 Scheduled Castes**

The Special Component Plan for Scheduled Castes was initiated in 1979 as a policy instrument designed to ensure the fulfilment of constitutional guarantees and entitlements for Scheduled Caste communities. Until now, the States decided the extent of expenditure on the SCSP, (actual was near 12% for 2005-06 to 2008-09). As compared to the general habitation coverage of more than 73% and population coverage of 71.5%, the habitation coverage of SC dominated habitations is .74.26% while the population coverage of SC population is 71.08 % as per IMIS.

As per the IMIS data while 73% of all rural habitations have been fully covered only 68.40% of SC habitations have been fully covered. In the year 2010-11, while the total achievement was 1,19,383 under the SC Plan the achievement was 20,551(17.21%). Thus it can be seen that the percentage of coverage of SC habitations is lower than the share of SC population. Out of the total expenditure of Rs.30,010 cr. in the 11<sup>th</sup> FYP upto 2010-11, the expenditure on SCSP as reported on IMIS is 13.32%. The percentage of expenditure is much lower than required under SCSP. However, it is likely that figures reported on IMIS are incomplete.



The major problems that exist are the prevailing social systems in various parts of the country, the higher than average cost require to achieve coverage in the specific areas, non-utilisation of allocated funds, implementation and administrative bottlenecks, improper delivery mechanism and diversion of funds.

To tackle this and make funds available, from 2011-12, an earmarked allocation of 22% of total budget for rural drinking water and sanitation sectors at the national level for SCSP has been made. This is now higher than the SC population percentage in rural areas. The SCSP earmarked percentage for each State varies with the percentage of SC rural population in the States To enable this enhanced support to reach the target recipients, collection of accurate baselines with disaggregated data is needed, to understand where these communities live, and then finance schemes targeting the population accordingly. To tackle the issue of the social system, it is essential that we prioritise moving towards household pipe water connections in SC households, as has been envisaged in the Strategic Plan for the drinking water sector.

Other efforts that are needed include having adequate representation of SCs in Statutory bodies, Committees, Vigilance and Monitoring bodies and appropriate empowerment of SC concentrated communities with IEC and HRD activities.

#### **10.6 Scheduled Tribes and PTGs**

The issues facing tribal concentrated communities that are a hindrance in the provision of adequate WASH facilities are:

- a) Scattered location of tribal habitations.
- b) Higher cost of infrastructure needed in tribal areas because of remoteness.
- c) Largely voiceless communities, with low levels of public representation.
- d) Often residing in remote and forested areas.
- e) Often affected by mining, industry resulting in displacements; unemployment; health issues

Again, as compared to the general habitation coverage, coverage of ST dominated habitations is 63.63 % while the population coverage of ST population is 60.81%.

As per the IMIS data while 73% of all rural habitations have been fully covered only 63.63% of ST concentrated ones have been fully covered. In 2009-10 the total habitations covered were 1,48,879 of which the Tribal Sub Plan habitations covered were 22,422 (15.06%). In the year 2010-11, while the total achievement was 1,19,383 under the Tribal Sub Plan the achievement was 25,219(21.14%). Thus it can be seen that the percentage of ST habitations covered is more than the share of ST population. Out of the total expenditure of Rs.30,010 cr. in the 11<sup>th</sup> FYP upto

2010-11, the expenditure reported on TSP is 13.09%. The percentage of expenditure on TSP is higher than the prescribed 10%.

To tackle the lower coverage of ST concentrated habitations, from 2011-12, an earmarked allocation of 10% of total budget for rural drinking water sector at the national level under TSP has been made. This expenditure has to be made with accurate identification of habitations with concentration of ST, Primitive Tribal Groups, Notified Tribals, Denotified Tribals. No diversion is to be permitted and expenditure needs to be monitored adequately. There is also need for close convergence with the programmes of the Ministry of Tribal Affairs.

### **10.7. Minorities**

Provision of drinking water in minority concentrated districts/blocks is one of the activities monitored under the Prime Ministers New 15 Point Programme. Implementation of rural water supply schemes is monitored in the 90 Minority concentrated districts. As of June 2011, as compared to the general habitation coverage the habitation coverage of Minority Concentrated blocks is 75.09 %. However, it is yet to be ascertained whether the investment in Minority concentrated districts are improving services for the minority communities. The problem lies in the fact that population data of minority population is available only down to the **block** level. Thus specific planning at the GP, Village or habitation level is not possible. Efforts should be made to obtain village level data from the Census to help better targeting of funds to minority concentrated habitations. However, it is for the field level planners to ensure that appropriate prioritisation occurs with whatever data is available. There is need for convergence of Multi-Sectoral Development Programme of MoMA with NRDWP.

### **10.8 Women**

The responsibility for providing drinking water to households in rural society is traditionally on the womenfolk in the family, including the girl child. It is the women who have to travel long distances and spend long time to fetch water from the well, hand pumps, ponds, springs and canals. Besides the question of availability, the consumption of time taken in fetching water, impacts the life style and employment earning capacity of the women., The quality of water being consumed is also an issue significantly confronting the rural population impacting health. In many tracts of the country, water bodies are polluted by Nitrate, Fluoride, Iron and Arsenic. Unfortunately often, the villagers are not even aware of the adverse impact of poor water quality and keep suffering from its consequences.

## **Chapter-11 Domestic water in highly vulnerable areas**

### **11.1 Desert areas**

Due to high levels of porosity, it will be extremely difficult to store or recharge groundwater. Therefore, direct method of roof-top rainwater harvesting and storage in tanks, khadin, nadi, etc. is the most successful method of providing drinking water systems in desert areas. Special care need to be taken for greater pond depths and smaller surface area in khadins and nadirs so that evaporation losses are kept to the minimum. Another successful method of creating drinking water sustainability in desert areas of Rajasthan was done by NGRI, Hyderabad through recharging an open well from the surplus run-off on surface water tanks.

CAZRI, Jodhpur have conducted experiments to create a chess-board with local brush-wood so that the silty-loam is deposited at the corners of the chess boards and act as natural dykes and improve sub-surface water to some extent. More research is required for creating local groundwater sanctuaries, use of bio-degradable surfactants to reduce evaporation losses, etc. An Inter-ministerial Team comprising officers of MDWS, Select State CEs, CAZRI, NGRI, CGWB, NRSC and NIH should be constituted to study these aspects and analyze technical feasibilities.

The Narmada-grid bulk water supply scheme, though very capital cost intensive, provides a sustainable drinking water supply to the entire Kutch region which is not only a desert area but also a saline tract.

### **11.2 North-Eastern States and Hilly areas**

The problems of North-Eastern States and hilly areas are multi-pronged. On one hand there is excessive rainfall but not a drop to store due to steep terrain conditions (e.g., Cherrapunji). On the other hand, landslides and heavy down-pours tend to create major damages to water supply assets like pumps, pipelines, water tanks, etc. Spring development induced springs and promotion of spring-top chambers are the most sustainable solution in the hilly areas duly augmented by roof-top rainwater harvesting systems (e.g., - Mizoram). Induced spring gravity-based water supply systems installed by Gram Vikas, Orissa is a very good model for providing low maintenance clean water supply in hilly areas. Wherever feasible, contour trench/ bund also provide a good solution for harnessing drinking water needs in hilly areas. Wherever sandstones of tertiary age (e.g. Himachal Pradesh), alluvial deposits in inter-mountain valleys (in upper Himalayas) are found, there is a possibility of moderate to good yielding borewells, which can be tapped for drinking water needs. Another important issue that needs investigation and attention is to control the high amounts of turbidity during monsoon season and bacteriological contamination. Pyritic formation in NE region and lower Himalayas induce dissolved iron in drinking water which can be treated by simple methods like aeration and

terracotta filtration. Pre-chlorination in water treatment plants of piped water supply schemes could considerably reduce dissolved iron in drinking water in these areas.

Services of NIH, Roorkee and GB Pant Institute of Himalayan Environment, NESAC, etc. should be utilized for identifying technically feasible solutions for drinking water availability in North-Eastern States and hilly areas.

### **11.3 Remote and very small habitations**

Remote and very small habitations generally are found at the hill tops, table top lands due to the practices of conventional podu cultivation by the people living in such areas. Most of these people are tribals. Wherever feasible, spring development, induced springs and creation of spring-top chambers in high rainfall zones and snow dams in case of high-altitude areas provide a sustainable solution to drinking water availability.

People living in remote and small habitations in arid and semi-arid areas such as Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh, etc. should be encourage to adopt roof-top rainwater harvesting, creation of village ponds(Ooranies as developed in Tamil Nadu and Andhra Pradesh) and khad/nala-based water supply schemes (e.g. Himachal Pradesh). In order to provide/ facilitate ground-water based piped water supply schemes in these areas, wherever availability of conventional electricity is a problem, the existing hand pumps can be converted into dual pumps and attached with solar panels to lift water. This model/has proved successful in Maharashtra, wherein people living in very small habitations also maintain the systems created.

### **11.4 Coastal areas and Islands**

Salinity ingress is the major problem encountered in the coastal areas and islands of the country. Large tracts of rivers get saline especially during high tide periods. Groundwater in the vicinity of estuaries and coastal regions also get saline. Sea-water barriers, both at surface and sub-surface need to be provided after careful site selection using advanced techniques for sub-surface exploration and remote sensing. Corrosion of pipes and appurtenances is another major problem in the coastal areas, which can be avoided by use of non-metal pipes like PVC, HDPE, GRP, etc. Wherever bathometric conditions are favourable, the low temperature thermal desalination technology (e.g. Kavaratti, Lakshadweep) could be considered, though it is capital intensive. When no other technologies including rainwater harvesting are feasible, States may consider RO technology only for providing 3-8 lpcd of safe drinking water for drinking and cooking purposes only. However, in those coastal areas having rich mangroves and other delicate marine ecosystems, reject water from RO plants should be discharged deep into the sea. Waste heat generated from thermal and nuclear power plants located in coastal areas is a good resource for producing safe drinking water.

### **11.5 Flood prone areas**

Very high level of bacteriological contamination is widely seen in the flood-affected areas. Siltation of intake wells and galleries is another problem area, which needs to be addressed. An effective method of providing safe drinking water in the flood affected areas is through mobile water treatment plants using AC and UV technologies for eliminating bacteriological contamination.

River bed filtration technology developed by Uttarakhand Jal Sansthan is another excellent method of locating drinking water source at a certain distance from the major rivers. The site selection for these sources shall have to be done using detailed geo-physical studies. The ground between the river boundary and the drinking water source acts as a natural filtration media and therefore both the problems of turbidity and bacteriological contamination are drastically reduced.

Mobile water quality monitoring systems like spectrophotometers provide an opportunity to analyze the drinking water quality in the flood affected areas.

### **11.6 Earmarking 10% for Integrated Action Plan districts**

The Integrated Action Plan(IAP) for 60 LWE affected, tribal and backward districts across nine states to ensure overall development of these areas - includes provision of access to safe drinking water is a significant effort in the attempt to develop Naxalite-hit areas which are geographically remote and economically backward. An analysis of the data on types of works and projects taken up in 60 districts under IAP scheme shows that the maximum funding has gone into provision of drinking water and drainage. For example the district of Sonbhadra had taken up 1,548 development projects in 2010, with most of them linked to drinking water, drainage and sanitation. 1,059 of these schemes have been completed. More of this investment needs to be targeted for drinking water especially in areas with water quality affected problems and where adequate potable water supply is now not within reach.

Following on the recommendations of the National Workshop of Collectors/DMs of 60 IAP districts on Accelerating Rural Development Programmes held on 13<sup>th</sup> September, 2011 it is recommended that 10% of NRDWP allocation be earmarked for IAP districts on a 85:15% sharing pattern with the State share supplementing the O&M of schemes in these districts. In addition the Ministry has to ensure that the 60 districts are prioritized in the planning and implementing process under NRDWP.

### **11.7 Highly polluted Industrial belts**

Indian rivers are polluted due to the discharge of untreated sewage and industrial effluents. The Central Pollution Control Board (CPCB) has established a network of monitoring stations on rivers across the country. The water quality monitoring of major rivers indicates that organic pollution is predominant and almost all the surface water sources are contaminated to some extent by Coliform Group of Bacteria that

make them unfit for human consumption unless disinfected. The grossly polluted rivers on specific stretches are Sabarmati, Godavari, Sutlej, Yamuna, Cauvery, Ganga, Krishna, Tapi, Mahanadi and Brahmani whereas relatively clean rivers are Mahi, Narmada, Brahmaputra and Beas with respect to organic and bacterial pollution. Therefore, the water supply officials at the district and State levels shall necessarily include representative of the SPCB/CPCB as a member of the SLSSC meetings and ensure that the sources being selected for new schemes are safe. Also, wherever pollution of drinking water sources is found, the same should be brought to the notice of the SPCB for taking necessary corrective actions by the polluters.

### **11.8 Peri-urban areas**

The problems of peri-urban areas is unique as they aspire to have the drinking water standards of urban areas whereas their area is actually situated in rural area and/or in urban agglomeration. In the latter case, being the tail ends of the water supply system, in adequate pressure of water in the pipelines remains a perpetual problem, which needs to be rectified by adopting online boosters, if found necessary. Another problem arise where the peri-urban areas are selected for solid-waste land-fill/ composting yards and/or locating sewage treatment plants.

### **11.9 BRGF districts.**

In BRGF districts convergence of funds from NRDWP, BRGF grants, MNREGS etc. can ensure faster provision of drinking water in partially covered and quality affected habitations in these backward districts.

### **11.10 Climate variability and water**

The 2009 Conference of the Parties to the United Nations Framework Convention on Climate Change meeting in Copenhagen, and the latest Intergovernmental Panel on Climate Change (IPCC) Report (2007), has confirmed the consensus amongst scientists and policy makers that human-induced global climate change is now occurring. India has signed the Copenhagen accord, agreeing to work with other nations to address the issues and threats posed by climate change. The major threats from climate change are rising temperatures, increased droughts, increased flooding, long-term wastage of the region's snow and ice stores, saline intrusion from rising sea levels, and a more variable monsoon with unpredictable intermittent breaks in the monsoon. Extensive studies are required to be carried for analyzing impacts of climate change on drinking water availability and its quality.

## **Chapter - 12 Decentralised Governance and Institutional Mechanism**

### **12.1 Policy Environment**

The NRDWP envisages that the rural water supply projects shall after commissioning be handed over to the Gram Panchayats/ VWSCs for operation and maintenance. However, experience across the country shows that it has been very difficult to implement this. Several of the Gram Panchayats have been hesitant to take over schemes due to both lack of technical capability as well as scarcity of funds to run the schemes, mainly due to high energy charges.

To achieve higher levels of involvement of Panchayats and local communities in creating sustainable rural water supply schemes, clear cut roles and responsibilities have to be given to these institutions and their capacities enhanced.

In order to facilitate the involvement of GPs and local communities in this process, it is imperative that societal involvement is promoted using various support activities. The NRDWP permits usage of 5% of allotted resources to the States for Support Activities. The State should carry out HRD, IEC and WQM&S activities, all of which are to be aimed at creating awareness and building capacities including those of the local population in managing the water supply schemes. Supporting institutions like the WSSO, the DWSSM and the BRC borne on the Support Fund can also be excellent handholding institutions, providing technical inputs and skills in specific local socio-cultural milieu. States have now begun to establish these institutions in right earnest. It is essential that these newly formed bodies are given the right orientation at the initial stage so that they can provide the 'human interface' component that is missing in the engineering projects

It is now evident that to develop ownership of drinking water supply projects at the local level amongst the GPs, there has to be sustained interaction with the local community prior to setting up the project. To expect that GPs will simply take over schemes which have been setup without them being consulted is currently impractical. The concept of prior consultation with Gram Sabhas and Gram Panchayats, with an accompanying provision for '**Entry Point Activity**' provided for in every project proposal, can help in building trust between the community and the implementing agency, by allowing the community to express their requirements and allowing the agency to involve itself in a social good for the community. This concept has seen good results in some projects like the Jal Swarajya projects in Maharashtra. This concept of entry point activity has been successfully used by other social sector institutions, and even Government organizations in other sectors.

### **12.2. Incentive Fund: Management Devolution Index.**

The NRDWP provides for an allocation at the National level to incentivise specific steps taken by States to devolve functions, funds and functionaries to GPs for managing their water supply systems. Thus, in the allocation criteria for

allocating National Rural Drinking Water Program (NRDWP) funds to the States, the Govt. of India has given a weightage of 10% for “Rural population managing rural drinking water supply schemes” to encourage State governments to devolve management of rural water supply schemes to PRIs. Thus those States which have devolved these to the highest extent to GPs, shall be eligible for larger allocations from the Incentive Fund.

At present, some States have transferred the full range of functions to GPs; others have transferred only a few functions. Moreover, some States have transferred only handpumps management to GPs, whereas some have transferred single village piped water supply schemes (pwss) and some have even transferred multi-village pwss. Fund flows to the Panchayats remains a problem in many States. Functionaries support to the Panchayats is also a weak area. The net result is that due to lack of substantive devolution, the Panchayats are handicapped in managing the schemes leading to poor O&M of the schemes, non-functionality and poor service delivery.

To measure the claim of States on the Incentive Fund, a Management Devolution Index is being prepared which shall give weightage for the allocation of the Incentive fund.

#### **Management Devolution Index**

Some of the major indicators proposed for measuring the Management Devolution Index include:

- Whether the state Acts and/ or executive orders clearly define the transfer of responsibility for infrastructure creation and/or for operation and maintenance to PRIs for hand pumps, single village and/or multi-village piped water schemes?
- Whether the VWSC is a Standing/Sub-Committees of GPs under the State Act/Rules ?
- Proportion of NRDWP (Coverage, Quality and/or O&M) funds (Central + State share), transferred to PRI/DWSM subordinate to ZP accounts
- Whether unit charges of electricity for pumping in pwss by PRIs are equal to or lesser than the lowest slab of unit charge for domestic consumers?
- Percentage of water charges demand collected by PRIs
- Proportion of filled up positions of RWS engineers at block and sub-block level
- Proportion of VWSC members trained in RWS functions for at least two days
- Proportion of filled up positions of DWSM Consultants and BRC Coordinators

This would push States towards devolution and empowerment of PRIs.



### **12.3. Suggestions for strengthening of Implementing and Support structures at Block, District, State and Central levels.**

For the purposes of governance, a defined hierarchical structure exists, through which administrative power, authority and funds flow. Definite Institutional roles and responsibilities are also laid down in the NRDWP Guidelines. These institutions work at the National, State, District, Block and Village levels.

#### **12.3.1 National level - The MDWS**

- 1) On issues essential to sustainability of sources and schemes, the MDWS, through the National Water Mission, National Drinking Water and Sanitation Council and the National Resource Centre (NRC), has to prepare a convergent approach with the Ministries of Water Resources, Agriculture, Environment and Forests, Power, Industry and others.
- 2) The Ministry has to be strengthened with technical and administrative staff to improve the quality of implementation and effectiveness of the programmes. The NRC should be strengthened on the lines of NRRDA to play a greater role.

#### **12.3.2 State Level - The State Water & Sanitation Mission (SWSM)**

- a) The SWSM has been set up by almost all States and is headed either by the Chief Secretary or the Development Commissioner.. With representation from Departments the Health, Education, Women and Child Development, Irrigation, Agriculture, Environment and Forests, Power, Industry etc., the SWSM can be the nodal body for promoting a common State Water Policy addressing the availability of overall water resources and water requirements of irrigation, rural and urban drinking water, and industry.
- b) In addition to the SWSM, the **SLSSCs** approve Schemes and Support activities to be taken up and review implementation progress and operational performance; the **WSSOs** deals with software aspects of Rural Water Supply and the State Technical Agencies (**STAs**) support PHEDs through technical expertise.

#### **12.3.3 Governance of NRDWP**

- The NRDWP and TSC should be administered in the State through a 3-tier Governance structure:
  - State level: A multi disciplinary Rural Water & Sanitation Management Organisation (RWASMO) at the State level in the shape of a Society registered under the Societies Registration Act. It should consist of apart from official members, members from reputed CSOs, academic

institutions, technical institutes working in the sector, representatives of VWSCs etc.

- It should have personnel with suitable academic qualification and experience to oversee work relating to water security planning, water conservation and recharge, water quality, construction, operation and maintenance of civil and engineering works, community mobilization, financial planning & management, accounting, mass communication, training, etc.
- The organization should be empowered to take financial and administrative decisions and should have flexibility to appoint personnel from open market on contractual basis or to take government servants on deputation.
- The Multi disciplinary District Water & Sanitation Mission (DWSM) for each district would report to the RWASMO.
- The Block Resource Centres would report to the DWSM and work with the Managing Committees/ VWSCs for implementing water supply and sanitation schemes.

#### **12.3.4 District Level - The DWSM**

- a) The DWSM, under the supervision of the Zilla Panchayat/Parishad, has possibly the most important role to play in implementation of water supply schemes. The DWSM gets action plans and projects prepared and examines them for the purposes of recommending the same for sanction to the SLSSC. Public representation is included at this stage as MPs, MLAs and Zilla Panchayat members are members of the DWSM.
- b) The DWSM is responsible for getting the GPs and VWSCs to participate in planning and managing for improve drinking water security. The DWSM needs to prepare a District Water Vision. It should prepare sustainability Plans for over-exploited. Critical and semi-critical blocks on a watershed basis. The Plans should be prepared using Ground Water Prospects maps, GIS and Watershed Development Department technical inputs. The works planned on this basis should be taken up under MNREGS, NRDWP (Sustainability) and IWMP.

#### **12.3.5 Block Level - The Block Resource Centre**

- a) The **Block Resource Centres that are being** newly set up by the States shall be able to provide motivation, training, and handholding support etc. to the GP/VWSC, on planning implementing and managing their water supply schemes and on other issues related to drinking water supply and sanitation.

### 12.3.6 Gram Panchayat Level

- a) The role of the **Gram Sabha** has to be institutionalized to be able to obtain peoples participation in water management. This is where the community should talk about what it wants and discuss proposed decisions about water and sanitation services based on techno-economic criteria as well as social conditions. It should now be obligatory to obtain the approval of the Gram Sabha at different stages of planning, implementing and managing rural water supply schemes.
- b) **The GP** is responsible for ensuring that every person has access to an adequate supply of safe water. The **VWSC** should be a standing committee of the **GP** as per the Panchayat Raj Act/Rules and responsible for planning, implementation, operation, maintenance and management of the water supply system. The GPs/VWSCs have to be involved in implementing plans to agreed budgets and timeframes, and provide annual reports on progress and performance to the Gram Sabha and to the Block Panchayat.
- c) At the village level, GPs have to take up the task of Water Security Planning, with knowledge of water resources management in the village, aquifer or watershed.
- d) An important step that should now be considered would be to empower the GPs, to decide on local zoning of ground water, and regulate ground water abstraction. This should include
  - i) Fixing minimum distance of other sources from drinking water sources.
  - ii) Fixing depth limits for other sources in comparison with drinking water sources
  - iii) Regulation of other demands on local ground water.
- e) The GPs capacity to run schemes has to be enhanced. For this cadres of pump operators, Para-engineers, engaging a 'Jalmitra', trained water quality testers; all these have to be enabled for ensuring sustainability of the scheme, and preventing slippages.

### 12.3.7 Habitation/Ward level Governance

1. There is need for effective governance of water and sanitation systems at the ward level wherever feasible, and wherever Panchayats have large areas, especially in SC/ST dominated areas. GPs with many habitations may not be equally responsive to requirements of SC/ST concentrated habitations in such matters. Therefore Subsidiarity principle has to be followed and decisions should be made at the lowest level possible especially on issues like sustainability, O&M while retaining a central role for the Gram Panchayats for effective implementation.

**12.4 Involvement of NGOs and CBOs** has become important in those areas where the traditional engineering departments do not have core competence,

These include community mobilization, information dissemination, institution building, planning, monitoring and social audit. In addition they may also be involved in planning, designing and piloting of model innovative schemes which require a high degree of handholding.

### **12.5 Unbundling Bulk Water Production, bulk water supply and village distribution.**

The Strategic Plan prepared by the MDWS for the rural water supply sector, emphasises conjunctive use of water and rejuvenation of traditional sources of water. In water stressed areas where water has to be transported from long distances, it is now necessary that service provision should be unbundled in terms of bulk water production, bulk water distribution, and retail water distribution including management of local water sources. Unbundling and corporatisation of sector functions of production, bulk transfer and distribution have been done in some States like Gujarat with a significant degree of success. Other States should study and appropriately develop their own such institutions. It should be recognized that the three functions need different levels of capability in management and operations and therefore should be assigned to the appropriate institution or level of government.

**a) Bulk water production.** As a matter of principle, priority must be given to local sources. However in the extreme cases where local sources may not be sufficient, bulk water may need to be transported. This involves skills related to engineering, construction management, hydro-geology, financing, etc. There would be a need to serve different stakeholders such as drinking water, irrigation and industry, and deal with different ministries / departments.

**b) Bulk water distribution.** Many states have taken up multi-village schemes with piped bulk water supply to a group of villages and in some cases towns or local industries. The end customers are the GPs and/ or ULBs who are responsible for distribution. However GPs require technical support on a continuous basis for taking up major repairs, replacement, modernization, renovation in such arrangements. A possible model could be that a group of GPs/VWSCs set up a federation or a O&M society run by representatives of VWSCs, GPs, PHED etc. at block or district level. Such a body would be able to provide reliable, continuous and sustainable O&M services and capacity building of societies at lower cost.

**c) In-village water management.** This should be the responsibility of GPs/VWSCs with appropriate institutional and technical support.

### **12.6 Institutional Reforms at the State level – Corporatisation/Boards -**

In the electricity sector, as a result of reforms carried out, electricity supply departments have become boards and boards have been converted into public sector corporations. These reforms appear to have brought positive results, for many States have adopted them. While drinking water is a basic need different from electricity, some States have set up boards or corporations for drinking water supply. Examples of corporatisation/boards in rural water supply are the UP Jal Nigam, the WASMO in Gujarat and the TWAD Board in Tamil Nadu. Each of these organisations has its strong points and successes. Public sector corporations or boards may bring in flexibility in operations, greater degree of autonomy, better institutional continuity and improved human resource management. PHEDs can be converted into Boards/Corporations with multi-disciplinary teams at State, district levels. Alternately the PHEDs can look after larger projects and PHED engineers be deputed to the multi-disciplinary organisation to plan and implement single village and in-village projects through GPs. It is for the remaining States to analyse their requirements and decide upon what would be best suited for them.

Reforming the State PHED, or the Water Supply department has become essential in view of the restrictions on new recruitments in all cadres by most States. Out sourcing of professional and technical services done by the Departments must also be considered. Changes in attitudes, perspectives and approaches are needed in the current times. The Change Management exercise carried out in the TWAD Board Tamil Nadu has indicated that reorientation in work style gives a positive thrust to achievement of goals. The PHEDs have to engage social sector experts either directly or through agencies like the WSSO and DWSM, to have closer interaction with the community is more efficient and leads to successful running of water supply schemes.

### **12. 7 Incentive fund for sector and institutional reforms**

Certain reform measures intended to realize the objective of setting up domestic water supply systems that successfully meet the service delivery benchmarks and are operationally sustainable have been suggested by the Working Group. In order to incentivize adoption of these measures, an incentive fund should be created from which states should be given additional allocation. The amount of additional allocation should be based on state's score on reforms on the lines indicated below:

- a. % expenditure on PWSS:
  - Less than 80% - 0; 80%-90% - 20; More than 90% - 50
- b. % of Schemes approved based on model DPRs
  - Less than 60% - 0; 60%-80% - 10; 80%-90%- 20; Above 90% - 30

c. Setting up of RWASMO - 20

Piped water supply schemes in which the Managing Committee/ VWSC realizes user charges from the beneficiaries should also be rewarded with incentive:

- d. If user charges collected together with the interest on O&M Corpus Fund covers O&M expenses fully and 10% of the collection is added to the O&M Corpus Fund: Rs 15,000/=
- e. If user charges collected together with the interest on O&M Corpus Fund covers O&M expenses fully but no amount is added to the O&M Corpus: Rs 10,000
- f. If user charges collected together with the interest on O&M Corpus Fund covers 80% of O&M expenses: Rs 8,000/=.

## **12.8 Public - Private Partnership: Outsourcing**

Factors like inadequate expertise in software activities, manpower not equipped in the skills of engagement with communities, and inadequate financial resources make it difficult for regional or multivillage pws schemes being sustainable in the medium and long term. These and other shortfalls delay or hamper efficient functioning of schemes. A solution that is sometimes suggested is the PPP model, which is often given the term 'outsourcing'.

### **12.8.1 Outsourcing.**

1. Outsourcing can be used to enable GPs to explore options to access professional experience and skills for operation and maintenance of schemes. States can support the GPs with appropriate knowledge and tools to prepare, tender and manage service agreements with community based, public or private partners at many levels, like SHGs, Cooperatives Societies handpump mechanics, contractors, piped water supply operators and other service providers. Care, however, needs to be taken while drawing up such Service Agreements, so that the basic requirements of poor households to minimum service levels are not violated under any circumstances.

#### **Public Private Partnership**

Public Private Partnerships can allow States to retain regulatory and supervisory responsibilities while accessing skilled operators and service providers with expertise in the sector. Some of the models of PPP that may be considered by States are Service contracts, Management contracts, Lease contracts - mainly for existing systems, BOT (build, operate and transfer) contracts- mainly for new systems.

PPP Agreements (whether with community based or private operators) in all PPP models, should be drawn up with transparent, objective, non-discretionary provisions to bring transparency to service deliverables and to clearly lay out the roles, responsibilities, performance indicators, customer accountability with incentives and disincentives for the operator.

There are however certain safeguards that have to be kept in mind while implementing the PPP model.

a) Social issues like equity in access of SC, ST and poor households to drinking water supply, medium-term and long term recurring liabilities likely to devolve on the Government or the community due to PPP agreements, sensitive nature of water being a finite basic necessity with many competing demands, management of rejects of water treatment plants etc. have to be kept in mind while deciding on the need for and nature of PPP agreements.

b) For local governmental institutions and PRIs to be able to prepare, tender and manage service/PPP agreements with SHGs, Cooperatives Societies, community based or private handpump mechanics, contractors, piped water supply implementing agencies/operators and other service providers, States should have to develop and disseminate appropriate knowledge and tools to these institutions. The PURA scheme Guidelines and documents prepared under it prepared by the Ministry of Rural Development may be considered for guidance by States while formulating State specific PPP policies.

## **12.9 Social Audit**

The NRDWP guidelines currently do not make Social audits of pws schemes mandatory. However in line with the progress in most other developmental schemes, Social Audit now needs to be mandated by States for rural drinking water supply schemes. The existing Mahatma Gandhi National Rural Employment Scheme (MNREGS) model can be replicated for rural water supply. There is now sufficient evidence that social audit and involvement of the community can provide long term sustainable operation of Systems and infrastructures. Andhra Pradesh has set up a separate directorate tasked with carrying out Social audits of rural development projects.

## **12.10 Convergence - at National, State, District, Block and Village Levels.**

(i) At the National level, there are various areas of concern like ground water depletion which is affected by the actions of various players, and has to be tackled by concerted action amongst various ministries, like Ministries of Water Resources (including the CGWB), Agriculture, Industry, Power, Environment and Forests (including the WQAA and the CPCB), Urban Development and MDWS. The National Drinking Water and Sanitation Council set up in 2010, is chaired by the Union Minister of Drinking Water and Sanitation, is an effort of the MDWS to achieve such convergence among various agencies, actions of whom directly impact drinking water supply and sanitation. After its first meeting in May 2011, the Council has

identified principal areas where various agencies and ministries can come together for joint action. Pro active action by the Council shall have a significant impact of furthering this convergence.

(ii) At the State level the State Water and Sanitation Mission, brings together senior officials of various state departments and is responsible for convergence of policies and programmes which impact water supply and sanitation and its impact on related sectors like Health, Education, Agriculture, Rural Development and Women and Child Development.

(iii) At the District level, the DWSM, which functions under the supervision of the Zilla Parishad/Panchayat, is responsible for coordination of activities relating to water and sanitation among the relevant departments and also amongst national programmes such as the NRDWP, TSC, SSA, NRHM, ICDS, BRGF, MNREGS and FC projects.

At the Village level, some States have gone ahead with developing convergence of drinking water, sanitation and health, by forming joint Village Health, Water and Sanitation Committees.

#### **12.11 Integration of Rural Housing, domestic water supply and sanitation**

Healthy living is possible only with integration of housing, safe drinking water supply and sanitation. As a step towards integration of these three programmes Indira Awas Yojana including State housing programmes, NRDWP and TSC and providing these amenities in an integrated manner to rural people, it is recommended that a part of the Rural Water Supply outlay be set apart for funding integrated projects submitted by States to provide these facilities on par with urban areas, like taps in toilets, bathrooms and kitchens, larger houses, sanitary toilets and solid and liquid waste management. Such projects can be proposed for blocks in IAP districts or blocks with high concentration of STs, SCs or minorities.

#### **12.12 Integrating rural and urban water supply and sanitation.**

Since the inception of governmental support to drinking water supply in rural areas in 1972-73 with the ARWSP, this programme has been under the administration of the Department of Rural Development within the Ministry of Rural Development. A separate Department for DWS was created in 1999 and since then it supports States and UTs by providing resources for rural water supply and sanitation. Ministry of Urban Development administers programmes and schemes for urban areas.

With more and more rural areas now being provided with urban facilities, and the spread of information to the remotest parts of the country through the information revolution, there is a case for merging the administrative departments of rural water supply and sanitation with the urban water supply and sanitation in the new Ministry of Water and Sanitation.



The factors favouring such a move are:

- a) In most States, drinking water supply is handled by the same department both for rural as well as urban areas.
- b) there is little justification in maintaining the large rural-urban divide in drinking water supply and sanitation both in terms of access and service standards like quantity supplied per capita.
- c) The limited and depleting technical expertise available with the Government in these two subjects, gets split into two Ministries, which needs to be avoided.
- d) The two Ministries administer the same subjects in their jurisdictional areas independently without much inter-ministerial consultations resulting in avoidable duplication of effort in many cases.
- e) Water supply in urban areas is in most cases sourced from rural areas. Further effluents and wastewater from urban areas are also released into rural areas. In this scenario, these areas cannot be managed independently.
- f) Combining them into the new Ministry of Drinking Water and Sanitation would prioritise both water supply as well as sanitation, and focus attention in fields of R&D efforts, technological development and extension, induction of private investment, PP and outsourcing etc both in urban and rural areas.

## **Chapter - 13 Regulatory and Oversight mechanism**

### **13.1 Regulation of water resource allocation, abstraction and quality**

With respect to the rural drinking water sector, there is a need for States to put in place the necessary procedures for effective monitoring, audit and reporting on preparation, implementation and performance of village water supplies which can support M&E systems which focus on demand side outcomes. It might not be possible for one organization to play this role and hence can be played by a set of organizations based on their expertise and location.

The tiered approach to oversight can be summarized as:

- Gram sabha: At the village level, monitoring and approving the activities is carried out by the GP/ VWSCs. This can also include local regulation on water resources use and conservation. Water budgeting, Social audits etc can be appropriate tools at this level. Trained Block Resource Coordinators should provide necessary assistance to the GPs in this regard and establish link with the ZP/DWSM.
- Zilla Parishad/ DWSM: At district level ZP/DWSM monitor the activities and services provided by various sector agencies (GPs, PHED etc) and ensure that they are adhering to the sector policies and rules. The ZPs should also establish appropriate grievance redressal systems to capture citizen's voices. The role of the district can be seen as planning and coordination.
- Various State agencies: This can be the existing state level agencies like the : SWSM for over all sector coordination, State Pollution Control Boards for water quality issues, especially industrial and urban effluents, sector regulators like: Water Resources Regulatory Authority (WRRRA) for ensuring water resources allocations and its use<sup>1</sup>. Under the notification of Water Quality Assessment Authority, States Governments shall also set up State Water Quality Assessment Authorities. There should be convergence of SPCBs, SWQAA, WRRRA and other regulatory agencies at the level of SWSM.

### **13.2 Regulation**

Transparency of information is a critical first step towards effective regulation. States should provide access to information through IMIS with information placed in the public domain to bring in transparency and informed decision making.

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<sup>1</sup> Various states governments are in different stages of setting up state level water resources regulatory authorities. The Maharashtra Water Resources Authority (MWRRRA) was the first state level regulator to be established and various states governments are in different stages of setting up such state level water resources regulatory authorities. One of the roles of the regulator is to ensure allocation of water resources as per state decided entitlements and monitor its use.

States are required to establish a regulatory body as a condition of the 13<sup>th</sup> Finance Commission. However, many interim steps can be taken to establish sound regulatory functions.

### **13.3 Water resources regulation**

States should ensure mainstreaming of drinking water sector concerns like primacy to drinking water in overall water resource allocations, service delivery and maintenance of water quality in the Water Regulatory bodies set up by them.

#### **Water resources regulation should:**

- Put in place systems for measuring availability of water through monitoring groundwater levels and rainfall in every village and GP, through the involvement of the community.
- Obtain information for monitoring of water quality in ground and surface water.
- Calculate existing usage of water by various categories of users.
- Determine the equitable allocation and distribution of water within each category of use (irrigation, rural water supply, municipal water supply or industrial water supply).
- Determine the priority of equitable distribution of water available, and adjustment of allocations during droughts.
- Establish a water tariff system for bulk supply, and fix the criteria for water charges.
- Keep in mind inter-state water resources apportionment on river systems.
- Improve water use efficiency over existing levels.

### **13.4 Value for money**

- E-procurement should be introduced for rural water supply schemes in all States.
- States and districts should adopt computerized inventory management in all offices.
- Third party or Departmental Quality Control Laboratories for testing materials used in RWSS should be engaged at State and/or regional levels by all States and strengthened.
- At the National level MDWS should engage independent experts as National Quality Monitors as in PMGSY and as in Nagaland, to visit project sites on a random sample basis and submit reports to the State Govt. and MDWS on deficiencies and suggestions for improvement. Similarly at the State level, State Quality Monitors should be engaged.
- Engineers should be trained in efficient design of new schemes and in rehabilitation and restoration of old schemes to ensure value for investments.
- In all major piped water supply schemes, through water and energy audits, electricity power requirements could be reduced and underflows from Clari-

flocculators and backwash water from rapid sand filters could be recycled. These measures are expected to reduce cost of production of water by 15-20%.

### **13.5 Environmental regulation**

- GPs should be empowered to address the issue of controlling irrigation and industrial demand within their boundaries to secure their own drinking water supply.
- Drinking water sources located on the banks of rivers should be monitored by concerned agencies for minimum flow conditions and shall be reported to the State PCBs if the same is not maintained. This is a requirement to ensure self purification of rivers.
- In case industrial contamination is found in drinking water sources, the same should be brought to the notice of the SPCB and State WQAA for taking corrective actions by the polluting agency, be it Industrial or municipal sewage contamination.

### **13.6 Monitoring, audit and reporting**

- The Ministry has a responsibility to check the effectiveness and sustainability of implementation of projects at the grass root level and see how the States are implementing the Programme. The Ministry should also take up sample studies on various issues to effectively ascertain and rectify defects in the implementation of the Programme, if any.
- Work wise monitoring from estimate to payment should be integrated in the IMIS to link the physical and financial reporting systems.
- All drinking water sources, storage and recharge structures and delivery systems, should be mapped using GPS on GIS and their date of installation should be added to the GIS database.
- Ensure inclusion of habitations with concentrations of Scheduled Caste, Scheduled Tribe, minorities, and remote habitations by use of IMIS and GIS maps.,
- State WSSOs and DWSMs should gradually establish process and metric benchmarking (see Box below).
- Conduct annual / biennial independent verification and monitoring survey and beneficiary assessments to verify coverage, service levels, satisfaction etc.

There are two forms of “benchmarking” performance, metric and process, which WSSOs/DWSMs should take up and establish over time.

- Process benchmarking involves identifying and learning from ‘best in class’, i.e., GPs/VWSCs can learn from other GPs/VWSCs that are doing well. The approach is to find out which GP/VWSC is currently the best at some aspect of planning or

operations. For that particular aspect, the other GPs/VWSCs can then learn how to perform at a level comparable with the best. If this learning process can be established not as a competition, but as experience sharing, there can be great enthusiasm to take part in the workshops and to work together to the benefit of all. This can be a part of existing training/refresher training programmes.

- Metric benchmarking aims to establish league tables of performance to stimulate GPs/VWSCs to improve performance. It is important to start in a simple way with a few key performance measures, obtain sound baseline data, and initially concentrate on looking at performance trends for each GP/VWSC. Each GP/VWSC should be aiming to improve on its own performance year by year. This can be a part of the existing annual reporting process, where year by year operational performance can be compared.

States can begin by identifying the critical aspects for process benchmarking. Workshops can be held to develop the approach for learning from best in class in a State. At the same time a few critical parameters could be chosen for making a start on metric benchmarking, for which simple league tables can be established and linked to national or state incentive reward schemes. Training of the benchmarking facilitators (DWSMs and others) is critical for success.

## **CHAPTER -14 IEC and Capacity Building:**

### **A - IEC:**

Various evaluation studies report the poor status of IEC in drinking water in rural India warranting dynamic scaling up.

**14.1 Area specific campaign in arsenic & fluoride affected districts** :In agreement with the observations and recommendations of the Mid-term Appraisal of the 11<sup>th</sup> Five Year Plan on Rural Drinking Water IEC for habitations affected with fluoride and arsenic etc. in drinking water and in LWE districts, should be taken up on the same scale as that of IEC campaign for HIV/AIDS & Pulse Polio Campaign. The Working Group recommends that an IEC campaign may be planned and launched every year. Although NRDWP Support funds on 100% Central share basis is being provided from the MDWS, GOI to all states for planning and implementation of IEC activities, utilization is only about 30%, reflecting the low priority given to IEC despite huge gap of awareness on various issues of drinking water. Hence, better utilization of IEC Fund by the States and higher allocation of funds under IEC at Central level should also be ensured, so that States and MDWS can cover the awareness gaps on these issues.

**14.2 Inter-Personal Communication (IPC):** Engagement of Community Mobilizers (Jaldoot/Jal Mitra): Behaviour change communication (BCC) on drinking water entails sustained social mobilization and IPC, Keeping in view the recommendation in the Mid-term Appraisal of 11<sup>th</sup> Five Year Plan on Rural Drinking Water in respect of “**Jal Mitra**” for helping Panchayats and VWSCs to plan and coordinate social mobilization activities and door-to-door IPC drive,” water testing, treatment of water etc. From among pump operators pump mechanics, water-men and other grass-root workers one person can be identified as Jal Mitra.

**14.3 Special emphasis of IEC for Vulnerable Areas:** For vulnerable areas like North Eastern States, LWE districts, Backward Region Grant Districts, Minority Districts, SC/ST dominated districts special IEC strategy with sustained monitoring should be ensured on issues of priorities in drinking water.

**Feature Film:** An entertainment feature film like “Manthan” by Amul should be produced by MDWS, with the help of NFDC ( for production ,distribution & marketing as done for Doordarshan) ,for being shown in villages, Blocks and BRCs.

**14.4 National Drinking Water Awareness Fortnight from World Water Day:** Nationwide IEC campaign may be planned and executed from World Water Day, involving all states and covering all villages across the country, for creation of awareness on important issues of water.

**14.5 On-line provision of repository of IEC software:** MDWS should make all soft copies of IEC materials (spots, leaflets, flip charts, wall paintings etc.) produced by MDWS, states, UNICEF, WSP, NGOs etc. available on MDWS website for enabling states, districts and blocks to download & use for production of IEC materials.

**14.6 IEC for schools and Anganwadi centres:** For schools and Anganwadis, IEC should be strengthened for institutions, use of water testing kits (FTKs) taught, social mobilization through rally & door-to-door IPC by school children coordinated, chapter on sanitation, water and hygiene in school syllabus introduced, School Cabinet introduced in each school in coordination with Education Department.

**14.7 Creation of dedicated Mid-Media Team in Blocks:** Since Mid-media activities have been found to be very effective in social mobilization, at block or at district level, teams of street theatre/folk music/puppet/Magic show may be built up by identifying local talents and training them for performing in villages by communicating key messages on issues of drinking water, sanitation and hygiene in an entertaining manner.

**14.8 Capacity Building on IEC & BCC :** With a view to facilitate formulation of appropriate IEC plan for each village, GP, Block and District, MDWS should plan and coordinate implementation of capacity building on IEC for IEC personnel of WSSOs, DWSSMs, BRCs.

**14.9 Engagement of NGO and Agencies for IEC:** With a view to ensure effective planning and implementation of IEC, NGOs and Agencies may be engaged as partners on outcome-based terms.

**14.10 PPP in Communications with Print/Electronic Media:** On the lines of the model adopted by Kerala Govt. in collaboration with Malayala Manorama, a media house and UNICEF can be replicated in other parts of the country for propagating messages on water security.

**14.11 Production of Training Materials:** Since “seeing is believing”, for enabling effective learning through training and workshops, audio-visual aids containing success stories of pre-planning stage to post-implementation follow-up stage should be produced, for learning of participants in the trainings.

**14.12 Appropriate IEC gadgets** like DVD player, TV set, mini-generator/SPV cells, projection screen, should be procured by states and placed in BRC initially, for enabling arrangement of DVD show of spots/programmes of best practices.

**14.13 Research in Communication:**(i) A Communication Need Assessment Study should be introduced for enabling effective outcome assured planning.(ii)\*All Communication Materials produced should be pre-tested and post-tested and improved after feedback from target-audience.(ii)\*An impact assessment study should be planned and conducted in representative states.

## **(B) Capacity Building:**

**14.14 Present Status of emphasis on HRD:** The status of utilization of budget provided under HRD (Training activities) shows that in the entire country only Rs. 9.33 crore was utilized by States in 2010-11. This warrants immediate measures to gear up capacity building to meet the challenges ahead in this most vital sector of drinking water in rural sector.

### **14.15 Conceptual HR Framework-WSS Sector:**

The HRD agenda should provide the necessary framework and resources for awareness and capacity building among stake holders to help them make high-quality informed decisions.

The implementation of a learning agenda is built upon the following strategies, which are led by MDWS:

1. Laying down national policy framework in the NRDWP Guidelines
2. Issuing detailed guidance on individual strategies and implementation plan options where necessary e.g. on regulatory model, convergence of schemes etc. to help States.
3. Guiding States to prepare State specific Strategic Plans to achieve the goals set out.
4. Bringing out Handbooks/ Manuals for guidance of PHEDs and PRIs.
5. A national pilot in selected blocks in different States to demonstrate participatory integrated water resource management, drinking water security and source sustainability planning and implementation.
6. Development and provision of training modules and materials by National Key Resource Centres and NIRD.
7. Sharing field experiences from good practices/ case studies in India and internationally in surface water management, ground water management, water safety planning, etc.
8. Setting up and strengthening the National Resource Centre to provide technical and knowledge support to MDWS.
9. Arranging trainings and exposure visits within and outside the country for senior officers of RWSS in States and staff of MDWS.
10. Promoting strengthening of curriculum on rural drinking water supply, water quality and sanitation in curricula of school, engineering, technical and vocational educational institutions.

MDWS and States should develop appropriate job specifications and training programmes based on Training Needs Assessment, new roles and responsibilities to capacitate the new approach to rural drinking water. Key Resource Centres, NIRD, SIRDs and other training institutions have a key role in developing appropriate



modules and materials and delivering a combination of class room and field based training programmes. Village Water Security planning and implementation lends itself to a process of learning by doing, which should be the basic principle for such training.

Trainings should be based on Training Needs Assessment on all identified issues and specifically targeted to new institutional roles and responsibilities to support village, district and State water security planning and implementation

**14.16 Major partnerships** have to be forged between apex technical institutions like the National Water Academy and the Rajiv Gandhi National Groundwater Training and Research Institute (both under MoWR) and a whole host of government initiatives (NIRD, SIRDs, Water and Land Management Institute, and CAPART), and leading non-government training institutions, which can reach different levels of stakeholders.

(ii)**Convergence with Training of GP:** MoPR has already an extensive repository of training material and personnel .Some computer-based learning materials have also been prepared through Andhra Pradesh Academy of Rural Development(APARD).These are available for use to any training institution .Similar initiative may be taken up by other states. Success of sustainable safe drinking water and total sanitation depends on appropriate strengthening of the capacity of PRI representatives and VWSC. Hence modules on drinking water and sanitation should be included/strengthened on aspects like sustainability, water quality ,water safety O &M and social audit etc. in the trainings organized by SIRDs for PRI representatives.

#### **14.17The present Institutions of Capacity Building:**

##### **(A) KRCs**

1. National Key Resource Centres should be identified in all major States.
2. States should identify State Key Resource Centres at State and at regional/district levels to provide continuous training and resource support to districts, blocks and GPs/VWSCs in drinking water supply service delivery.

##### **Key Resource Centres:**

People and organizations working in the drinking water and sanitation sector need to be sensitized to the change in their role and responsibilities to cope with various critical issues facing the sector. Knowledge, skills and attitudes need to be enhanced through continuous professional development and capacity building by sector specialists through appropriate organizations.

Towards this end, the Ministry of Drinking Water & Sanitation has identified about 2

5 National Key Resource Centres, institutions of repute having experience in imparting training and capacity building of different stakeholders in the water and sanitation sector. The National KRCs will be engaged in more than one State in capacity building, reorientation of different stakeholders through IEC, disseminating knowledge and information, documenting best practices, etc. targeting various stakeholders like PHED engineers , SWSM, DWSM members and staff, Master Trainers of VWSCs, PRIs, NGOs and SHGs et al.

## **(B) CCDU**

The Mid-Term Appraisal of the Eleventh Five Year Plan for Rural Drinking Water ,states that "An evaluation by Water Aid shows that the CCDUs are present in almost all the sates but are not always very active or effective..... Generally, capacity building has tended to be one-off activity, without follow up to ensure that the inputs of training are being translated into results on the ground."

**Communication and Capacity Building Unit (CCDU)** has been designed and set up in each state for promoting initiatives in water supply in sanitation. In states where water supply and sanitation is looked after by two separate departments, two CCDUs are formed and both are required to report to the WSSO and SWSM and access funds from allocation from NRDWP. In the 12<sup>th</sup> Plan detailed study should be planned on the performance of CCDUs in respect of IEC and Capacity Building in which training needs of each category of functionaries on demand and supply in Government ,CBOs, NGOs, Community, PRI, Community Institutions should be examined in consideration of desired delivery in the sector, modules formulated for each category of trainees ,gap in training methods, training-aids used, practical training offered, evaluation method of learning by trainees ,post-training follow-up etc. The study should also explore efficacy of different training modules available with other non-government institutions and offer suggestion for improvement.

### **14.18 One-time Grant for Establishing State Resource Centre**

Most of the States do not have dedicated State-level centres for training rural water supply engineers, hydrogeologists, social development specialists, PRI representatives and functionaries, master trainers and grassroots level workers in various aspects of rural water supply, technical knowledge and skill upgradation, community involvement, service delivery etc. While under the NRDWP Support fund provision has been made for setting up of WSSO and training of various categories of stakeholders there is no provision for establishing a State Resource Centre. It is therefore recommended that a one-time grant of Rs. 10-15 crore be given to each State to establish such a Centre. The State should provide the land and staff for running the Centre.

**14.19 Short Term Training Course in reputed Institites:** Efforts should be made to introduce short-term (one month/three months/6 months) training course on "drinking water & Sanitation" in reputed institutes like IGNOU etc. for enabling the

youth of rural areas for preparing themselves in drinking water and hygiene to pursue a career as Block Coordinator/Cluster Coordinator, District Coordinator etc.

14.20 Training Modules for BRC Block Co-ordinators & Cluster Coordinators: Structuring of appropriate training modules and training of master trainers etc. Should be ensured in collaboration with agencies like UNICEF and WSP etc.

14.21 **Training of members of VWSC:** Since most VWSCs are reported to be non-functional in evaluation studies, the first step should be to revitalize these committees and build the capacity of their member's. Only then the goals and objectives of the Mission would be achieved. An annual training calendar should be drawn up by CCDU/WSSO to train all VWSC members initially and later provide refresher trainings for some of them. Initially atleast 5 members of each VWSC should be given 2-3 days of training and one-day extra for office bearers. All VWSC members should be given training on water supply and sanitation for 1-2 days once in 2 years.

#### 14.22 Other Trainings

(i)**Training of SHGs:** As revealed in the study conducted by UNICEF & WES it has been revealed that social mobilization by SHGs play an important role in eliminating open defecation. Appropriate training module on "Social Mobilization and IPC" for Sanitation, Hygiene and Drinking Water should be prepared with adequate space for practical training after studying a few successful SHGs under NRLM/SGSY and disseminated to States.

(ii)**Training of members of Youth Clubs:** There are about more than 1.5 lakhs Youth Club registered with Nehru Yuva Kendra. Hence, the huge potential energy of Youth can be effectively utilized in mobilizing the community in WASH sector. Trainings have already been introduced in "sanitation" sector. Similarly in the 12<sup>th</sup> Plan in collaboration with the Ministry of Youth Affairs, and in particular in collaboration with NYK Sangthan training of youth club members registered with NYKs should be introduced. (vii) Training of Laboratory Technicians, Pump operators, plumbers may be ensured in each BRC at regular intervals.

(iii)**Advocacy Workshop** for Media personnel, MPs, MLA, Office bearers of political parties, opinion leaders of GP to be organized for effective social mobilization for community based O & M and monitoring of safe and sustainable drinking water system.

(iv)**Training on monitoring & evaluation:** The personnel engaged in the process-of monitoring like Consultant (M & E), need to be regularly updated on various developing methods of monitoring, data analysis, and report preparation, use of various software available for analysis raw data, reconciliation of data, testing validity and reliability of data being fed at various levels.

(v)**Training for NLM, NQM, SQM:** National Level Monitor(NLM),National Quality Monitor(NQM) and State Quality Monitor(SQM) should be given orientation on issues of water, sanitation ,hygiene and water, Participatory Rural Appraisal, focus group discussions, interview method for monitoring IEC, demand creation ,supply, quality of construction, use, maintenance and sustainability etc.

(vi)**Capacity Building in Community Based Organizations(CBOs) on Water Quality Assessment & Monitoring:** Since many CBOs work in close association with the rural communities, water being a basic need and there several emerging issues of water in most of the rural areas, capacity building of CBOs may be up-scaled, in coordination with appropriate agencies .

**CASE STUDY: Capacity-building in Community Based Organizations(CBOs) on Water Quality Assessment**

Water-Aid India in partnership with Peoples Science Institute (PSI) undertook a programme to train 50 NGOs on water quality monitoring in Uttar Pradesh (UP), MP, Bihar, Jharkhand, Orissa, AP, and Karnataka & TN. The objective was to build the skills in water quality assessment .The procedure involved –(i)Initial training of NGOs on water quality monitoring using FTKs,(ii)Generation of data & (iii)Further analysis & validation of data.

Once the data was generated, training was imparted on treatment options that can be carried out at the local level. The data generated by NGOs were further validated by PSIs and in most cases were found to be accurate, which authenticated the claim that once trained, CBOs can monitor water quality .This whole exercise of collection of data from across 300 villages spanning eight states is an example of large scale capacity building of CBOs in the field of water quality surveillance.

(vii)**Change management training programme may** be imparted in all states to re-orient roles of engineers towards greater participatory planning and implementation and provide better value for money.

(viii)**Exposure visits of key stakeholders** are the best way to facilitate peer to peer learning from cases of good practices [e.g. water budgeting in Andhra Pradesh, Community managed water system in Surendranagar, Gujarat, tracking fluoride contamination in Andhra Pradesh etc. ]

(ix)**Technology parks** can be established to showcase cost effective technologies.

(x)**Pilot Demonstration at GP or Block level** to facilitate opportunities for “learning by doing” should complement class- room sessions.

(xi)**Polytechnics and industrial training institutes** and vocational education institutions should be tied up for offering courses to develop practical skills for rural water supply.

## **Chapter 15 Role of Civil Society Organisations**

### **15.1 Background**

For decades, civil society organisations and non-governmental organisations have played a vital and key role in the drinking water and sanitation sector. Depending on the objectives and skill of these organisations, their contribution has ranged from emergency responses of service delivery to governance and accountability (see *Box: Significant*). With a ear to the ground, they are in a position to meet the needs of the people, identify what works and what does not and communicate the same to policy makers.

While several policies and documents mention the need for involvement of CSOs and NGOs, often the reference is inadequate to capture the potential or the extent to which these stakeholders can contribute to the sector. In the 12<sup>th</sup> Five Year Plan, there is a need to formalise the partnership with CSOs and NGOs. Based on their strengths and experience, some of the broad areas in which civil society can contribute are indicated below:

### **15.2 Engagement in the planning, implementation and monitoring process of the 12th Five Year Plan**

The participation of CSOs in the planning process has increased over the past plan periods. The preparation of this Plan has also witnessed significant participation from CSOs. There is now a need to increase the involvement of CSOs in the implementation process as well as the monitoring of the Plan to facilitate correction (if required) during the plan period.

### **15.3 Community engagement for social mobilisation, raising awareness, generating demand and facilitating change**

Sanitation is about behaviour change. CSOs can engage with communities to inform them about government policies and programmes, generate demand and facilitate behaviour change. They can play a major role in facilitating meetings of all stakeholders at GP and habitation levels and build community consensus on equity, accountability and participation principles of decision-making and social action.

Role of CSOs is also critical to bring about behavioural changes and to ensure equitable access of drinking water and sanitation by ensuring proper dissemination of information to all sections of rural society in all habitations especially to the women, children, Scheduled Castes, Scheduled Tribes, BPL families etc. Water Aid partners in Morena and Sheopur for instance have demonstrated that proper facilitation at community and institution level can ensure outreach of sanitation programme to the most vulnerable section of rural society.

At school /Anganwadi level CSOs can play a critical role to make teachers and the PTA more responsive towards WASH requirement of children in schools. They can also play a significant role to bring about behavioural changes among children as far as improved sanitation usage is concerned. An NGO-supported programme in Sheopur, a tribal district has successfully demonstrated how a well planned intervention can significantly improve WASH access in schools and hygienic behaviour amongst children.

For information dissemination and mass mobilization, CSOs can assist district to launch campaigns through mass media vehicles like road show, posters, leaf lets, folk drama, songs, wall paintings, radio and television spots etc.

CSOs can also play a role supporting communities plan to meet their drinking water, sanitation and hygiene requirements. In Santhal Parganas region of Jharkhand for instance, an NGO has supported the primitive tribal group – the Pahariyas – to develop their own water security plans and approach various government departments for funding these plans. NGOs have also supported the villagers to test their water quality and address the quality issues that have emerged.

#### **15.4 Capacity building support to communities and implementing institutions**

CSOs can provide facilitation and capacity building support to the GPs, Gram Sabha, VWSCs to ensure sustainability of drinking water coverage and sanitation coverage and usage. They can also play a significant role to capacitate local institutions like School, Anganwadi and ASHA to bring about behavioural changes.

At block level CSOs can play a major role in making sanitation a priority issue, by orienting elected representative and capacitating block level functionaries including Block coordinators.

At district level CSOs can play important role in assisting the DWSMs by extending support to develop district level strategies to achieve total drinking water coverage, sanitation coverage and usage, develop monitoring systems, formulate communication strategies for behavioural changes and to develop a mechanism of coordination between TSC cell and line departments like Health, education, women and child development, tribal development etc.

At the state level, CSOs can play an important role in the SWSMs, to enhance their effectiveness.

#### **15.5 Innovation and model creation**

NGOs and CSOs create innumerable models that cater to the diversity that exists in the country through the development of low cost, sustainable and acceptable technologies. While these models are usually on a small scale, their scaling up can

be possible through partnerships with capacity building institutions and the government. CSOs can also develop models that provide water, sanitation and hygiene access to communities that are normally left out.

### **15.6 Menstrual hygiene management**

WASH should be seen as a complete package and for all, irrespective of caste, class, ethnicity, ability, economic status and gender. Hygiene forms a key component of WASH programmes. Often what is left out are issues relating to women's personal hygiene, namely, menstrual hygiene. There is great taboo associated with this issue and in absence of knowledge about safe practices women suffer. There are now several examples, where CSOs have worked with the community, informed them about menstrual hygiene practices and also developed economic models to meet demand for sanitary napkins. This is again one area where CSOs can play a key role.

### **15.7 Participation in assessments and reviews for a reality check**

CSOs can be involved in different surveys to assess programmes such as TSC and the Nirmal Gram Puraskar. They can also help facilitate a two-way communication for enabling a bridging of the gap that may exist between ground realities on one hand, and policies and programmes at state and national level on the other. This will help bring the voices of the people to policy makers to enable people-friendly policies and programmes.

### **15.8 Enhancing transparency and governance**

Through processes such as social audits and joint monitoring, CSOs can enable a dialogue between service providers and the user community to optimise the programme delivery.

In order to ensure sustainability of sanitation coverage and usage CSOs can play critical role by

- Assisting GP/VWSC in setting up appropriate community monitoring mechanisms to ensure proper implementation and usage of sanitation.
- Assisting GP/VWSC in setting up a Report Card System to assess the performance of duty bearers

### **15.9 Strengthening supply chain for better sanitation coverage**

One of the reasons for non-usage of toilets constructed under TSC has been the inadequate quality and faulty designs of toilets. Therefore if a robust supply chain (material, skilled masons, technology etc.) as envisaged in the TSC guideline can be established then it can ensure timely and quality construction of toilet which will

ultimately help in improved usage. Good examples are available where structured training programmes for masons have resulted not only in timely construction but also in maintaining the quality, technical specification of toilets and ultimately their usage. These trainings can be undertaken by CSOs.

#### **15.10 Research and documentation to influence policy and programme**

Documentation of WASH issues, challenges, approaches and practises by CSOs can help in optimising programmes and practise. CSOs can also engage in need based research and technology innovation.

#### **15.11 Terms of engagement**

1. Engagement with the CSOS should be structured, outcome-based and in partnership mode. The selection of CSOs should be done in a transparent manner and with well defined selection criteria.



## Chapter 16 – Financing the 12<sup>th</sup> Five Year Plan

### 16.1 Need for clear financing policy

It is desirable to align financing of service augmentation and operation and maintenance of schemes with reforms like recovery of user charges, maintenance of accounts at GP level, reduction of water wastage, protection of drinking water sources etc. so that investments are linked to service outcomes, i.e., they are performance based. Financing should not be a one-time grant. Water security planning requires annual investments in new schemes and works, operation and maintenance, replacement and expansion as well as support activities like water quality testing and IEC.

### 16.2 Key Needs and Sources of funds

The table below summarises the key needs and available funds under NRDWP and other Government schemes as of 2010.

Rural water supply schemes are predominantly financed from public funds. State Governments can tap private sources of financing through PPP models like in the PURA scheme to supplement public funding with suitable safeguards to ensure universal supply of a minimum quantity of drinking water to all families without social or financial discrimination.

<b>Key needs</b>	<b>Available funds (as of 2010)</b>
New schemes, augmentation, expansion of existing schemes.	NRDWP – coverage State Plan, BRGF, DoNER funds and Externally Aided projects, MoMA, Others
Source sustainability (rainwater harvesting, groundwater recharge, development of traditional structures)	NRDWP - sustainability MNREGS, Watershed Development Programmes, Others
Operation and Maintenance (including minor repairs)	NRDWP – O&M Central and State Finance Commission grants User charges, Gram Panchayat revenues, State Plan and non-Plan grants/subsidies, Others
Replacements	NRDWP – Coverage (and later under a Renovation and Modernisation component to be introduced) VWSCs corpus fund which can include funds from BRGF, Central and State Finance Commission grants, and user charges, Others
Potable water in water quality affected areas (treatment technologies, new sources - to	NRDWP - water quality State Plan, BRGF, DoNER funds and Externally Aided Projects, MoMA, Others

address arsenic, fluorides, iron, nitrates, salinity, etc.)	
Water quality monitoring and surveillance	NRDWP – Support Others
Training and IEC	NRDWP – support BRGF, TSC, Others
Water Supply in Natural Disasters	NRDWP – natural calamities NDRF, SDRF

### 16.3 Other domestic sources

Besides the own sources of funding by State and the Centre, it is also proposed to finance drinking water from other domestic and external sources.

### 16.4 Externally aided projects

The major external sources of funding envisaged are that of the World Bank, Asian Development Bank and other multilateral agencies and some bilateral funding agencies like JICA, KfW, DFID, etc. Depending upon the interest of the agencies and that of the States and Government of India appropriate measures should be initiated to secure resources needed for financing the water supply systems.

### 16.5 NABARD, HUDCO

Apart from the major international sources of finance, effort should be made to harness resources from domestic agencies also. NABARD and HUDCO are agencies that also lend to rural organisations for development of domestic water supply systems. The LIC of India and such other financing institutions both in the public and private sector can be tapped. Banking institutions also may be tapped to some extent. States may approach these institutions seeking their financial support in the implementation of domestic water supply programmes. Corporate Social Responsibility can also provide some resources to the needy poor by way of providing domestic water especially in districts with large scale mining activities..

### 16.6 Financial Resources

#### 16.6 .1 Assumptions for financial resource estimation

The Financial resources required to achieve the goals set out in this Plan according to NRDWP funding components for the period 2012-2017 have been worked out on the following basis:

- 2009-10 per capita cost of PWSS of each State is calculated from IMIS with minimum cap of Rs. 2500 per capita plus Rs. 250 for household metering

- Cost escalation and population increase were not considered in this calculation.
- Instead of the present provision of 40 lpcd the service level is proposed to be raised to 55 lpcd or more. If the states are willing to make a provision of more than 55 lpcd they may also prepare plans and provide water supply to the rural community at a higher rate.
- The amount required to raise the coverage level from 40lpcd to 55lpcd is assumed as 20% of present per capita cost.
- Community contribution of 6% of total cost; present NRDWP sharing pattern between Centre and States
- Apart from 10% for O&M, 10% Sustainability and 10% for Support and Administration including Calamities has been provided for

### **16.6.2 Financial resource requirement for 12<sup>th</sup> Five Year Plan**

The total requirement of funding for a design population for a 30 year period as stipulated in piped water supply systems is worked out. Growth of population according to the rural growth rate of population for the period 2001 to 2011 available with the Census are used for projections of population for the design period of 30 years from the completion period of project after accounting the time required for construction activities. The per capita supply of 55lpcd for providing piped water supply to 55% of the rural population is taken as the goal.

#### **Scenario 1:**

The States of Andhra Pradesh, Arunachal Pradesh, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Manipur, Meghalaya, Mizoram, Nagaland, Punjab and Tamilnadu already have more than 55% piped water coverage as per IMIS data. These States are allocated about 35% of the total NRDWP allocation as per present criteria. These States would require funds for raising their present covered population from 40 lpcd to 55 lpcd. The remaining States would require funds for raising the coverage of piped water supply from their present levels to 55% population at 55lpcd. **The total requirement of funds in the first scenario would be Rs. 272377 crores.**

#### **Scenario 2:**

In the second scenario the balance of all India rural population required to be covered to reach 55% coverage is calculated and a uniform per capita cost of Rs. 3600 taken at present prices. This would cover only those States where the rural population covered is less than 55%. For the 13 States that have already crossed 55% coverage a proportionate allocation of 35% is made. **The requirement of funds in the second scenario works out to Rs. 303165 crore.**

At the macro level this level of funding appears to be within the feasible range. The total planned investments by Centre and States under the XI Five Plan is about Rs. 1,00,000 cr. including NRDWP, State Plan funds, Finance Commission grants and external assistance.

### Plan Outlay in the 10<sup>th</sup> and 11<sup>th</sup> Five Year Plans

Period	Central Outlay	State Outlay	Total Outlay	Percentage increase over previous Plan
10 <sup>th</sup> Plan(2002-07)	16,254	15102	31,356	
11th Plan(2007-12)	39490	49000	88490	282.21

The increase in the 11<sup>th</sup> Plan outlay is 282% over that in the preceding Plan. While the Central outlay increased by about 242% the State outlay increased by much more namely, 324%. Looking at these figures, it is feasible to invest about 275%-300% higher outlay in the Rural Drinking Water Sector in the 12<sup>th</sup> FYP given the necessary demand.

### 16.7 Recommendation of Financial Outlay for 12<sup>th</sup> Five Year Plan

A total outlay of between Rs. 2,72,377 crore and Rs.303165 crore is suggested for the 12 th Five Year Plan for Rural Domestic Water Supply, including the component of National Rural Drinking Water Programme (NRDWP) for lagging states, Special Component for Scheduled Castes and Scheduled Tribes, Support activities and Sustainability etc. The Central outlay taking the lower outlay of Rs. 2,72,377 cr. would be about 45% i.e. Rs.1,22,570 cr. This would be about 305% of the actual allocation in the 11<sup>th</sup> FYP for the sector. The State outlay would be 1,49,807 cr. i.e. a similar increase. This would be feasible for States also considering the increase in the 11<sup>th</sup> Plan over the previous Plan.

The component wise out lays are given in Table 16.1.

(Rs. In crore)

	Scenario-1	Scenario- 2
<b>Total Outlay (Centre and States)</b>	<b>2,72,377</b>	<b>3,03,165</b>
<b>Outlay Centre</b>	<b>1,22,570</b>	<b>1,36,424</b>
<b>Outlay State</b>	<b>1,49,807</b>	<b>1,66,741</b>
<b>Earmarked Outlays</b>		
SCP (22% of total central outlay)	26,965	30,013
TSP (10% of total central outlay)	12,257	13,642
Allocation to North eastern States (10% of central	12,257	

outlay)		13,642
Allocation to DDP Areas (10% of central outlay)	12,257	13,642
Allocation to IAP Districts (10% of central Outlay)	12,257	13,642
<b>Components</b>		
Coverage and quality(60% of central outlay)	73,542	81,854
Sustainability (15% of central outlay)	18,385	20,463
Operation and Maintenance (15% of central outlay)	18,386	20,464
Natural Calamity (2% of central outlay)	2,451	2,728
Support activities (8% Of central outlay)	9,806	10,914

### **16.8 Separate Piped Water Supply programme for lagging States**

However the crucial detail is that the major funding requirements are for States where the proportion of rural population covered with piped water supply schemes is much less than the national average of 30% as per the NSSO 65<sup>th</sup> Round Survey. This survey shows that 8 States of Bihar, Uttar Pradesh, Jharkhand, Orissa, Assam, Chhattisgarh, West Bengal and Madhya Pradesh have less than 10% of piped water coverage at present. A separate piped water supply programme for assisting these States should be launched to meet their enhanced funding requirements to achieve the goals set out in the Strategic Plan. The needs of these States should be taken into consideration in the financing of rural water supply schemes by DDWS and external funding agencies.

<b>Table16.1(A) -12th Five year Plan - proposed outlay - Scenario -1 (Rupees in Crores)</b>												
<b>Centre Outlay</b>							<b>State Outlay</b>					
Items/Year	12/13	13/14	14/15	15/16	16/17	Total Centre	12/13	13/14	14/15	15/16	16/17	Total State
<b>Earmarked Outlays</b>							<b>To be decided by States</b>					
SCP	5,393	5,393	5,393	5,393	5,393	<b>26,965</b>						
TSP	2,451	2,451	2,451	2,452	2,452	<b>12,257</b>						
Allocation to North Eastern States	2,451	2,451	2,451	2,452	2,452	<b>12,257</b>						
Allocation to DDP areas	2,451	2,451	2,451	2,452	2,452	<b>12,257</b>						
Allocation to IAP Districts	2,451	2,451	2,451	2,452	2,452	<b>12,257</b>						
<b>Components</b>												
Coverage and quality	14,708	14,708	14,708	14,709	14,709	<b>73,542</b>						
Sustainability	3,677	3,677	3,677	3,677	3,677	<b>18,385</b>						
Operation and maintenance	3,677	3,677	3,677	3,677	3,678	<b>18,386</b>						
Natural Calamities	490	490	490	490	491	<b>2,451</b>						
Support activities	1,961	1,961	1,961	1,961	1,962	<b>9,806</b>						
<b>Grand Total</b>						<b>1,22,570</b>	29961	29961	29961	29962	29962	<b>1,49,807</b>

<b>Table16.1(A) -12th Five year Plan - proposed outlay - Scenario -2 (Rupees in Crores)</b>												
<b>Centre Outlay</b>							<b>State Outlay</b>					
Items/Year	12/13	13/14	14/15	15/16	16/17	Total Centre	12/13	13/14	14/15	15/16	16/17	Total State
<b>Earmarked outlays</b>							<b>To be decided by States</b>					
SCP	6,002	6,002	6,003	6,003	6,003	<b>30,013</b>						
TSP	2,728	2,728	2,728	2,729	2,729	<b>13,642</b>						
Allocation to North Eastern States	2,728	2,728	2,728	2,729	2,729	<b>13,642</b>						
Allocation to DDP areas	2,728	2,728	2,728	2,729	2,729	<b>13,642</b>						
Allocation to IAP Districts	2,728	2,728	2,728	2,729	2,729	<b>13,642</b>						

<b>Components</b>													
Coverage and quality	16,370	16,371	16,371	16,371	16,371	<b>81,854</b>							
Sustainability	4,092	4,092	4,093	4,093	4,093	<b>20,463</b>							
Operation and maintenance	4,092	4,093	4,093	4,093	4,093	<b>20,464</b>							
Natural Calamities	545	545	546	546	546	<b>2,728</b>							
Support activities	2,182	2,183	2,183	2,183	2,183	<b>10,914</b>							
Grand Total						<b>1,36,424</b>	33348	33348	33348	33348	33349	166741	

**PART B – sanitation**

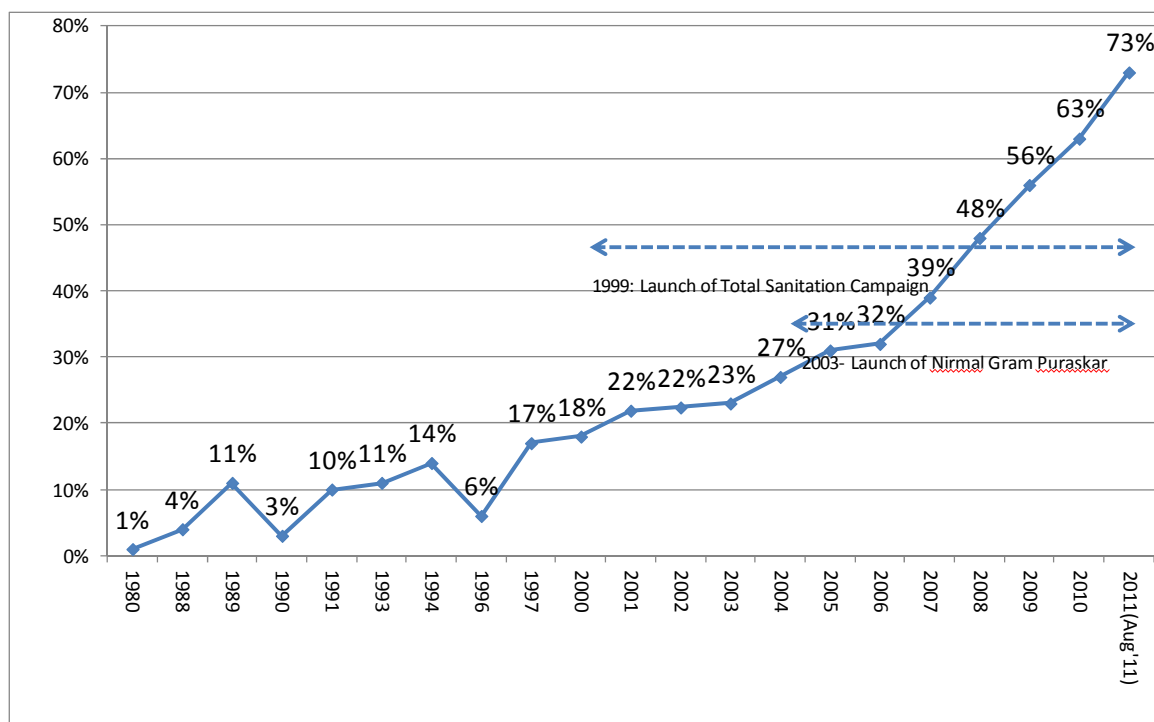


## CHAPATER –17 - RURAL SANITATION IN THE 11<sup>TH</sup> FIVE YEAR PLAN – ACHIEVEMENTS

### 17.1 National Level Sanitation Performance

After sluggish progress throughout the eighties and nineties, rural sanitation coverage received a fillip with the implementation of the TSC. As can be seen from Figure below, individual household latrine coverage at present is around 71% as of April 2011 as per the data reported by State through the online monitoring system maintained by the Ministry. In terms of progress made during the XI Plan, the coverage has progressively moved from 39% approximately in the beginning of the XI Plan to 73% as of August, 2011.

Figure: Rural Sanitation Coverage in India



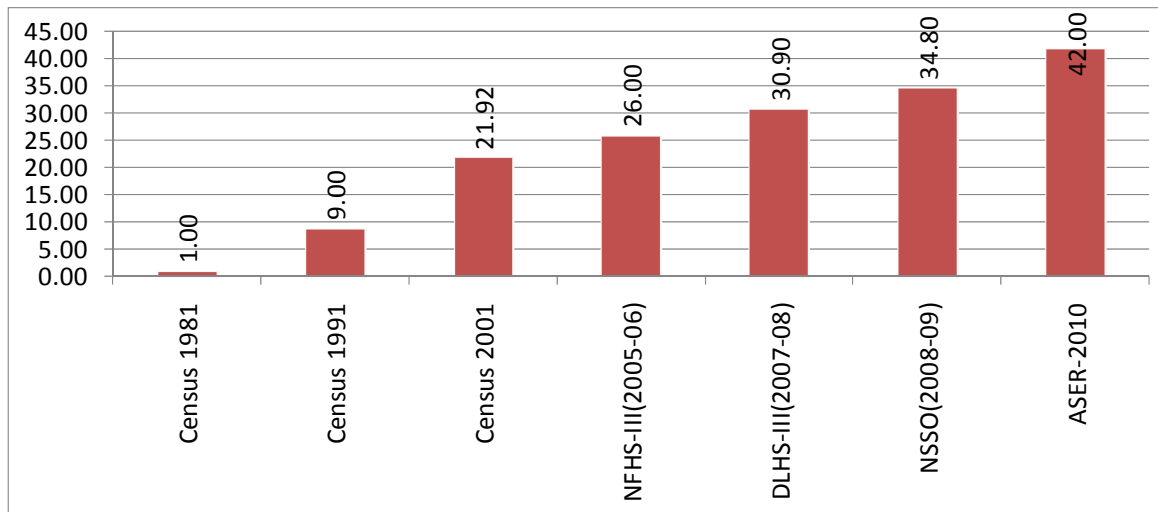
NGP has been successful as a fiscal incentive to motivate scaling up of rural sanitation resulting in 25,145 Gram Panchayats becoming Nirmal as one the outcomes of Total Sanitation Campaign.

### 17.2 Rural Sanitation Coverage – Independent Perspective

Sanitation of late has gained importance amongst social sector activists and has become a globally recognized sector where in various sector specialists have started contributing towards ways to track sanitation coverage apart from the reports submitted by National Statistical Organizations mandated to do the above job. One such accepted norm has been to track the usage of sanitation facilities through

sample survey to be treated as access to sanitation rather than only having a sanitation facility which could be tracked online. The last such report available is that of National Statistics Survey Organisation (NSSO). The organization, in its 65th Report of Nov 2010 for Housing Amenities in India in 2008-09 (up to June 2009), has indicated that 65.2% rural households and 11% urban households have no latrine facility. The reason could be access and usage gaps and sustainability of the sanitation facilities created as explained above.

Sanitation growth in the rural areas of the country as has come out in independent surveys is as follows:



Several other surveys like survey by Planning Commission through its Programme Evaluation Organisation (PEO) and Census 2011 are underway which shall give updated rural sanitation coverage. Based on the Census data the District- wise TSC project may have to be revised to arrive at actual coverage and the balance to be covered in the 12<sup>th</sup> FYP period.

### 17.2.1 Joint Monitoring Programme (JMP) of WHO/UNICEF/ on sanitation status in India

The JMP report of WHO / UNICEF, 2010 says that in India 638 million people defecate in open. The figure is based on the survey figures available as of the year 2008. As per the report, sanitation coverage in rural areas in 2008 was 21% (improved sanitation), 4% (shared sanitation), 6%(unimproved facilities) and rest 69% open defecation. Thus there appears to be wide variation among the figures analyzed by different sources. The reason as mentioned above could be, among other points, variation in terminology for a sanitary toilet.

The WHO/ UNICEF defines improved and unimproved sanitation as follows:

Improved sanitation	Unimproved sanitation
<ul style="list-style-type: none"> <li>• Flush or pour flush to <ul style="list-style-type: none"> <li>▪ Piped sewer system</li> <li>▪ Septic tank</li> <li>▪ Pit latrines</li> </ul> </li> <li>• Ventilated improved pit latrine</li> <li>• Pit latrine with slab</li> <li>• Composting toilet</li> </ul>	<ul style="list-style-type: none"> <li>• Flush or pour flush to elsewhere ( that is, not to piped sewer system, septic tank or pit latrine)</li> <li>• Pit latrine without slab/ open pit</li> <li>• Bucket</li> <li>• Hanging toilet</li> <li>• Shared facilities of any type</li> <li>• No facility, bush or field.</li> </ul>

The other trends, as evolved by sector specialists to analyse sanitation coverage are as follows:

**17.2.2 Caste-based differentials:** Since the main objective under TSC is universal sanitation coverage in rural areas of the country, analysis of marginalised group such as SCs/STs is important to simultaneously cover all sections of the society. The last independent survey by NSSO (65<sup>th</sup> round) of the year 2008-09 suggests that differences persist in sanitation coverage vis-à-vis other household category when it comes to comparison with SCs/STs. As per the survey, while the overall sanitation coverage in the rural areas of the country has been reported at 34.8%, the same for SCs and STs is 23.7% and 25% respectively.

**17.2.3 Wealth-based differentials:** Another analysis of late evolved by Sector specialists is to highlight wealth based differentials in sanitation coverage. NSSO 2008-09 has divided the rural population into five wealth quintiles. The sanitation coverage against each wealth quintile has been reported as follows.

Wealth Quintile	Sanitation coverage as per NSSO 2008-09 (%)
00-20	15.1
20-40	22.6
40-60	28.8
60-80	36.9
80-100	58.4

The percentages in absolute term obviously do not look attractive. JMP 2010 report published by UNICEF/WHO mentions that as per the worldwide trend, households living in the lowest wealth quintile are 16 times more likely to resort to open defecation as compared to the households living in highest wealth quintile. However, as can be seen from the above report, similar ratio in case of our rural population works out to less than 4 suggesting that India has four times better average than the world in this regard. This can also be interpreted that India's policy of incentivising poorest of the poor have shown its positive results in bridging the gap of poor and rich as far as access to sanitation facilities is concerned and need to be continued.

## Chapter 18 - SECTOR REVIEW AND EMERGING CHALLENGE

### 18.1. Physical progress during the 11<sup>th</sup> Plan

The sanitation coverage in rural areas of the country was estimated at **21.9%** as per census 2001. The year-wise growth of sanitation coverage in the country as per progress reported by the States through online monitoring system of the Ministry since the inception of TSC is as under:

Year	Percentage Sanitation Coverage in Rural Areas
2000-01	21.92
2001-02	22.38
2002-03	22.86
2003-04	27.34
2004-05	30.56
2005-06	32.02
2006-07	39.03
2007-08	48.02
2008-09	56.03
2009-10	63.78
2010-11	71.65
2011-12 (As on 31-8-2011)	73.67

However, there have been wide variations among States to arrive at the average of 73.67% as mentioned above.

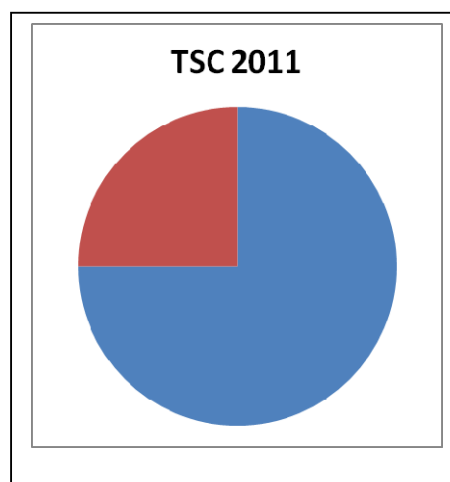
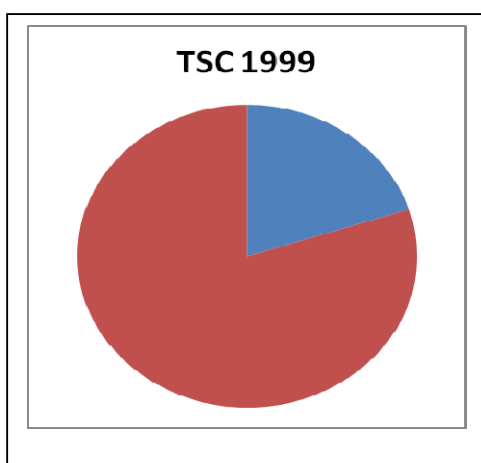
Following table highlights the variation among States in rural sanitation coverage (as of August, 2011)

S.N.	State	Sanitation Coverage
1	ANDHRA PRADESH	78.74
2	ARUNACHAL PRADESH	71.98
3	ASSAM	68.62
4	BIHAR	39.68
5	CHHATTISGARH	57.26
6	GOA	90.48
7	GUJARAT	86.07
8	HARYANA	95.49
9	HIMACHAL PRADESH	100.00
10	JAMMU & KASHMIR	49.94
11	JHARKHAND	46.03
12	KARNATAKA	73.02
13	KERALA	100.00
14	MADHYA PRADESH	78.77

15	MAHARASHTRA	74.50
16	MANIPUR	64.14
17	MEGHALAYA	72.73
18	MIZORAM	81.22
19	NAGALAND	75.32
20	ORISSA	55.19
21	PUNJAB	93.98
22	RAJASTHAN	59.38
23	SIKKIM	100.00
24	TAMIL NADU	82.49
25	TRIPURA	100.00
26	UTTAR PRADESH	82.93
27	UTTARAKHAND	80.84
28	WEST BENGAL	78.83
29	A & N ISLANDS	42.33
30	CHANDIGARH	68.53
31	D & N HAVELI	70.06
32	DAMAN & DIU	32.02
33	DELHI	62.89
34	LAKSHADWEEP	93.14
35	PUDUCHERRY	52.99
	<b>Total</b>	<b>73.67</b>

It can be seen that while States like Himachal Pradesh, Kerala and Sikkim are reporting 100% progress against progress against project objectives under TSC, States like Bihar, Jammu & Kashmir and Jharkhand have yet to achieve 50% of their project objectives for Individual Household Toilets under TSC.

#### **TSC Performance –Scaling up of Coverage (IHHL)**





### Igniting little minds: Bal Panchayat in Sikkim

Rights come with responsibilities. The earlier the children learn this message, the better for the future of the country and its citizens. The aim of establishing Bal Panchayats is to develop leadership among children and develop a sense of responsibility towards their peers and community. With this very objective, BAC Sikkim launched the concept of Bal Panchayat in the month of February 2010 in 12 Schools. Setting an example before the adult members of the Gram Panchayat (village council), children of Schools under BAC Sikkim are running a parallel self-government body, asserting their right to education, health, entertainment and leisure.

Besides the President, the Bal Panchayat has 'ministers' for education, health, environment, cultural affairs, sports, etc. These ministers are charged with the responsibilities of ensuring the well-being of the children by bringing to the notice of the elders and concerned authorities for the specific problems and needs of the children.

The Bal Panchayats have helped and persuaded their friends to attend schools. In turn the School attendance has improved a lot within just two month of Bal Panchayat. The Bal Panchayats have also prepared their Annual Plan for sports meets, cultural programs and cleanliness drives which earlier used to be directly undertaken by the Teachers. The Bal Panchayats has helped to develop leadership qualities among a number of children, inculcated positive values such as the importance of equity and social justice, made them aware of the problems of their village, and helped them take on responsibilities. After the formation of Bal Panchayat, the children have taken the responsibilities of boiling the water for the drinking purpose with the help of mid day meal facilities available at the school.

After the formation of Bal Panchayat in their school, Students are taking initiative in group approach like conducting meeting for various developmental activities to be undertaken in the school, launch of the Annual School Magazine etc.

Self help Drive was organised by the Block Administrative Centre for the roads towards better toilets better hygiene at Sanganath Secondary School one of the remotest gram Panchayat Unit. After the formation of the Bal Panchayat at this school, initial round of meeting was held with School Authority & Panchayat for the preparation of user friendly plan and evaluate an estimate for the construction of School toilet. For the construction drive of the toilet, material component was used from the fund that was provided from the government and labour component was covered totally from participatory mode by using School students, teachers, community, Panchayat and Block Officials. This ultimately built a sense of ownership of the asset created in their area which earlier was missing. These Bal Panchayat have provided a platform for participation and have created a an example before the adult members of the GP to show that it is not difficult to bring about positive change through determined and continuous efforts.

The main physical components sanctioned in the 607 district projects under TSC and achievements till August 2011 are as follows:

- Out of 125 million rural households not having sanitation facilities in the country as per district wise baseline survey carried out, so far 81 million are reported to have their own household toilets. Besides, 11 lakh school toilet units, 3.9 lakh Anganwadi toilets, and 8459 production centers / rural sanitary marts (RSMs) have also been set up.
- Construction of 435 lakh individual household latrines for BPL families
- Construction of 378 lakh individual household latrines for APL families
- 11.25 Lakh toilet units for schools
- 3.90 lakh toilets for Balwadis /Anganwadis
- 22,367 community sanitary complexes
- 8,459 Rural Sanitary Marts / Production Centres

The following table shows detail of the physical progress made during 11<sup>th</sup> Plan up to August 2011.

Financial Year	IHHL BPL	IHHL APL	Total IHHL	School Toilets	Sanitary Complexes	Anganwadi Toilets
2007-2008	5763430	5764460	11527890	236259	3006	86489
2008-2009	5570899	5694983	11265882	253004	3245	68995
2009-2010	5869608	6538170	12407778	144480	2230	66227
2010-2011	6155933	6087798	12243731	105509	3377	50823
2011-2012 (Upto Aug,11)	1685564	1433037	3118601	24096	716	7807

The Table below shows the percentage achievement against each component under TSC.

Component	Sanctioned	Achievement	Percentage
<b>IHHL(BPL)</b>	<b>6,18,38,909</b>	<b>4,35,21,482</b>	<b>70.38</b>
<b>IHHL(APL)</b>	<b>6,38,87,805</b>	<b>37,8,68,534</b>	<b>59.27</b>
<b>Total IHHL</b>	<b>12,57,26,714</b>	<b>8,13,90,016</b>	<b>64.74</b>
<b>School Toilets</b>	<b>13,14,636</b>	<b>11,25,816</b>	<b>85.64</b>
<b>Anganwadi Toilets</b>	<b>5,06,968</b>	<b>3,90,962</b>	<b>77.12</b>
<b>Community Complexes</b>	<b>33,684</b>	<b>22,367</b>	<b>66.40</b>

- a) The details of total project objectives taken under TSC in terms of IHHL suggest that the total number of APL and BPL households not having sanitation facilities at the time of each baseline survey were comparable. Out of total 12.57 crore households, not having sanitation facilities, 6.18 crore were BPL households and 6.38 crore were APL households.

- b) Cumulative expenditure on IHHL for SCs and STs Categories, as reported from on line data, comes to 24.86%. The figure shows SCs and STs were well focused under the TSC for incentives for provision of IHHLs in the past decade of TSC.
- c) Progress made during 11<sup>th</sup> plan in coverage of household toilets in North Eastern States shows variable trends. In this plan the coverage ranges from 14.84% (in Sikkim, which has achieved full coverage) to 57.96% (Meghalaya which has total coverage of 58.56%). It appears that Meghalaya has done a lot of progress during the 11<sup>th</sup> Plan. Likewise total coverage in Assam is 66.85, out of which 40.16 has been achieved in 11<sup>th</sup> Plan. Efforts of sanitation coverage in NE states needs to continue with emphasis on solid and liquid waste management in each states.
- d) The available data in respect of IEC suggests that the expenditure trend has been low with respect to proportionate funds against project outlay released to the States. While some of the States and UTs like Goa and Puduchery can be discounted on account of non-reporting of data online, States like J&K 7%, Bihar 17%, West Bengal 15% also are reporting relatively low expenditure on IEC vis-à-vis total project outlay sanctioned. In some states like Haryana (70%), Himachal Pradesh (75%), Maharashtra (55%), Mizoram (59%) expenditure on IEC is comparatively better. The percentage expenditure on IEC in different states can directly be correlated with the percentage coverage of household sanitation in the states. Therefore, in the 12<sup>th</sup> Plan, there is need for a suitable arrangement for implementation and monitoring for IEC in all States.
- e) TSC is being implemented also IAP areas in 9 states. Sanitation coverage in such areas ranges from low to middle and high coverage. There does not seem much correlation between sanitation coverage (high or low) with that of magnitude of Naxal affected areas. Minimum sanitation coverage (14%) has been reported from Arwal (Bihar) and maximum (100%) from Seoni (Madhya Pradesh) followed by Purvi Singhbhum (Jharkhand) (90.31%). In the states of Madhya Pradesh and Maharashtra sanitation coverage in IAP affected areas is better.
- f) TSC programme is being implemented in 250 Backward Region Grant Fund (BRGF) Districts. The average cumulative performance of TSC in these districts shows that total coverage of IHHLs is 59% of the objective. Coverage of objective for BPL is 67% where as APLs has 49% coverage. Cumulative coverage of sanitary complexes, school sanitation and Angawadis are 51%, 83% and 68% respectively. There is great variation in the percentage of coverage in different states. Much better coverage has been reported from Maharashtra. In Bihar total coverage is reported to be 27.9%. For BPL IHHL coverage is 39.64 of the objective where as for APL coverage has been reported to be only 15.40%.



Coverage of Anganwadis has been reported to be only 22.33%. The performance data show that a lot of efforts to improve IEC are required in such states during the 12<sup>th</sup> Plan.

- g) TSC is being implemented in 69 Minority Districts in India. Performances of the programme in these districts are comparable with the national average under respective heads. Average coverage of IHHLs has been reported to be 60%. Best performance has been reported from U.P. (80.27%) and West Bengal (61.48%) and the minimum is from Bihar (23%) followed by Manipur 31%. In UP there is not much difference between coverage in BPL (90.04%) and APL (74.98%). However, in case of Bihar there is wide gap between coverage in BPL (32.70%) and APL (9.13%) for IHHL.

## 18.2. Financial performance in the 11<sup>th</sup> Plan

The total Plan outlay for 11<sup>th</sup> Plan was Rs.7816 crore against which the total allocation received by the Ministry for TSC is Rs.6690 crore. Outlay for the current financial year is Rs 1650 crore. The year wise outlay and expenditure has been as follows:

Financial year	Total outlay (in crore)	Total expenditure (in crore)
2007-08	1060	908.91
2008-9	1200	980.13
209-10	1200	1200
2010-11	1580	1579.84
2011-12 (Up to Aug, 2011)	1650	791.01
Total in crore	6690	5459.89

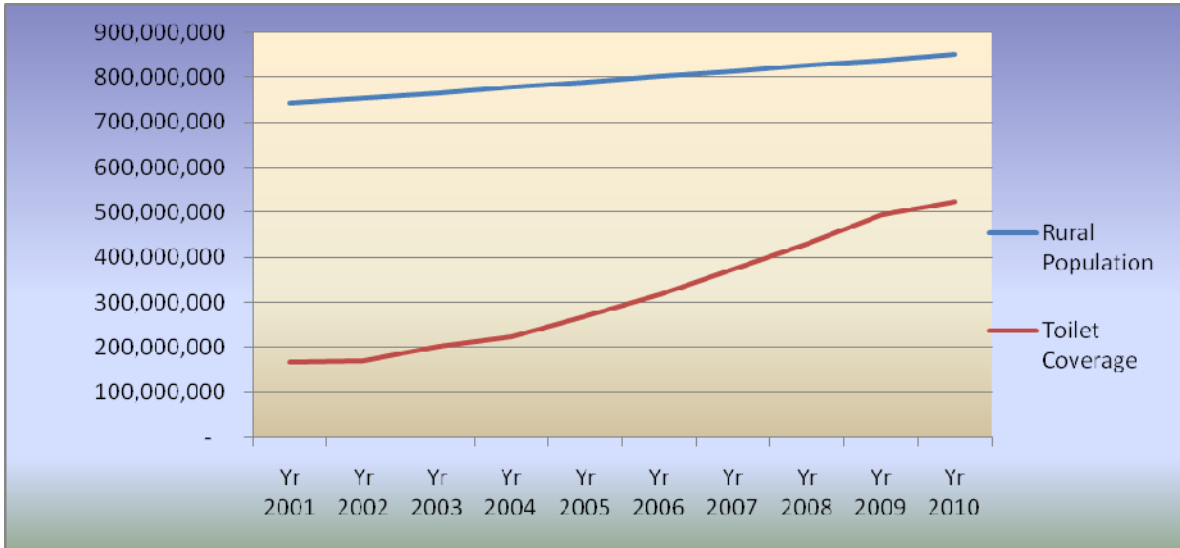
## 18.3 EMERGING CHALLENGES

### 18.3.1 Scaling up to meet the population challenge

Year	Yr 2001	Yr 2002	Yr 2003	Yr 2004	Yr 2005	Yr 2006	Yr 2007	Yr 2008	Yr 2009	Yr 2010
Rural Population	742,490,639	753,627,999	764,932,419	776,406,405	788,052,501	799,873,288	811,871,388	824,049,459	836,410,200	848,956,353
Toilet Coverage	166,541,341	169,523,241	200,208,291	223,119,706	268,976,741	317,405,191	375,043,091	431,286,671	493,681,091	524,638,171

Although the rural sanitation coverage has increased exponentially in the last decade, the real impact could not be appreciated due to increase in total number of rural households.

The strategy therefore needs to take into consideration the impacts of population increase. The graph on next page shows the trend in sanitation coverage vis-à-vis population increase<sup>2</sup>.

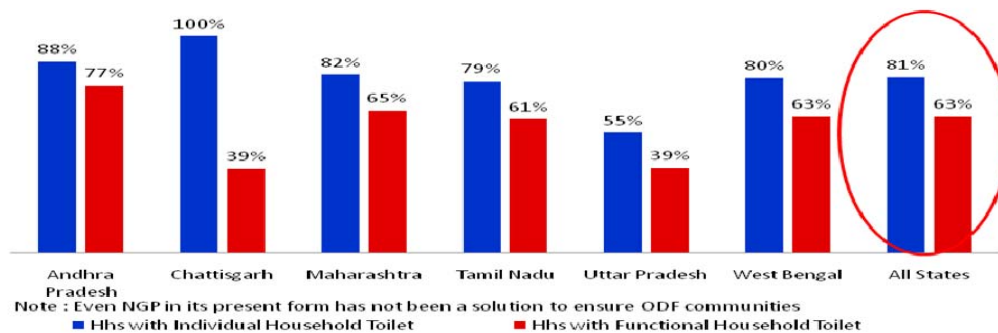


### 18.3.2 Sustaining Behaviour Change

A limitation noted while achieving sanitation coverage is that various field studies have pointed to various levels of latrine usage depending upon the community awareness and also slippage in the status of NGP villages that shows a variable trend. For example, in *one such study undertaken by UNICEF in 2008, it was found that out of the 81% of the population having access to sanitation in NGP panchayats, only 63% were using the facilities.*

### Usage Lags Behind Access

**Access and use of household toilets in NGP Villages  
(As per TARU-Unicef Study-2008 conducted in six states and 162 GPs)**



<sup>2</sup> Assumes a 21.9% coverage in 2001; 5 family members per household

## **Community Mobilization: key to open defecation free status**

Neen G.P. of Basantpur block of Shimla district in Himachal Pradesh, is the first GP to receive the State level sanitation award for achieving fully sanitized status. Since March 2007, all the 8 villages of the G.P. declared themselves open defecation (ODF), no one defecated in the open. Efforts now have moved beyond safe disposal of human excreta to solid liquid waste management. All households are now area now making either vermin composting from cow dung and household waste or using single composting method. Soak pits have been constructed for grey water wherever required. Nearly 60 % of the households have constructed roof top rainwater harvesting structures in their houses, to combat water scarcity for toilets and bathrooms.

Improved water, sanitation and hygiene (WASH) facilities in the high school are managed by the school sanitation club. Women's groups have taken up the responsibility of monthly sanitation drive to ensure overall cleanliness of the village. A dhaba owner manages and ensures on a voluntary basis, water for the pour flush community toilets in the local market for visitors. The GP has also imposed a fine of Rs. 50 on people who defecate or litter solid waste in the open. This change brought about in the community as a result of triggering and door to door campaign lead to the success of the TSC in the GP, which has also become the role model and has been replicated in other States.

The focus was on collective realization of linkages between sanitation, behavior and health and initiating local action without outside help. The GP also displayed cuttings related to sanitation achievement in other district on its notice board, to break the myth that eradicating open defecation is difficult. Community members were mobilized by using multiple local community mobilization tools, such as mapping faecal route, anecdotal stories related to sanitation, medical expenses, street play performances etc.

Children formed sanitation clubs in the high school to ensure proper operation and maintenance of WASH facilities in schools. A weekly sanitation talk in the morning assembly of schools is now a regular feature in the Neen GP. The women groups also contributed significantly in promoting sanitation and mobilization of people.

This modified practice is sustainable and in operation since March 2007. Sustainability is ensured by involving the real stakeholders such as a school children , women's groups, village water and sanitation committee members and PRI in monitoring and encouraging people towards improvement in sanitation facilities, especially because their villages are role model for other villages. Mahila Mandals and SHG s meet every month as a part of the group activity and also supervise the cleanliness of village paths and surrounding areas by involving other willing community members. Wall paintings and slogan writing have been done by the GP at strategic places in the villages and local markets to remind the villages about safe sanitation.

The people of Neen are successfully sustaining their status after having been conferred the first clean GP reward of Rs. 10 lakh under the State reward scheme of the Government of Himachal Pradesh.

The study also suggested that only 109 Gram Panchayats out of 162 GPs surveyed were having toilet usages more than 60%, i.e. the balance slipped back to the open defecation status.

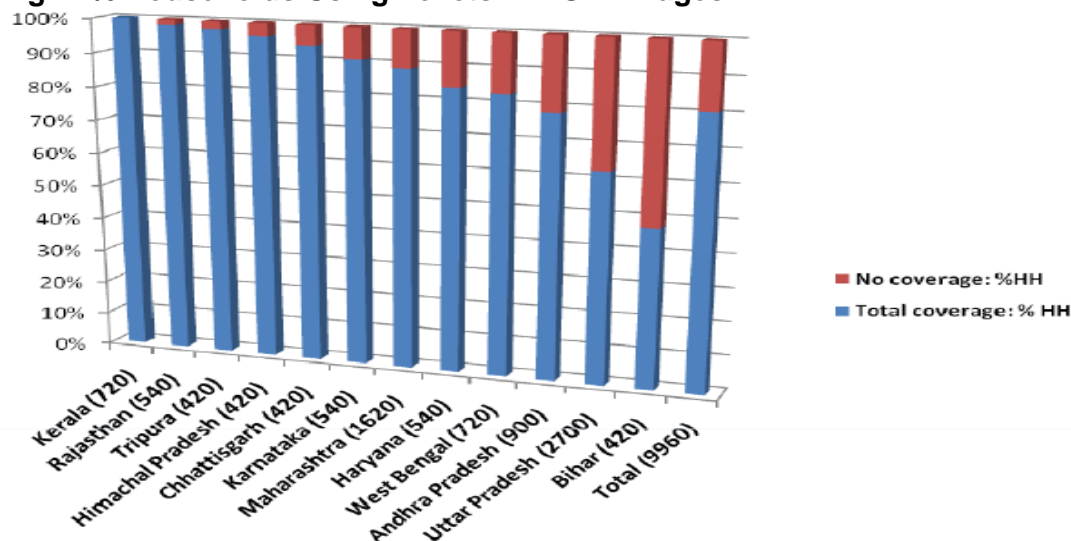
**TABLE (E.2) PROPORTION OF NGP AWARDED GPs REPORTING USAGE OF TOILETS**

State	Proportion of People Using Toilet								Total
	None	< 20%	20% - 40%	40% - 60%	60% - 80%	> 80%	100%		
Andhra Pradesh				1	4	5			10
Chhattisgarh		1	5	4					10
Maharashtra		1	7	6	4	36	6		60
Tamil Nadu		2	5	9	6	11			33
Uttar Pradesh			1	6	7	1			15
West Bengal			2	3	18	11			34
<b>Total</b>		<b>4</b>	<b>20</b>	<b>29</b>	<b>39</b>	<b>64</b>	<b>6</b>		<b>162</b>

Source: TARU study

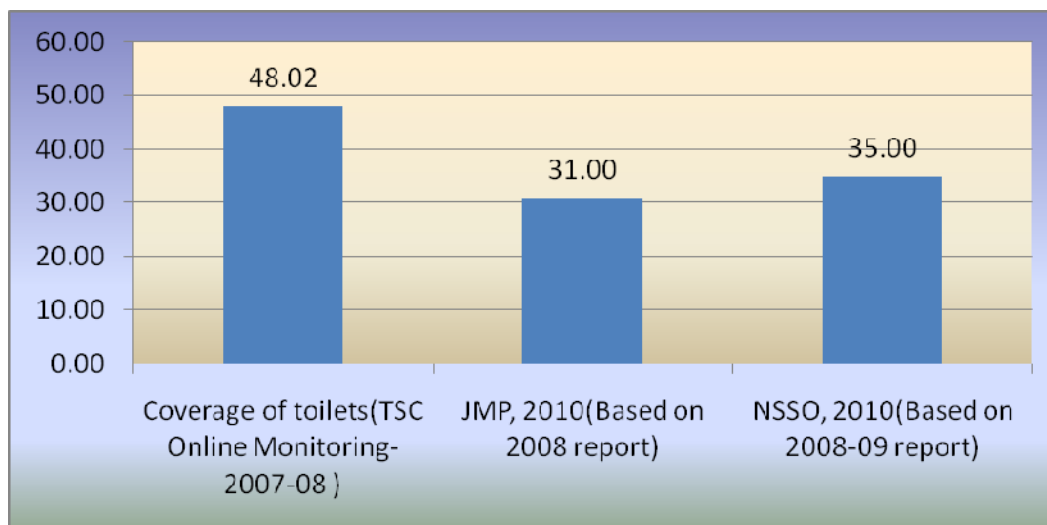
This is further corroborated by the top line results coming from a recent study with bigger samples undertaken by Government in India in 12 states, 56 districts and 664 GPs, which found that toilet usage was less than 100% in about 20 percent of the NGP villages (see Figure 7 below).

**Fig 7: % Households Using Toilets in NGP Villages**



Source: Government of India (2010)

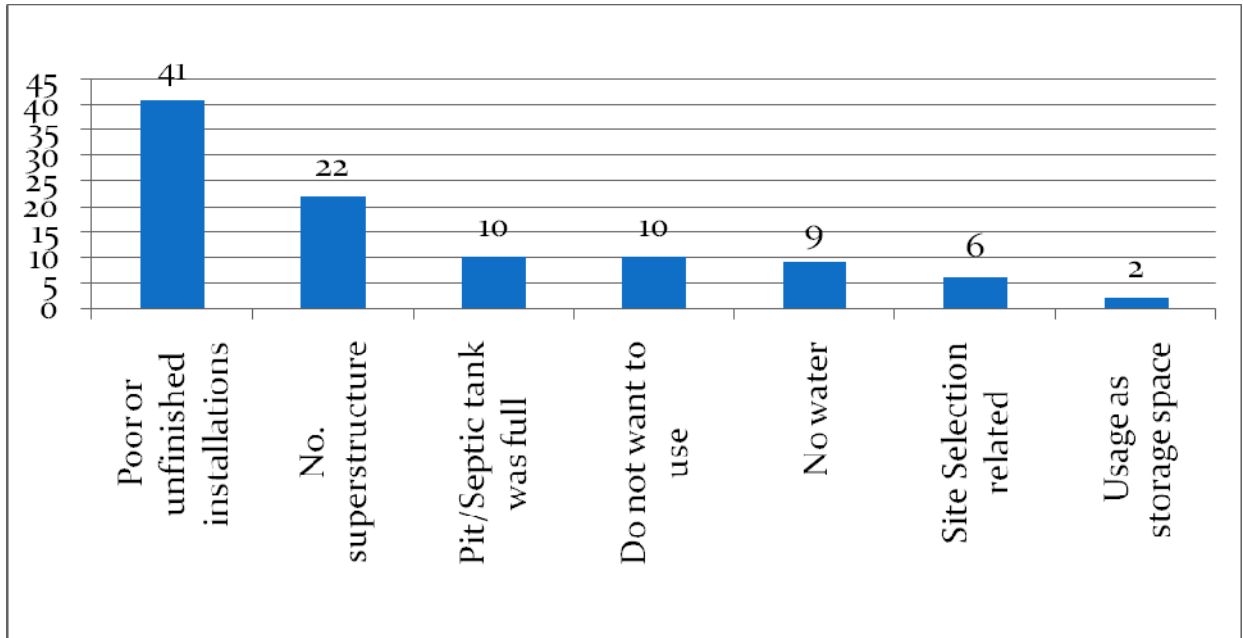
Third party monitoring like Joint Monitoring Program (JMP) and NSSO studies also point to the challenges of usage keeping pace with coverage.



### 18.3.3 Handling disused/misused sanitation facilities

One of the important factors as emerging from various studies for lag between coverage and usages has been poor quality construction of sanitation facilities and dysfunctional toilets for reasons like pit/septic tank full, choked pan/pipes, wrong location, filled with debris and used as storage space among others. The issue of water availability is one of the major concerns while dealing with water-seal toilets. This also got corroborated by the top line results coming from the study undertaken by the Ministry.

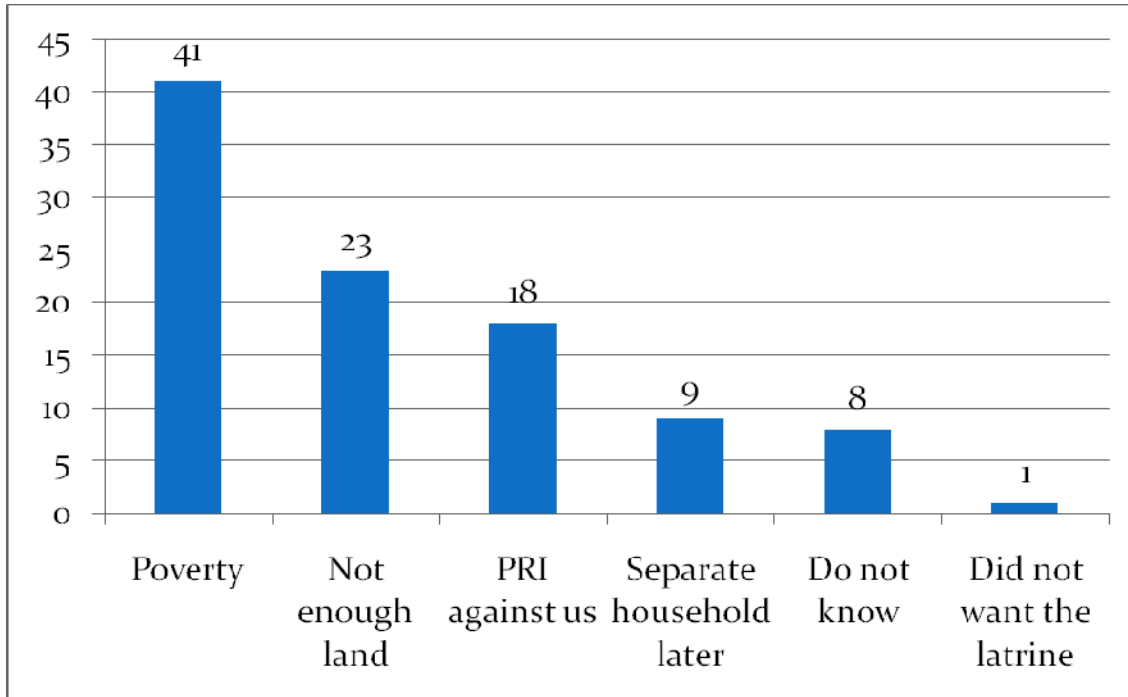
### REASONS FOR DYSFUNCTIONAL TOILETS



Source: CMS Study, 2010

### 18.3.4 Poverty continues to be a curse

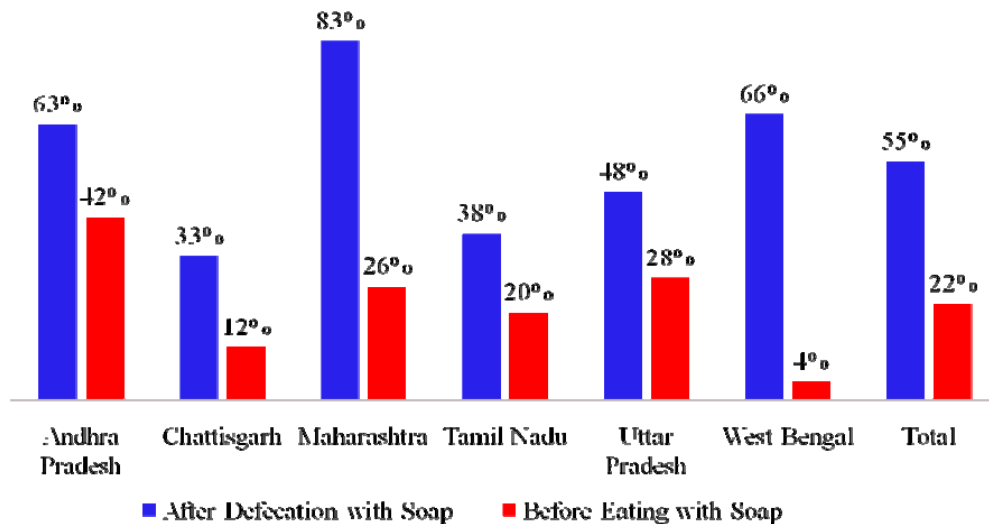
While the policy of Government of India under TSC has been to disburse incentives to the BPL households, considered the poorest in the rural areas, poverty continues to be a curse and a barrier for accelerating rural sanitation coverage. This gives an indication of continuing with the practice of incentives to the poor in recognition of their achievement to construct and use sanitation facilities with corrections as may be required to get the intended results. The CMS Study referred above identified some of the reasons for not having sanitation facilities as poverty, not enough land, and neglected lot among others.



### 18.3.5 Moving Beyond ODF: Integrating Sanitation and Hygiene

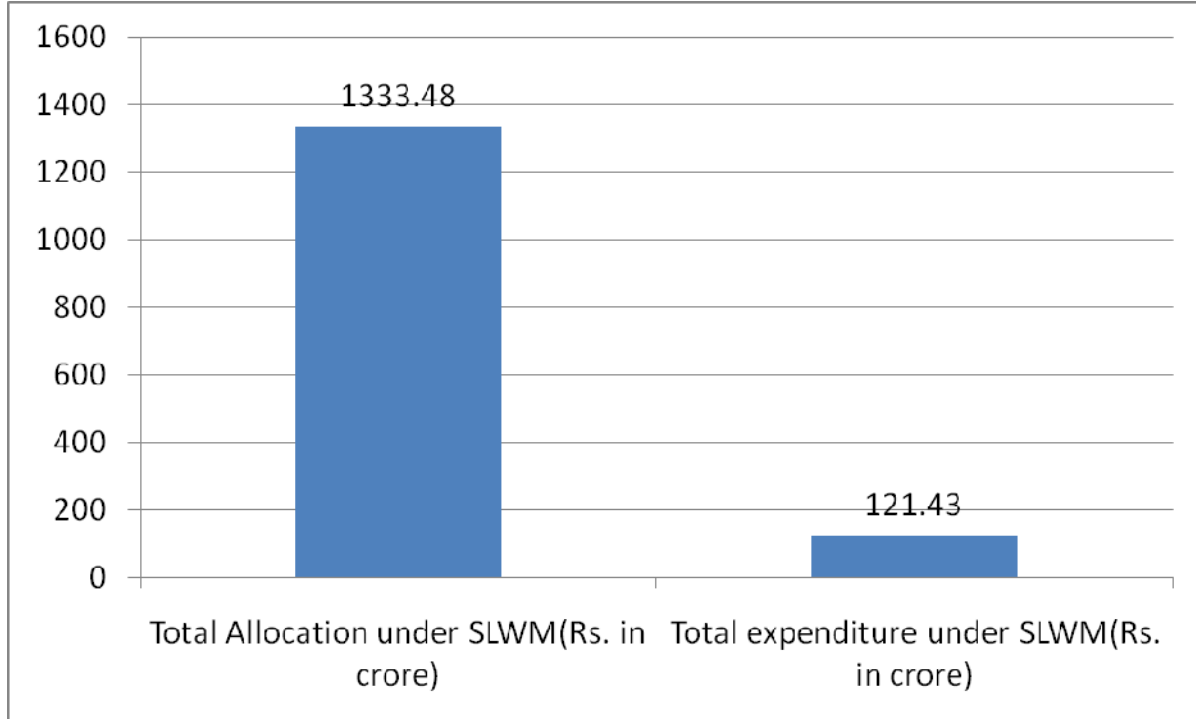
The focus of the TSC has been on sanitation in households, schools and institutions leading to the creation of ODF communities. In addition, the management of solid and liquid waste leading to environmental cleanliness is also a key component of the TSC, but has not relatively picked up till date in the campaign due to concentration on creating an ODF environment initially combined the issue of non-availability of adequate funds under TSC. The graph below presents the results of a field study on hand-washing behaviour at critical times, before eating and after defecation.

### 18.3.6 Hand-washing at Critical Times



Source: UNICEF (2008)

In SLWM, only about 0.9% of the total allocated expenditure has been spent till date



Going forward, a key issue for rural sanitation policy is to integrate improved hygiene and environmental sanitation into sanitation programs at scale.



### **PLASTIC HOUSE: Udipi, Karnataka**

Total Sanitation Campaign involves not only construction of toilets but also management of solid and liquid wastes. These days use of plastic has become a norm and is used in almost all packing. However, many times people are unaware that plastic is non degradable and detrimental for the environment. Throwing of plastic waste here and there blocks the drainage system, toilets, etc. Therefore, proper disposal and management of plastic waste needs to be accorded priority.

The plastic waste should be collected and sent for recycling. Knowing this the lady President Farjana, Secretary Sri Imanathullah baig, and other members of the Uliyargoli GP of Udupi district developed an innovative method for collection of plastic waste. Plastic collection centers popularly called as "Plastic House" made out of steel mesh were placed in main streets, junctions, schools, etc., One such big plastic house about 10 ft. height was placed near GP office and used as main dumping centre.

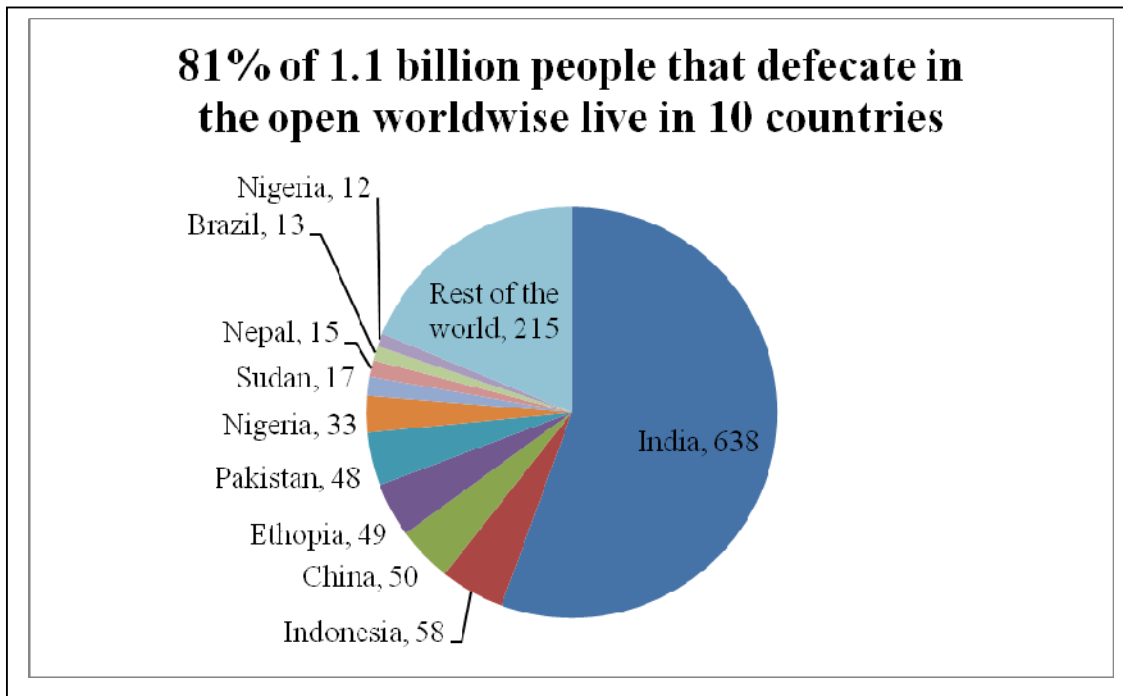
In the beginning the public and the school children were given awareness about the management of plastic waste and convinced them to segregate the plastic in the house, hotels, schools etc., itself. Competition was created and prizes were announced among the school children for collection of plastic waste. The segregated plastic waste put into the plastic houses kept all over the GP and from there it was shifted and dumped into the big plastic house kept near the GP office. Afterwards this waste plastic can be sent to the recycling plant.

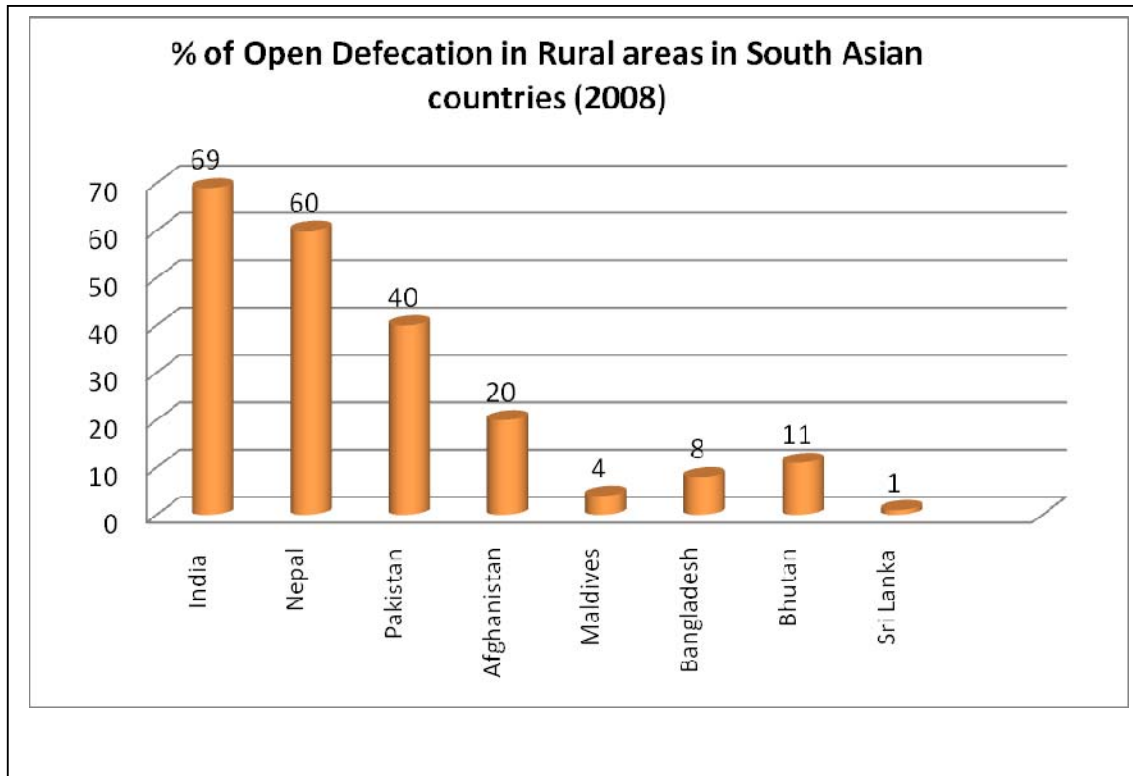
Now the GP free of plastic waste is clean and beautiful. This has become a reality due to the awareness created and regular supervision by the President, Secretary and members of GP.

## CHAPTER 19 - ISSUES:

While good sanitation practices result from a proper understanding of its consequences through individual and community behaviour change, the need is for a dedicated institutional structure involving both the Government and civil society with the appropriate financial resources that would be able to put in the sustained effort for achievement of objectives. Sanitation in India has been one of the most under funded programmes. It needs to be recognised that 58 percent of the world population defecating in the open is in India, as per JMP data. . The same report in fact records that India lags behind even the other countries even in South Asia. It is now an accepted fact that unless India comes on board, the Millennium Development Goal for Sanitation will be impossible to achieve. This endangers also the efforts being put in by the Government of India to improve the major health indicators that are needed to provide the quality health status to its citizens.

As per JMP data, 58% of those defecating in the open worldwide are in India as can be seen from the following comparing India to the World and to South Asia.





### 19.1 UPSCALING AVAILABILITY OF FINANCIAL RESOURCES:

As is apparent, Government funding for the programme has shown a huge increase during the 11<sup>th</sup> Plan. Although, TSC was launched in the year 2001, the financial allocation had left much to be desired : a fact recognised in the 11<sup>th</sup> Plan that increased allocation many-fold. However, the full allocation could not be made available although it shows a quantum jump from the earlier period. As per various studies undertaken internationally as also within the country including the Mid-Term Appraisal conducted by the Planning Commission, serious gaps at the policy level need to be addressed that would require higher funding.

### 19.2 COMMUNITY APPROACH:

While TSC was envisaged as a “community led” scheme, it provided for a small incentive to households covered as “Below Poverty Line” only. It was presumed, although theoretically correct, that those above the BPL line should be in a position to construct toilets on their own through their financial surplus. Moreover, since change in habit is a matter of belief, they would deliberately go for toilets from whatever resource is available.

Yet in practice it has been found that there is a much larger constituency in the rural areas that may not have been as per the BPL definition, but which is unable to raise finance for toilets, even if sufficiently motivated for their

necessity after investing in their other consumer needs. The reality of the economic conditions in rural India does not substantiate such an ideal situation. It is now apparent that community groups like the Scheduled Castes/ Scheduled Tribes/ Other Backward Castes / small and marginal farmers and the landless in most cases do not seem to have a capacity for such investment .

This has seriously impacted community outcomes of good sanitation. Thus, while in spite of slow progress, while substantial gains have been made in various places under TSC, the gains of proper sanitation are not generally discernable especially in terms of health outcomes and resultant other benefits.

### **19.3 APPROPRIATE INCENTIVISATION:**

Since sanitation is recognised as an issue of behaviour change, it has so far been felt that while BPLs may be given a small incentive post-construction of the toilet that may financially partly cover construction of the sub-structure; they would be exhorted to use local materials like bamboo, thatch, jute, grass hedge etc for their privacy. The monetary incentive even for the sub-structure has not covered the cost involved to a great extent, and looking to the deep-rooted habit of open defecation, has not motivated them enough to use local materials for the superstructure that is temporary by nature and needs to be replaced often. Women who are a primary focus group in the campaign that encourages them for use of toilets for reasons of privacy, safety and dignity, have found the toilet construction as lagging behind in providing such benefits.

While it is felt that use of local materials should still be encouraged with proper communication strategies, the financial incentive requires to keep pace with the times at a realistic level that may not only cover a major part of the cost of construction but also play a role in motivation.

Various social sector schemes of the Government of India especially those in the sectors of health, education, women's empowerment and rural economic upliftment not only provide adequate financial assistance but aim at community outcomes by not dividing people on income parameters like BPL. Schemes like Janani Suraksha Yojna, Rajiv Gandhi Sadbhavna Yojna and MNREGS, at the Centre and State schemes like Ladli Lakshmi Yojna and Kanyadaan Yojna are some such examples. Many of these are also for entailing behaviour change. .

## 19.4 INCLUSIVE APPROACH:

### **(a) INCLUSION OF VULNERABLE COMMUNITIES AND VULNERABLE AREAS**

The Prime Minister, in his address to the 51<sup>st</sup> Meeting of the National Development Council on 27.06.2005, has inter alia stated as follows:

“If the benefits of growth have to reach all sections of our diverse society, there is a need to equip them with the necessary skills and resources to become active participants in growth process .This are the only way of achieving our dream of an inclusive prosperous society.”

**(b) SC &ST:** As per NSSO survey (National Sample Survey Organization) conducted by the Government of India on Housing Conditions and Amenities in 2008-09 reveals that disparities between the general population and marginalized communities such as Scheduled Castes and Scheduled tribes continues to exist .The survey revealed 75% of ST and 76% of SC and 69% of OBC and 43% of other communities possess no latrine facility.

Hence, financial support of all SC and ST households across the country, irrespective APL or BPL status of the communities. This will obviously cover up the gap of financial allocation earmarked in the guidelines of SCSP and TSP.

**(c) Primitive Tribal Groups (PTG), Notified Tribes (NTs) :** PTG being more vulnerable community, the community may be extended 100% financial support .Only the Communities notified by the concerned Ministry may be extended the said quantum of financial support. Accordingly Notified Tribes (NTs),

**(d) Physically Challenged:** Census 2001 has revealed that over 21 million people in India are suffering from one or the other kind of disability. This is equivalent to 2.1% of the population. The Disabilities Act stipulates that 3% of all allocations should be towards the people with disabilities. With a view to provide financial help to Physically Challenged, certified by competent authority may be considered 100% financial help if belonging to BPL category and at par with other BPL families if belonging to APL . A certain percentage of TSC budget should be allocated for people with disability to meet the above criteria. Similarly, all the Schools and Community toilets should essentially be Physically Challenged - friendly toilets according to local requirements. The Ministry also need to get developed sufficient design models in this regard.

**(e) Minorities:** In pursuance of the constitutional provisions, the government is committed to the well being of the minorities. In India there are a total of 93 Minority districts, which have considerable minority population and various programmes have been planned by the Government of India for these districts. In the 12<sup>th</sup> Five Year Plan, financial provisions for minority communities should be contemplated to start with financial assistance to be provided initially in the notified minority districts, in respect of minority households not having toilets facility. Separate on-line monitoring needs to be strengthen in this regard.

**(f) Landless labourers, destitute, migrants etc. :** Landless and migrant labour should be covered by TSC through facilities like Community Toilets. In this regard (Public-Private Partnership)PPP models may be explored.

**(g) People living with HIV/AIDS:** India had an estimated 2.27 million people living with HIV/AIDS at the end of 2008. Since, HIV/AIDS patients are socially excluded and discriminated due to “stigma”. Hence for protecting HIV/AIDS patients, especially children and women from “opportunistic infection”, clean drinking water, personal hygiene and clean sanitation need to be ensured ensure. Appropriate coordination may be established with NACO for convergence of fund and for convergence of communication on safe use of pure water, cleanliness, personal hygiene, sanitation etc.

**(h) Gender issues:** Women and adolescent girls, not having toilets in the households are constrained to go for defecation in open, at the cost of “dignity” and “self-respect”. Women not having access to a toilet have to wait for going for “open defecation” before the sun rise in the dawn or wait for the entire day ,for sunset in the evening. Hence, for ensuring gender equality “construction and use of toilets should be given priority, in all households having female member.

Advocacy should be geared-up by women PRI members, women SHGs under SGSY/NRLM, Civil Societies to build up pressure among the male head of families for installation of toilets in households where women and adolescent girls are members of the family.

**(i) Remote and Difficult Areas:** The sanitation program (TSC) for remote and difficult areas has been taken into consideration by provision additional incentive funds (Rs 500 for IHHL) for construction of toilets in Hilly and Difficult Areas. Timelines for implementation will be based on the accessibility and special provisions to be made to ensure adequate supply of sanitary products and services in response to demand.

#### **19.5 SELF HELP GROUPS (SHGS):**

A study by the Centre for Media Studies New Delhi found that the role of SHGs in effective social mobilization in NGP villages. Hence, if planned and

coordinated properly with SGSY/NRLM, immense potential of women SHGs, can be utilized in respect of social mobilization exerting pressure on families on “gender issue” of toilets. As per Mid-term Appraisal report of 11<sup>th</sup> Five Year Plan, there were 35 lakh SHGs formed, out of which 23 lakh were evaluated as Grade-I and 11 lakhs as Grade-II and 127 lakh beneficiaries were assisted. Hence, if planned and coordinated a network of 35 lakh SHGs with about 350 members may be engaged for TSC programme.

#### **19.6 CREDIT FACILITATION:**

Banks providing credit to Self Help Groups (SHG) for construction of toilets is an option that should be pursued vigorously. A mid-term appraisal of the Planning Commission shows that in the Indira Awas Yojana, out of about 80-90 lakh houses constructed under the scheme, only about 10,000 were through credit facilitation. It displays reticence on the part of banking institutions to finance even important social sectors like housing for the poor. It may also suggest traditional habits of being debt-free by the rural people or even the cumbersome procedures of obtaining credit from banks. The Ministry may explore the option of providing a fixed capital to the banks as a kind of security for financing toilets.

#### **19.7 COMMUNICATION STRATEGY:**

Communication holds the key to the success of sanitation efforts in our country, with its myriad socio-cultural and ethno-racial diversities; a National Communication Strategy needs to be devised with great emphasis on flexibility of approach including regional and sub-regional strategies.

Training frontline workers and community leaders such as PRIs, religious leaders etc. to communicate effectively on sanitation and hygiene can increase knowledge and understanding among family members on the importance of sanitation and hygiene. Interpersonal communication should make effective use of existing social networks or interpersonal relationships (family, friends, acquaintances, neighbours and colleagues) that bind people together to enhance the communication process. IPC is a key tool in the drive for not only increasing awareness but actual toilet construction AND usage.

##### **(a) Interpersonal Communication Activities**

Conduct face-to-face and small group counseling sessions to negotiate and discuss:

- Traditional beliefs and practices that might prevent families from adopting toilets or hygienic practices
- Link between unsanitary practices and diarrhoea and other illnesses
- Toilet options and subsidies

- Train frontline workers to improve interpersonal communication skills, in particular in counseling/negotiation and storytelling.
- Strengthen interpersonal communication skills among community volunteers so they can give information and counsel effectively during home visits.
- Produce a health education tool box for frontline workers.
- Organize community volunteer-led home visits, small group educational meetings, and other interpersonal communication activities.

**(b) Community Mobilization:**

Most effective in rural settings, where communities form closely intertwined units and if supported by opinion leaders and other influential sources, change can be effectively introduced from within, making it stronger and more sustainable. Frontline workers can also play an instrumental part in promoting the mobilization in favor of certain practices. The limitation of this approach consists in the time needed and the difficulty in ensuring quality control given the huge number of communities in India.

**(c) Community Mobilization Activities:**

- Activate social networks (community leaders, volunteers, women groups) and encourage peer communication to reach remote areas in order to disseminate information about the benefits of sanitation and hygiene.
- Create mobile communication units (MCU) to mobilize communities on sanitation and hygiene issues. MCU includes basic equipment to implement educational activities in community settings.
- Train community leaders in facilitating public educational talks and dialogues in their communities about sanitation and hygiene issues.
- Produce a tool box, including a how-to guide for community leaders.
- Promote and implement participatory planning processes to involve local stakeholders in supporting key interventions.
- Reinforce information given through other channels at religious gatherings

Dialogue Fora are an integral part of Community Mobilization are open meetings, both at community or block level where some of the key stakeholders can participate and dialogue about the new practices and behaviours. Here no messages are imparted, but rather themes are raised and knowledge is shared about what will the adoption of the proposed behaviour imply and also what are the implications if those changes are not adopted. This approach aimed at having stakeholders face the issue themselves and realize the need to change. Once this happens they will become agents of change providing valuable support to the overall intervention.



According to the context, the stakeholders and the resources available, a mix of different media should be used to sensitize on key aspects of the TSC and promote key behaviors. The media to be used can range from the more common ones, such as television and radio to more innovative ones such as mobile phones as well as traditional ones, such as folk arts and theatre. Literature review shows that a mix of media is generally more effective in producing the intended change.

The most important element in any form of communication is that it has to appeal to the recipient. Entertainment oriented strategies are always more popular and reach a wider audience while making an actual impact on the audience. The make or break of any communication lies here. The more aesthetically appealing and engaging the communication is, the higher the chance of its acceptance by the recipient. Often, subtle hints, rather than overtly detailed and 'clinical' communication serve the purpose better.

Social marketing is the name given to the approach of applying lessons from commercial advertising to the promotion of social goals (in this case, improved hygiene behavior). Social marketing is not merely motivated by profit but is concerned with achieving a social objective. It goes beyond marketing alone as it is also concerned with how the product is used after it has been sold. The aim is, for instance, not only to promote latrines but to encourage their correct use and maintenance.

#### **(d) Social Marketing Activities**

- Gaining an understanding of customer behavior and drivers of consumer demand; developing, testing and delivering the marketing campaign to mobilize the community for behavior change.
- Making products, services, or behaviors fit the felt needs of the different consumers/user groups - identifying and standardizing a range of good quality options
- Developing methods for effective distribution (such as sanitary marts) so that when demand is created, consumers know where and how to get the products, services, or behaviors with the different groups.
- Ensuring availability of competent service providers, building their capacities and certifying them
- Ensuring that consumers / users are willing to contribute something in exchange and keeping the pricing reasonable so that the product or service is affordable.

## **19.8 AVAILABILITY OF WATER:**

Water availability is crucial to the success of the Total Sanitation Campaign in the country. India being a nation of “washers” with only some parts in the North-East being “wipers”, availability of water is also required to keep the toilets clean and usable. While India is on track with the Millennium Development Goals regarding source availability of water, it is essential that water is available for sanitation purposes apart from drinking water for which quantification of water availability is needed. Moreover, water has to be ensured in all seasons that would not require walking long distances to fetch it. Successful examples of some NGOs has shown that water availability was maintained through efforts made for piped water supply schemes and watershed management and other innovative mechanisms for source sustainability.

Provisioning of assured and sustainable water supply shall not only facilitate toilet construction and usage but should also go a long way in incentivising and motivating people to adopt good sanitation practices including hand washing before and after meals , post defecation, as also in maintaining cleanliness and proper hygiene within and outside houses . This would also facilitate maintaining of quality environment in the villages with correct solid and liquid waste management.

Institutions like all schools and anganwadis should also be included in the efforts towards provisioning of round the year water supply facilities with appropriate volumetric studies.

Thus, availability of enough water for sanitation purposes round the year should necessarily be taken into account on priority. A conjoint approach to water and sanitation must be adopted through convergence in the right spirit of the National Rural Drinking Water Programme (NRDWP) and the Total Sanitation Campaign (TSC).

## **19.9 IMPLEMENTATION MECHANISM:**

A dedicated implementation mechanism is needed at especially the cutting edge level as the programme has to be based on reaching out to individuals and communities on a large scale .It cannot be a one time effort but something that needs to be pursued vigorously on a sustained basis for a long time to affect habits that our prevalent from times immemorial. Studies have clearly revealed that sustainability of ODF status can be reached only after not just constant pursuance but even after the initial success so as to avoid slipback to old traditional habits.

A programme that involves behaviour change of such a large number of people must have a dedicated agency at the lowest levels of governance

involving public representatives, NGOs, CBOs etc. The role and involvement of the Gram Panchayat given its multifaceted basket of responsibilities has to be fine-tuned to have an identified agency for implementation. This is important not only for message dissemination but the people must know whom to approach for guidance in the matter.

#### **19.10 CAPACITY BUILDING:**

Capacity building is an integral component for successful implementation to handle difficult subjects like sanitation. The Group recommends establishment of a National level Institute on Water and Sanitation on the lines of National Institute of Rural Development fully funded by the Ministry for capacity building at various levels. The Group also recommends to take-up the matter with UGC and other appropriate bodies to introduce sanitation related Graduation and Post Graduation courses both on hardware as well as software aspects. A tie-up with international institutions of repute is also recommended for mandatory training of central and state officials engaged in the sanitation sector. Necessary funds may be earmarked for such purposes in advance.

#### **19.11 GOVERNANCE STRUCTURE:**

TSC is recognised as a major need-based Government programme that involves reaching out to millions of people in our rural areas. It requires a structure that may plan strategies, detail the processes with minute precision to attain the objectives, provide for the capacity building of all stake holders and ultimately have the mechanism in place to execute it.

- a) **National Drinking Water and Sanitation Council(NDWSC):** With a view to bring about inter-sectoral convergence and coordination between Ministries/Department at the Centre and the States and to get inputs from persons with recognized expertise in the drinking water and sanitation sector, a High Level Committee namely “National Drinking Water & Sanitation Council (NDWSC) has been set up in MDWS. The high level Committee is headed by honourable Minister of Drinking Water and Sanitation as Chairperson. As Members Secretaries of Planning Commission, Panchayat Raj, Water Resources, Environment & Forests, Urban Development, Industrial Policy & Promotions, Expenditure, Rural Development, Health & Family Welfare, Agriculture & Cooperation, School Education & Literacy, Science & Technology, Housing & Urban Poverty Alleviation. From states the respective State Secretaries of Karnataka, Rajasthan, J &K, Chhattisgarh in charge of Rural Drinking Water & Sanitation are also members. Besides the aforesaid Officials ten experts, three Zilla Parishad Presidents and representatives from two private sectors associations CII and FICl are also members. Secretary, MDWS is

the Member, Convenor of the Apex Committee. The frequency of the meetings of this council may be increased for effective convergence of the related issues.

- b) **National Resource Centre(NRC):** MDWS has envisioned an unique concept of introducing National Resource Centre (NRC) at the Central level with induction of qualified and experienced professional in the field of Sanitation, Economics & Finance, hydrology, water quality, M &E, IEC & Documentation, Capacity Building as Consultants. The NRC has been visualized for delivering professional inputs and advice in all aspects of Rural Drinking Water and Sanitation, mainly on policy, research and, implementation issues. The knowledge bank thus created needs to be optimally utilized for benefit of the sector.
- c) As Sanitation is not a particular Department in the States, it is looked after by the Rural Development, Panchayati Raj or Public Health Engineering Departments in the States with some instances where Water and Sanitation are clubbed together as a single Department has in Maharashtra, Punjab and Andhra Pradesh. But even in the last mentioned three States, the staff available is only of the PHE engineers.

At present, the State Water and Sanitation Mission at the State level is entrusted with the task. It is chaired by the State Secretary in charge of Sanitation/Water or the Chief Secretary of the State and includes State Secretaries of all concerned Departments. With more demand for drinking water, sanitation needs more attention. The meetings of SWSM need to be held more frequently although it generally can contribute more towards convergence between concerned Departments like health, education, tribal welfare, school education etc.

TSC being a programme that requires expertise in public communication strategies, behavioural sciences and socio-cultural inputs apart from convergence thus has to have a mechanism where appropriate assistance and guidance to Districts and sub-district levels can also be given.

A Water Supply and Sanitation Management Organisation (WASSMO) at the State level has been formed for gap filling of such requirements but is without the technical expertise necessary. A multitasking agency that can play the role as expected under the Guidelines of TSC is therefore required and WASSMO can be restructured accordingly alongwith a mechanism that would facilitate ease of functioning to it.

Similarly, the District Water and Sanitation Committees/ Missions at District level under the Chairmanship of District Collector/Zilla Panchayat requires inputs on planning, community mobilisation and execution.

- d) Both at the State and District levels, bodies should be formed possibly under the SWSM and DWSM that would report to the SWSM and DWSM but actually have the capacity and assigned role of planning and execution. There is also the need for sufficiently senior level functionaries to head these bodies if they are to be effective.
- e) The role of the Block should not be overlooked as the programme entails mass mobilisation at the village levels and may be too large to be handled merely at the District level. A Block Programme Officer should have ownership of the programme .

Commercial sanitary-ware suppliers and masonry skill services from the Block Panchayat can support this process by responding to demand for different types of technology products and toilet options at various affordability brackets. This may be through collaboration with the private sector but this can also occur through local entrepreneurs, community groups, NGOs, Rural sanitary marts or cooperatives.

Support organizations such as NGOs, CBOs, etc. may also play a facilitating role to the government institutions in community mobilization and capacity building. Partnerships formed between these institutions and the government (national, state, district or block levels) can be effective in combining the synergies to help reach the desired.

- f) Village Water Health and Sanitation Committee: Village Water Health and Sanitation Committee (VWHSC) is the lowest level of grass-root level village Institutions mandated with a very responsible task of bringing about total sanitation, improving health & hygiene ,O & M drinking water and sanitation, water testing, sustainability of water etc.

For effective functioning of Village Water and Sanitation Committees they should mandatorily be made a standing committee of the Gram Panchayats by the States. These may be the implementers of the programme at the Gram Panchayat level,

## **19.12. CURRENT METHODOLOGIES OF DATA COLLECTION:**

- a) MDWS during the 11<sup>th</sup> Five Year Plan has given priority on deployment and setting up of Central and State IMIS, Capacity Building, Content Management, adoption and integration of GIS/Remote Sensing with MIS), compliance with census administration code and sharing information in public domain through state DRD/PHED/RWSS website for promoting RTI Act, computerized grievance redressal and e-service delivery should now be evolved. The programme should also envisages the provision of computing environment at the Block/sub-division level.

- b) A comprehensive MIS system incorporating the above monitoring outcomes to strengthen the existing TSC / NGP monitoring system should be integrated into one system, with upgrades to include latest available data from processes, usage, sustainability; the MIS system will evolve composite indicators to assess the overall performance of States and districts and benchmark them against each other.

### **19.13 MONITORING & EVALUATION MECHANISM:**

Each of the following monitoring methodologies needs be planned and implemented over the 12<sup>th</sup> plan period. The assistance of professional agencies, CSOs may be taken to effectively monitor process, suitability of technology to different hydro-geological situations, quality of construction, sustainability of use and maintenance, demand creation through IEC, capacity building etc.

- a) Community level monitoring should be encouraged against the present system of tracking individual achievements. This is necessary to achieve the actual outcomes of good sanitation. The monitoring system should incorporate community level monitoring, third party monitoring and social audits of achievements. Third party monitoring through NGOs, Civil Societies and partner agencies like UNICEF, WHO etc. needs be strengthened.

#### **(a) Reconciling Monitoring Data from Different Sources:**

There is considerable variation in the status of rural sanitation coverage as reported in the MIS data of MDWS; JMP coverage status, NSSO, report etc. This needs to be addressed and reconciled and in this regard the following are suggested methods which need to be adopted in the 12<sup>th</sup> Plan Period:

- (i) A yearly/two yearly exhaustive Process Monitoring Study on Sanitation, Hygiene and Drinking Water needs to be carried out through reputed Organization.

- (ii) Effort may be made to reconcile the data before release of JMP report in coordination with UNICEF and WHO on a mutually agreed criterion for assessing the actual coverage.

- (iii) Need to coordinate with Health Ministry for incorporation of components of Sanitation and Hygiene in NHFS Studies; including usage, sustainability, open defecation, hygiene behaviour like hand washing, disposal of solid and liquid waste etc.

- (b) Carry out Independent study with bigger samples size through PEO, Planning Commission every two years.
- (c) Quality management through structured monitoring by Community, after appropriate capacity building.
- (d) Cross-checking 10% of GPs through NLMs (MDWS may consider empanelment of dedicated National Level Monitors (NLM) for Drinking Water and Sanitation, under same terms and condition as that of Ministry of Rural .
- (e) States may also engage State Level Monitor (SLM) and District Level Monitor (DLM) for randomly cross-checking 25% and 50% of GPs respectively. MDWS needs to formulate a brief structured format in consultation with states for monitoring suitability of technology to situations, types of toilets quality of construction, usage, maintenance, open defecation, hygiene behaviour safe drinking water etc.
- (f) The quality and pace of delivery by RSMs also need to be monitored.
- (g) A yearly process and progress Monitoring Study and reporting by VWHSCs should also be introduced. Joint Monitoring Committees at the district, block and GP levels need to be created and strengthened. The district water, health & sanitation committee as part of district committee should carry out the district level monitoring of rural domestic water and sanitation programmes.
- (h) Community Monitoring needs to be introduced in all GPs, after appropriate capacity building in coordination with CSOs and other Agencies.
- (i) Mobile based monitoring system using SMSs are increasingly gaining popularity as economical and effective monitoring approaches. Due to the spread availability of mobile phones, data can be collected through data collectors, transferred to servers immediately, collated and analysed immediately, to feed into program management for aiding decision making.

#### **19.14. DISASTER AND EMERGENCY SITUATIONS:**

For disaster prone-areas like flood affected areas, sanitation facilities get flooded creating health risk and hazards. Appropriate technology for Mobile Sanitary Toilets need to be explored. Various indigenous models of toilets being introduced and used in flood-affected areas by NGOs also need to be further studied and piloted before scaling up.

#### **19.15 CALAMITY FUND:**

For States particularly vulnerable to natural calamities like flood, drought, and earthquake etc., there is a need for provision of funds in a scenario where sanitation

facilities get damaged due to natural calamities. Ministry may therefore consider providing funds for natural calamities at district level (DWSM) which could be used as per defined methodology to restore the sanitation facilities. Coordination with National Disaster Management Authority under Ministry of Home affairs for convergence of fund and initiative is essential.

#### **19.16 LWE DISTRICTS:**

In 2008 in 33 Left Wing Affected districts were identified for special development initiative under the chairmanship of respective DC. At present, a total 83 districts have been included under Left Wing Affected (LWE) districts' list. It is proposed that keeping with the policy of the Government for LWE districts. States should plan and pursue focused and intensive drive for improved sanitation facilities in these districts with separate monitoring mechanism.

#### **19.17 BACKWARD REGION GRANT FUND RECEIVING DISTRICTS:**

MDWS may consider separate drive and convergence of resources for Backward Region Grant Fund Receiving Districts with separate monitoring mechanism to keep a track of progress.

#### **19.18 SPECIAL ATTENTION ON NORTH EASTERN STATES AND A & N ISLANDS:**

It would be relevant to mention that in the vision document of the Ministry of Panchayat Raj entitled "Roadmap for the Panchayat Raj(2011-2017) special emphasis has been given on North Eastern states, keeping in view level of under-development. In view of the health, sanitation and hygiene scenario in most of the North Eastern States, special initiative and monitoring should be introduced for WASH sector.

In Andaman & Nicobar Islands (A&N) beside PTGs, special provision should be made for 100% assistance for PTG communities for total sanitation and hygiene promotion.

#### **19.19 CORPORATE HOUSES**

Companies / Private foundations: Although sanitation has not been high on the agenda of corporate world in India, this is being suitably addressed in other developed countries. This can be taken as a ripe time to address the issue of sanitation to the corporate world and get the subject suitably included in their CSR agenda. Getting sanitation on the agenda of CSR can also help bring in new technologies and innovations in this field leading not only to increase in sanitation facilities but also to better technologies in terms of management of Solid and Liquid Waste at both micro and macro levels Rural Sanitary Marts (RSM): The Rural Sanitary Mart is an outlet dealing with the materials, hardware and designs required



for the construction of not only sanitary latrines but also other sanitary facilities, such as soakage and compost pits, vermi-composting, washing platforms, certified domestic water filters and other sanitation & hygiene accessories required for individuals, families and the environment in the rural areas. The main aim of having a RSM is to provide materials, services and guidance needed for constructing different types of latrines and other sanitary facilities, which are technologically and financially suitable to the area. RSMs at times, depending on their commercial model also have their own Production Centers to have cost effective affordable sanitary materials. Rural Sanitary Marts could be opened and operated by NGOs/ SHGs/ women Organizations/Panchayats etc. Support of private entrepreneurs may also be taken for ensuring an effective supply chain.

India has been emerging as one of the global forces in terms of industrial development. The corporate sector has emerged as leader of development. Of late, the concept of corporate citizenship has also gained momentum in the corporate world. Although sanitation has not been high on the agenda of corporate world in India, this is being suitably addressed in other developed countries. This can be taken as a ripe time to address the issue of sanitation to the corporate world and get the subject suitably inculcated in their CSR agenda.

A convergence with corporate houses can yield positive results in bringing together for the cause of sanitation and help augment the activities under TSC in the adjoining rural areas of respective industrial belts. Getting sanitation on the agenda of CSR can also help bring in new technologies and innovations in this field leading not only to increase in sanitation facilities but also to better technologies in terms of management of Solid and Liquid Waste at both micro and macro levels. A positive interaction with the corporate houses can be initiated focusing TSC to influence the corporate world to suitably incorporate sanitation in their CSR policy.

Corporate houses and NGOs can also be entrusted with multi-panchayat level schemes with assistance from the respective district units.

#### **19.20 SOCIAL AUDIT:**

Transparency and accountability are the keys to better governance. Social audits for various rural domestic water and sanitation programmes need to be mandatory at three key tiers of rural governance –GP, block & district level. The provisions have since been introduced in the TSC guidelines also. However these need to be effectively implemented in the field. Community based participatory monitoring of these programmes involving GPs, other relevant govt. line departments (PHED, P&RD) etc. and the villagers needs to be commissioned.

### **Gandhiji's Technique ..... A potent weapon for TSC**

In the fight against open defecation, 16<sup>th</sup> November 2006 is etched as a historic day not only for Sidlipura GP, Bhadravathi Taluk but also for the entire Karnataka State. This was the day when Sri Babu, Vice President, Sidlapura GP undertook fasting Satyagraha to achieve 100 % toilet coverage in the village. All have heard of protests / satyagraha for wage rise, road construction, drinking water provision etc. But Satyagraha for toilet .....unheard off but yet was a reality by this enterprising Vice President.

For the last 7 – 8 months, the Total Sanitation Campaign was being implemented successfully in all the 5 villages coming under this GP. Construction of individual household toilets was almost complete except for 28 households living in A. K. Colony. This backward community was averse to having individual toilets citing one reason or the other like the flowing river by the side, growth of thick bushes etc being conducive for practising open defecation.

To overcome the above hindrance to Sanitation and hygiene in the village, the Gram Panchayath members engaged a J C B and ensured that all the bushes, weeds etc in the surrounding were uprooted, cleaned and levelled the ground. The members also took a conscious decision and reduced the food grain ration to those houses which did not have a toilet. Still the colony people were stoic and unmoved. Just as freedom was a passion dear to Gandhi, 100 % toilet coverage was dear to Sri Babu. Having exhausted all methods of persuasion, this genius Babu embarked on the Gandhiji's non – violent weapon - Satyagraha. On the morning of 16<sup>th</sup> November 2006, Babu sat in the Temple belonging to A. K. Colony and started his fasting Satyagraha without water or food.

Finally unable to withstand this non violent emotional threat for a noble cause, the A. K. Colony people in unison agreed to Babu's wish of each of them having a household toilet. Babu broke his fast and started assisting the Colony people in digging of pits, laying of pans and the super structure of the toilets. Thus 16<sup>th</sup> November became a red letter day in the history of Siddlipura GP for having achieved 100 % toilet promotion leading to 'Open Defecation Free' Gram Panchayath. The success in Sidlipura GP demonstrates that anything is possible with true conviction and right strategy.

## 19.21 ROLE OF CIVIL SOCIETY:

Civil Society can play a key role in facilitating 'development planning capabilities' at the GP level. CSOs should also be involved in monitoring the implementation of plans and to check whether the funds were utilized optimally.

- a) Every state needs to engage with the community to prepare a community-led "Citizen's Charter". It should also ensure sufficient participation by various socially disadvantaged groups (including the women and disabled) in the process. CSOs can effectively facilitate such endeavour.
- b) Lack of reliable data about the disadvantaged groups' hampers planning and execution of the various programmes and leads to inequity. Hence, it will be important to map, the geographical and socio-economic exclusion to address the equity issue. A space should be created for the CSOs in order to effectively engage them in process.
- c) Joint Monitoring Committee by PRIs and CBOs need to be created and strengthened for comprehensive monitoring and evaluation of the water, Sanitation and hygiene promotion.
- d) Community-based organizations (CBOs) formed through the societal process should be harmoniously synergized with PRIs and viewed as nurseries of learning for grassroots democracy and local planning and implementation. CBOs set up by government departments in the PRI domain must have a clearly-demarcated functional space and a well-structured working relationship with the Panchayati Raj Institutions (PRIs).

## **Changing the face of rural hygiene: West Garo Hills**

Total sanitation Campaign was launched in West Garo Hills in 2004 and is implemented by District Water and Sanitation Mission (DWSM). At the beginning of TSC programme in the district, only 5% households have safe toilets. Of the rest 76% had unsafe toilets and 19% practiced open defecation.

To bring about a radical change in achievement of the sanitation objectives, the DWSC adopted first an improved institutional mechanism and community approach to total sanitation to effectively bring out a change in the entire community. DWSC has put a dedicated team at the district level and block level, entrusted with specific responsibilities, appropriate reporting and co-ordination. Transparency, accountability, effective monitoring and reporting mechanism were identified as the building blocks of garnering community support.

TSC is all about behavior change which requires personal approach. It was also observed that a one-to-one and community approach yielded excellent results instead of big hoardings and other such IEC tools. It was thus decided to launch a more comprehensive community approach to bring about behavioral change. Community based approach helps to change the sanitary behavior of the community, focusing on igniting/ triggering a change in sanitation behavior rather than on constructing toilets. It makes the people realize the link between open defecation and negative health impacts. However, this happens through a process of social awakening that is stimulated by facilitators from within or outside the community.

Transparency and accountability were identified as the building blocks of garnering community support. Follow up by the community was the main agenda to ensure community participation and usage. The tribal society has a lot of respect for commitments given and, to emphasize this fact, a Social Agreement was designed in the local language. The approach adopted gave exceptional results. It proved the faith imposed in community participation and its linkage to the success of the programme.

### **19.22 YOUTH CLUBS:**

Youth are the most potential energy for socio-political-transformation of India, in rural areas NCC, Youth Clubs will be strategically engaged in Social Mobilization, IPC and masonry work of sanitation. Nehru Yuva Kendra has a network of about more than 1.5 Lakh Youth Clubs across the country. Nehru Yuva Kendra may be engaged in training the members of Youth Clubs.

### **19.23 ACADEMIA:**

The two main functions of academic institutions, teaching and research can be harnessed to support the sanitation sector. There is a serious lack of qualified human resource, both in the social mobilization for demand generation and sanitation technology arena. Additionally, research into innovative approaches in various components of sanitation, including sanitation technology, psychology and approaches of community and individual behavior, monitoring and evaluation of outcomes and impacts, are some of the other areas which are required for the sector. Both these needs, of teaching and research, may be met through the involvement of academic institutions.

### **19.24 NATIONAL CAPACITY BUILDING FRAMEWORK (NCBF) :**

NCBF formulated by MPR lays-down a comprehensive framework for building the capacity of PRIs. NCBF describes the preparatory activities, building up of the training infrastructure, developing a pool of resource persons, range of handholding activities required to sustain a capacity development effort, planning the logistics of implementation, and monitoring & evaluation of the capacity building efforts. It suggests training programmes in a range of areas, including the Centrally Sponsored Schemes (CSSs), indicating the duration, sequencing and the target category with timelines for completion of the training programmes, norms for strengthening the training related infrastructure and the pedagogical software.

### **19.25 INTER-DEPARTMENTAL EFFORTS:**

MO PR is in discussion with Ministries handling major Panchayat-centric CSSs (MNREGS, NRHM, SSA, Literacy Mission etc.) on the issue of synergy in design, content and implementation of the training Programmes. A meeting with the relevant line Ministries, for example, recommended that the Saakshar Bharat Programme should have special focus and the States should undertake special drive to develop trainers and training materials for the purpose utilizing the technical inputs from Saakshar Bharat. Similar efforts may be taken in respect of MDWS in consultation with MNREGS, NRHM, SSA, Literacy Mission etc.

**19.26 DISTRICT AND BLOCK RESOURCE-CUM-TRAINING CENTRE (D/BRTCS):**

As of now, 2243 BRTCs have been sanctioned for 22 States under BRGF and 191BRTCs for 4 States under RGSY. More DRTCs and BRTCs need to be set up for providing institutional training close to the people and scene of action. It is also important to functionally integrate these centres with the existing arrangements for CBT activities and equip them with appropriate manpower that may be admissible under BRGF and other schemes. The BRTCs set up under BRGF may coordinate with BRCs set up by MDWS and similar block level centres set-up under other schemes for training and support to Gram Panchayats.

## **Chapter 20 - WAY FORWARD**

### **20.1. Vision and Goal:**

Rural sanitation with implementation of TSC over a decade now has come to a phase wherein there is a need for consolidation of achievements made. The implementation therefore needs to concentrate on lower project entities, say blocks / Gram Panchayats and saturate them with cent percent sanitation coverage so as to attain Open Defecation Free (ODF) Gram Panchayats as one of the outcome of Total Sanitation Campaign.

### **20.2. Linkage with Health:**

Sanitation is now universally recognized as a basic determinant towards maintenance of community health. It is as such imperative that greater focus is laid on preventative aspects of public health for which sanitation is a major contributor and a major factor in reducing the drop-outs rate in schools, particularly of the girl child. Linkage between health, education and sanitation needs to be recognized and integrated with adoption of a holistic approach to improve the quality of life in rural areas.while providing sanitation facilities in schools to promote the goal of equitable education for all that would assist in retaining children in school. Health improvement is one of the best impacts of efficacy of effective implementation of TSC programme although there are other contributing factors. However, it can be measured by reduction of sanitation related diseases/illness; reduction of IMR, Reducing Diarrhoea Morbidity especially among children. Health improvement is one of the best impacts of efficacy of effective implementation of TSC programme although there are other contributing factors. However, it can be measured by reduction of sanitation related diseases/illness; reduction of IMR, Reducing Diarrhoea Morbidity especially among children.

### **20.3. Right to Sanitation:**

Safe drinking water, sanitation and good hygiene are fundamental to health, survival, growth and development. In July, 2010, India along with other 121 countries unanimously voted in favor of right to WASH in the United Nations General Assembly. The UN General Assembly adopted, an orally advised, a resolution calling on countries and international organizations to provide financial resources build capacity and transfer technology, particularly to developing countries, in scaling up

efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all.”

Defining sanitation as a human right shall make a difference. Hence the Working Group recommends that the process of “Right to Sanitation” may be initiated as constitutional provision which is legally enforceable right, for which appropriate models for practical implementation need to be studied and worked out.

#### **20.4. Conjoint approach to Sanitation, Water and Hygiene Promotion**

To enable sustainable integrated community managed water supply and sanitation schemes to be realized, the empowerment of local government requires the decentralization and devolution of the roles and responsibilities currently centralized in PHED/RD so that more locally appropriate approaches can be developed. Experience in the water and sanitation sector in other countries and in the region has proven conclusively that hardware (infrastructure) alone is not enough to deliver health benefits from water and sanitation interventions but that improved hygiene and sanitation practices coupled with safe drinking water are the most important determinants of improved health from investments in water and sanitation. Improved hygiene and sanitation practices are not aspects of 'infrastructure developments' but require a range of people centered (software) initiatives, in order for the benefits of the infrastructure provided to be realised.

#### **20.5. Phased Approach:**

A great deal of effort is required to sustain the gains of the adoption phase to ensure that slip-backs do not occur. Such a phased approach would make it possible to achieve universalization with quality, based on a process truly driven by demand from a community that is committed to improved sanitation, being fully informed about its benefits and, therefore, willing to take ownership of the campaign.

A phased approach to achievement of goals may be followed through focused implementation. Therefore, the first issue to be addressed is the achievement of ODF followed by ODF+ activities such as improved hygiene and management of solid and liquid wastes. All activities must be undertaken simultaneously with however more focus on activities as suggested below:





## 20.6 STRENGTHENING A DECENTRALIZED, INCENTIVE BASED APPROACH:

**20.6.1** The cornerstone of strengthening a decentralized, incentive based approach to achieve Rural Sanitation objectives and ensuring sustainability and inclusion approach is that the Gram Panchayat plays a central role in achieving the sanitation outcomes in the villages under it. The GPs could be incentivized on a staggered basis to motivate them to achieve Total Sanitation and also sustain it in a community led approach. Gram Panchayat should give due weightage and take into account any resolutions taken in Ward/Pally Sabha/meetings to ensure that the voice of the vulnerable groups are heard. The approach would include a financial support to the GP to achieve desired milestones. The approach could be broadly based on the following process:

- **Approach:** It is proposed to adopt two pronged approach to achieve the National Goal. One is to saturate the command area of PWSS parallel with sanitation measures to ensure that toilets constructed are properly used also. Also accord priority in selection for PWSS schemes to villages where TSC has reached identified milestone; provide on priority a public handpump within 100 m for households in villages with lesser TSC coverage. The other approach is to give priority to provide focus additional fund to GPs which has attained higher level of coverage to ensure that ODF status is attained within short time frame. The detail of these approaches needs to be worked out.
- **Fund Transfers:** On adoption of a resolution by the Gram Panchayat, a fraction of the financial support (total number of households x amount allocated per household and other components of project outlay) could be released to the GP/VHWS/NGO. This would ensure that the poorer households are supported to access sanitation facilities.
- **Specific mode and time line** by which funds are transferred could be specified and also the entities that handle funds and the system of utilization report.

Seamless and time bound flow of funds to the expenditure levels or just-in-time delivery of funds would both require Information Technology for electronic tagging and for tracking of funds.

- Specific measures to build competencies at the appropriate level with training programmes, modalities of training, basic core content and pedagogy, FAQs, self-learning tools, IEC literature etc. could be met from the total funds earmarked as non-divertible for the purpose. The method by which accountability will be measured and enforced needs shall be defined. The guidelines may also specify how the data on the planning and implementation of the Scheme will be placed in the public domain through suo-moto disclosures, its process and Periodicity. Details are required of the annual audits and evaluation mechanisms prescribed. Systems for financial accountability may be put in place taking care not to violate specific financial rules and guidelines.
- On achievement of in between milestones defined/ODF, the GP will receive the remaining part of the project outlay.
- On achievement of total sanitation (ODF, SLWM, hygiene behavior, etc.), the GP shall receive the NGP.
- An award could also be evolved for sustained usage, after a minimum of one year.
- A key requirement of this approach would be a strong, robust, first and third party monitoring system, which effectively tracks and validates the outcomes achieved and sustained by the GPs
- Districts should be given flexibility to allocate more funds for hardware implementation to the GPs where effective demand for sanitation exists and the GP has already achieved certain milestones of sanitation coverage. Districts may have flexibility to allocate more funds for software activities to the GPs which lag in sanitation coverage and to those that need effective demand generation.

#### **20.6.2 Financial Incentive for grass-root level workers:**

It is established by now that sanitation complex social issue difficult to implement. The various stake holders also there need to be recognized for their efforts made in achieving sanitation outcomes at community level. The Group therefore recommends that on successful achievement of NGP, the grass root level workers like Swachhata Doot, ASHA, SHG Members, members of VWSCs etc. may also be considered for incentive after attaining one year of ODF status.

#### **20.6.3. Fund for repair of defunct/disused toilets and O & M**

Provision of fund is also required to be made for major repairs of the damaged/defunct sanitation facilities to bridge the gap between access and usage of sanitation facilities and assisting Gram Panchayats to attain open defecation free status in real terms.

#### **20.6.4. Financial Incentive:**

It is obvious that quality sanitation is not possible within the kind of funding that has so far been provided or encouraged for TSC. The maximum incentive offered currently is Rs 3200 per IHHL for BPL families (Rs 3,700 in hilly and difficult areas). Although the quantum of financial assistance has been revised however the costs needs to be further studied in various hydro-geological situations for a toilet with water provision, sustainable super structure, appropriate durable hardware with rural pan, with an off-the pit (two pits) latrine. Hence, it is recommended that after studying the cost of a standard toilet (for different area) the incentive component of TSC should be further revised for sustained sanitation in the 12<sup>th</sup> Plan.

States, as per feedback received from them, have been vocal on local conflicts arising from status of APL/BPL discrepancies in the Gram Panchayats and the necessity of sanitation coverage of entire communities to achieve universal health outcomes. Further, it is an established fact by now that benefits of sanitation are maximum where community as a whole becomes ODF. Non-financing APLs has been one of the stumbling blocks for making communities ODF. The Group therefore recommends appropriate motivational monetary incentive for APLs for community level outcomes.

#### **20.6.5. Rewarding sustainability:**

With a view to encourage Panchayat to perform effectively, financial incentive may be introduced for PRIs for effective management of sanitary and water systems and tariff recovery efficacy. This can result in sequential financial independence for water and sanitation systems. Performance matrix may be utilized for incentivizing the Panchayats showing efficient management in terms of achieving sustainable total sanitation and controlling slip backs and devolving management of PRIs.

#### **20.6.6. Toilet should be provided with assured supply of water:**

Although the studies carried out by different agencies reveals that only marginal numbers of household (3-4%) mentioned that lack of water is the cause of not having toilets but it needs to be ensured that the two activities that is provision of drinking water and sanitation facilities are taken up in convergence/jointly in every village. It is recommended by the Working Group that provision of 'piped water supply system' with higher level of supply could be an incentive for attaining & sustaining NGP Status for more than a year.

### **20.6.7. Revised incentive for ODF villages:**

Some of the studies carried out to ascertain the status of NGP GPs revealed that some of the Nirmal Gram achieved GPs have slipped back to non-ODF GPs. As such MDWS of late has made the criteria for selection for NGP more stringent. The Group recommends in this regard that the NGP award may be given in two installments as at present but the 2<sup>nd</sup> installment may be released to the awardees only if one year of continuous use of toilets by all households in the GP is conclusively verified. Hence NGP guideline may be revised accordingly along with any other suggestion by sector specialists for ensuring sustainability of sanitation in awarded GPs. The Group also feels that the award money in respect of GPs was decided as early as in the year 2005 and has effectively reduced in value because of general rise in prices coupled with the fact that the award is given in two installments. The ministry may therefore, make efforts to revise the award amount substantially so as to make it commensurate with the efforts made by PRIs in becoming the GP Nirmal.

### **20.7. INSTITUTIONAL MECHANISM & STRENGTHENING**

In the 12<sup>th</sup> FYP it is provision is proposed to be made to provide baskets of option to be given to States for implementation the programme at the GP level through PRIs, SHG, NGOs, and CBOs etc. To ensure participation of beneficiaries in planning, construction, operation and management of TSC programme VWSC should be should be the Standing Committee of G.P.

It is also recommended to evolve the current WSSOs by having an institutional mechanism that is multi-tasking, more active It should be headed by an All-India service officer of suitable seniority at State level. A dedicated Group 'A' level official functionary on deputation under DWSSM at District level may be engaged to plan, coordinate & implement the TSC programme. Further to strengthen the man-power at the GP level the provision for engaging Jalsurakshak (under NRDWP) and Swachchhata Doot (under TSC) at GP level to be recruited, sensitized and trained

### **20.8. COMMUNICATION STRATEGY (IEC):**

In the TSC guidelines maximum focus has been given on IEC for demand creation and sustainable change of behavior and accordingly up to 15% of the project outlay is earmarked for carrying out decentralized IEC activities in the states. The on-line data, however, reveals that there is need to strengthen the present approach of implementation of IEC component. Some of the suggestions in this regard by the group are as follows

- (a) While the strategy to promote sanitation through demand generation is useful, depending only on IEC may not meet the purpose. More focus is needed on effective inter-personal communication for triggering behaviour change.
- (b) Sustainable IEC: For ensuring 100% usage and adoption of proper hygiene practices post construction of IHHL, the IEC component of 15% fund of the project cost may be proportionately divided for pre and post IEC activities
- (c) Adequate trained personnel are required to promote sanitation at the grass root level.
- (d) Fund needs to be allocated for intensive campaign on sanitation and hygiene promotion through television, radio and other mass media. Allocation of funds for IEC at the Gram Panchayat level, rather than only at the district level, can provide scope for more effective IEC tools to enhance demand. A dedicated core group needs to be formed in each village for carrying out “Inter-personnel Campaign” at the grass root level.
- (e) Working Group recommends appointment of a dedicated grass-root level worker (**Swachchhata Doots**) at the village level under the respective GP responsible for promoting sanitation while the GP can provide support through IEC tools as per the context and social needs of the community. They can be incentivized linked to the effective demand generation and improvement in sanitation coverage. A data base of such sanitation messengers could be created through on line system for effective monitoring of the progress.
- (f) Since Cinema is the most entertaining format among the mass media having advantage of being repeatedly viewed for couple of years, the Group recommends that an **Entertaining Feature Film** with subtle messages on drinking water, hygiene and sanitation, in the pattern of “Manthan” on cooperative dairy by Amul should be produced by MDWS in coordination with NFDC for co-production and marketing in Cinema Halls, TV Channels, DVDs. The fund invested will be harvested back from the revenue generated.
- (g) All BRCs/Block Panchayat should be equipped with appropriate set of gadgets for exhibiting Films in villages of GPs under the Block as per a plan.
- (h) Preferably in each GP or at least in each Block/GP, one core cultural team (e.g. street theatre group ,folk music troop, puppet show group etc.) may be built up for Mid-Media Activities, Social Marketing and Social Mobilization drive in each village.
- (i) In BRC, an IEC functionary should be engaged and in each GP several teams should be selected for social mobilization.
- (j) Every year countrywide sanitation campaign should be launched on identified day say 2<sup>nd</sup> October for a particular duration depending on need and priorities of issues.
- (k) The Working Group recommended that Innovative Communication Strategies are required to trigger behaviour change and should be based on target oriented approach.
- (l) It is also proposed to have further decentralized IEC activities to be taken up by mandatory formation of Village Water & Sanitation Committee in all States as

Sub-Committee of GP with local health, education, rural development officials and Swatcha-Doot and Jalsurakshakak as special invitees at the Gram Panchayat level giving due priority to Inter Personal communication (IPC) and door to door campaign. Provision to ensure post- NGP IEC activities are also proposed to sustain the status. Block Resource Centres (BRCs) already set up in States will serve as an extended delivery arm in terms of software support from the district/block and act as a link between the District Water and Sanitation Mission and Gram Panchayats.

## **20.9. PRIORITY ON SOLID AND LIQUID WASTE MANAGEMENT:**

The TSC guidelines state that ‘PRIs are required to put in place mechanisms for garbage collection and disposal and for preventing water logging. Up to 10 per cent of the project cost can be utilized for meeting capital costs incurred under this component. Under this component activities like common compost pits, low cost drainage, soakage channels/pits, reuse of waste water, system for collection, segregation and disposal of household garbage, etc. may be taken up.’

A clear roster of options and activities needs to be developed and disseminated through the best training institutions in India. A large number of Master Trainer Organizations need to be developed within each state, which would in turn build capacities of functionaries and people’s representatives at the GP level.” Hence in the 12<sup>th</sup> Plan a target to cover up to 50% villages with functional SLWM may be taken up with following strategy:

- (i) For effective implementation of SLWM, it may be converged with MNREGA
- (ii) States may be encouraged to go for district specific tie-up with CSOs & corporate houses, after adopting “outcome based community centric” model.
- (iii) Exhaustive capacity building of PRI representatives on SLWM may be taken up, followed by exposure visit to be arranged in other parts of state and outside the state. MDWS may play a key role in coordination in arranging exposure visit in other states.
- (iv) R & D on cost-effective models to be explored
- (v) In each block, one model GP village with SLWM to be targeted as pilot for replication.

## **20.10. OPERATION AND MAINTENANCE**

Sanitation facilities, if not maintained properly shall always result in slipping back of entire community to open defecation status. Therefore there is a need to provide funds for operation and maintenance at the Gram Panchayat level which could be used as per the defined methodology to maintain the sanitation facilities. Working Group recommends that a minimum of 10% of the project funds should be earmarked for O&M and repair of toilets in the form of grant/loan component under TSC.

## **20.11. CALAMITY FUND**

It has been observed in States particularly vulnerable to natural calamities like flood, drought, and earthquake etc., there is need for provision of funds in a scenario where sanitation facilities have got destroyed due to natural calamities. The group therefore recommends providing funds for natural calamities at district level which could be used as per defined methodology to restore the sanitation facilities. The modalities for funding under calamity fund needs to be worked out.

## **20.12 INCLUSIVE APPROACH FOR VULNERABLE COMMUNITIES AND AREAS.**

- a) In conformity with the thrust of Government of India for inclusive growth vulnerable communities like SCs, STs, PTGs, NTs, DNTs, Minorities in Minority Districts, Physically disabled, People affected with HIV should be brought under the ambit of financial assistance. Differential funding for needy groups may be provided to fulfill their specific sanitation needs. Disabled friendly toilets should be constructed in institutions and appropriate technology should be explored and provided in the households to suit the requirement of normal as well as differently abled.
- b) Focused social mobilization and IEC drive should be considered for vulnerable areas like North Eastern States, Minority Districts, LWE districts, BRGF districts etc. and separate data should be maintained for focussed approach for each category.
- c) States should be mandated through appropriate government resolution for inclusion of participation of women and excluded communities in WASH committees. Provision for girl friendly toilets with suitable water facilities and for safe menstrual management in all the existing schools is recommended. Facilities need to be developed, especially in rural schools, so that girls can have sanitary napkin free of cost or at affordable price. Appropriate waste disposal technology needs to be developed & promoted. Information should be provided in schools about personal and menstrual hygiene within the frame work of “comprehensive sexual education”, not only to boys and girls, but also to males and females.
- d) Districts with high SCs and STs concentration should be identified for special allocation as per revised guidelines suggested by Planning Commission appointed Task Force on SCSP and TSP .
- e) Percentage of budget spent and physical performance achieved on monthly basis for SCs, STs, PTGs ,NTs ,DNTs, Minorities, PCs, HIV/AIDS patients, LWE districts, BFG districts, minority districts, North Eastern States may be introduced w.e.f.12<sup>th</sup> Plan.
- f) Monitoring and evaluation of coverage of SC/ST/Minority and other Under-privilege Groups needs to be carried out every year on a holistic manner.

### **20.13 CONVERGENCE:**

- Convergence with sanitation, water and hygiene promotion
- Special emphasis on convergence with all related Departments and Programmes like MNREGA in respect of digging and construction, with NRHM, ICDS for converged IPC and Social Mobilization through ASHA and Aanganwadi workers, NACO in respect HIV/AIDS patients, Ministry of Panchayat Raj in respect of capacity building of Panchayat leaders, Ministry of HRD and State Education Department, CBSE, ISC etc. for inclusion of chapter on health, sanitation, hygiene and drinking water in school syllabus, mobilization of teachers and students in sanitation campaign, school cabinet etc. Coordination is also required to be established with the Ministries of Health, Women and Child Development and Panchayat Raj for strengthening of VEC.
- Convergence with the Ministry of Social Justice and Empowerment may be planned for mainstreaming WASH for SCs/STs etc and eradication of manual scavenging.
- Convergence in TSC with other centrally sponsored schemes like PURA, IAY, and Adarsh Gram Yojana should also be adopted at all levels in a parallel stream.

### **20.14 SCHOOL SANITATION:**

As mentioned earlier SSHE is an important component to ensure universal sanitation coverage in rural areas of the country. While with the present pace, the project objectives of identified schools and anganwadis without sanitation facilities are likely to be covered by the 1<sup>st</sup> year of XII Plan, there is a need to expand the scope of the campaign to progressively cover government aided rural schools without sanitation facilities to achieve the universal sanitation in real terms. Suitable provisions in the Campaign during XII Plan should accordingly be made.

Provision for water for sanitation in Schools and anganwadis is also necessary.

Creation / conversion of sanitation facilities so as to make them disabled friendly should be envisaged. The schools surveys undertaken by ASER may be adopted as reference to cross verify school coverage and used for development of planning for schools in this regard.

### **20.15 COMMUNITY TOILETS:**

The present concept of community toilets is limited to provisions for landless and floating population apart from provisions at common places like bus stands and



market places in the rural areas. The Group recommends that effort may be made to tie-up with concerned Authority like NHAI to provide public toilets, along Highways. Further, efforts may be made to bring out Government orders to make appropriate sanitation facilities essential for petrol pumps, restaurants and dhabas. The issue regarding operation and maintenance of such facilities may also be suitably addressed.

## **20.16 INCREASED FOCUS AND EMPHASIS ON USAGE**

One of the important policy change to be implemented in XII Plan to achieve expected outcome of ODF communities should be to shift focus from access to emphasis on usages. TSC guidelines provide for evaluation of TSC implementation to assess usage of sanitation facilities along with quality of implementation for mid-course correction to achieve the intended results. While Government of India has made such efforts successively, it however appears that there are hardly any studies carried out by the States to independently assess their own sanitation situation in the rural areas. The Group therefore recommends that independent study for each State may be made mandatory atleast once in two years linked to the release of funds to assess the actual progress made and gainful utilization of funds released in the previous years. The Group also recommends provision of funds for repeated decentralized IEC in the PRIs which have achieved 100% sanitation coverage.

## **20.17 ROLE OF CIVIL SOCIETY**

Civil Society (CSOs) needs to play a key role in facilitating 'development planning capabilities' at the GP level. CSOs should also be involved in right from policy formulation, planning, project implementation, monitoring the implementation of plans and to check whether the funds were utilized optimally.

- a) Every state needs to engage with the community to prepare a community-led "Citizen's Charter". It should also ensure sufficient participation by various socially disadvantaged groups (including the women and disabled) in the process. CSOs can effectively facilitate such endeavour.
- b) CSOs should also be engaged for development of effective community driven service provision models
- c) Lack of reliable data about the disadvantaged groups' hampers planning and execution of the various programmes and leads to inequity. Hence, it will be important to map, the geographical and socio-economic exclusion to address the equity issue. A space should be created for the CSOs in order to effectively engage them in process.

- d) Joint Monitoring Committee by PRIs and CBOs need to be created and strengthened for comprehensive monitoring and evaluation of the water, Sanitation and hygiene promotion.

#### **20.18 SENSITIZING POLITICAL LEADERSHIP:**

The political leadership at national, state and district levels needs to be sensitized on the principles of demand driven approaches to total sanitation, to enable high level political support for sanitation. The political support is also essential to enable adequate funding to be provided to the sector. The Group therefore recommends addressal of the sanitation issue at the level of Chief Ministers, Ministers, and other political representatives to convey messages of priority they attach to sanitation. The Ministry may consider holding annual conference of Ministers in-charge of sanitation from all States to sensitize political leadership.

#### **20.19 DISASTER AND EMERGENCY SITUATIONS:**

The Group recommends special provisions to address sanitation in disaster and emergency situations through information on specific requirements for emergency sanitation, developing disaster and emergency preparedness plan to ensure a timely response to sanitation issues such as toilets, garbage disposal, availability of water substitutes for cleansing/disinfecting, dealing with illnesses and controlling rodents and insect breeding. The calamity fund recommended earlier may also be used for the said purpose.

#### **20.20 BROADER MENU OF TECHNOLOGIES**

Under TSC programme there is further need to provide range of technology options for immensely diverse geographic, hydrologic, climatic, and socio-economic conditions, high water table, flood prone, rocky ground, desert/water scarce areas, and extreme low temperatures. The Group therefore recommends development of cost-effective models of low cost superstructures using hollow bricks, tin sheets, bamboo super-structure, plastic & dust wood made module door panel etc. which may be widely propagated through partnerships with civil societies. A dedicated institutional mechanism for pursuing Research and Development works coupled with sufficient fund allocation may be created at national level for desired outcomes. The Group also recommends differential level of incentives for different technology options against evidences to promote broader menu of technology. Technology options needs to be promoted based on region based appropriate plurality of models.

#### **20.21 REGULATIONS FOR SAFE ENVIRONMENT:**

While strategy under TSC has been to incentivise creation and use of sanitation facilities, there is a need to introduce and support existing regulations for safe

environment. The Group therefore recommends that the Ministry may consider showcasing case studies of various Panchayats on legal step taken against open defecation for enabling Panchayat in building up social norm against open defecation. Further, the State government may be encouraged to introduce regulations making it obligatory for PRI to ensure that all households in the GP have access to sanitation facilities.

#### **20.22 MONITORING:**

Monitoring as explained earlier is an important aspect for quality implementation of any flagship scheme. The Group therefore recommends all out efforts in the XII Plan to introduce latest concepts of effective monitoring and reconciliation of data received through various sources for consolidated reporting on sanitation status as a nodal agency. Further, since the Department has already upgraded to a Ministry status, the Group recommends dedicated monitoring directorate for continuous and effective monitoring coupled with sufficient funds. The Group recommended that new assessment of the Status of coverage needs to be carried out with major emphasis on the status of coverage of SC and ST and other deprived groups. The rural sanitation coverage reported by census 2011 may be taken as base for revised project objectives to be identified for 100% access to sanitation facilities by all rural households in real terms. There is also a need to identify defunct/misused sanitation facilities through effective monitoring. The online monitoring system maintained by the Ministry need to be upgraded to evidence based on real time monitoring in convergence with identifications like BPL card number / UIDAI in addition to visual evidences. Effective mechanism for monitoring and to identify the status of the persons residing in the most remote village needs to be in place.

#### **20.23 CAPACITY BUILDING:**

Capacity building is an integral component for successful implementation to handle difficult subjects like sanitation. The Group recommends establishment of a National level Institute on Water and Sanitation on the lines of National Institute of Rural Development fully funded by the Ministry for capacity building at various levels. The Group also recommends to take-up the matter with UGC and other appropriate bodies to introduce sanitation related Graduation and Post Graduation courses both on hardware as well as software aspects. A tie-up with international institutions of repute is also recommended for mandatory training of central and state officials engaged in the sanitation sector. Necessary funds may be earmarked for such purposes in advance. Other measures recommended to be taken for capacity building at all levels are

- States to identify institutions for training and capacity building of all stake holders particularly grass root level functionaries and Swachata Doot. BRCs needs to be established and made functional
- For training of State and District level functionaries (ToT) Key Resource Centers may be identified in addition to the National Level KRCs.
- Special training of local daily wager / SHG etc for O&M and repair of defunct/damaged toilets under NRLM/TSC

#### **20.24 RESEARCH & DEVELOPMENT:**

Research and Development has been a weak area as evident from the pace at which new and appropriate technologies have been developed/introduced in the sector in the past. The Group therefore recommends for Ministerial level tie-ups with R&D institutes of repute for evolving suitable technologies. The Group also recommends utilisation of funds in R&D as one of the parameters of effective administration of any flagship scheme.

## Chapter 21- FINANCING & MONITORING SANITATION PROGRAMME

### 21.1 FINANCING

#### **(i) Reaching the Poorest of the Poor**

While the policy of Government of India under TSC has been to disburse incentives to the BPL households, considered the poorest in the rural areas, poverty continues to be a curse and a barrier for accelerating rural sanitation coverage. We therefore need to continue with the practice of incentives for sanitation facilities with corrections as may be required to get the intended results. A key driver of change to achieve the vision of Nirmal Bharat is an approach which is driven by incentives for achievement of various milestones at individual and collective levels.

#### **(ii) Financing School/Institutional Sanitation:**

Assistance for institutional sanitation such as school/anganwadi/health Centre sanitation facilities, community solid/liquid waste management facilities also need to be continued. Further, in order to achieve total sanitation in real terms, there is a need to finance/facilitate construction of toilet facilities in Government aided and private rural schools in a phased manner once the project objectives of having sanitation facilities in all Government schools is completed. Similarly, many of the Anganwadis are operating from Panchayat Bhawans, rented buildings, schools, other kachcha/pucca structures. There is a need to finance/facilitate construction of toilet facilities in Anganwadis operating from other than government buildings in a phased manner once the project objectives of having sanitation facilities in all Government Anganwadis are completed.

#### **(iii) Tapping Diverse Funding Sources:**

Within the ambit of the above principle, there is a need to promote alternative financial sources like 13<sup>th</sup> Finance Commission, Public Private Partnerships to engage with the private sector / development sector, banks and micro finance institutions

### 21.2. Financing for Sustainability:

#### **(i) Operation and Maintenance**

Sanitation facilities, if not maintained properly shall always result in slipping back of entire community to open defecation status. Therefore there is a need to provide funds for operation and maintenance at the Gram Panchayat level which could be used as per the defined methodology to maintain the sanitation facilities.

#### **(ii) Calamity Fund**

It has also been observed by States particularly vulnerable to natural calamities like flood, drought, and earthquake etc., the need for provision of funds in a scenario where sanitation facilities have got destroyed due to natural calamities. Therefore there is a need to provide funds for natural calamities at district level which could be used as per defined methodology to restore the sanitation facilities.

#### **(iii) Fund for repair of dysfunctional toilets and for O&M**

Provision of fund is also required to be made for major repairs of the damaged/disused/misused sanitation facilities to bridge the gap between access and usage of sanitation facilities and assisting Gram Panchayats to attain open defecation free status in real terms.

- a) The existing policy of Government of India incentivizes both, individuals below poverty line under TSC. Full sanitation for community outcomes shall entail incentivizing the entire community for total outcomes.
- b) Entire GP shall be considered as one entity, for which incentives will be available against identified milestones apart from the individual incentives. The community shall be defined in line with the policy of Government of India in other similar centrally sponsored/Government runs schemes. While dealing with the community, the community will decide on the level and timing of support / incentives to be given to individual households. The strategy will make incentives available to Gram Panchayats for making the villages ODF thereby encouraging community outcomes .

TSC at present has a total project outlay for 607 districts at Rs.22022 crore out of which the central share is Rs.14425 crore as per current project objectives. It is expected that with the release of allocated amount for the year 2011-12, a cumulative release of Rs.8320 crore against the total Central share of Rs.14425 crore shall be made as of 31.3.2012. Thus a balance of Rs.6104 crore shall be required to complete the present project objectives.

**21.3. Budget:** Based on the way-forward and recommendations as above, a budget requirement has been worked out for the XII Plan as follows:

- a. IEC and Start-up Activity, including motivation, awareness and educational campaigns, advocacy – the provision may be kept as at present i.e. at 15% of project outlay.
- b. Administrative charges including training, support staff – Needs to go up from current 5% to 9%. The fund estimate therefore has been made for 9%.
- c. Solid and Liquid Waste Management – Rs.2000 for solid waste management per rural household and Rs.1000 for liquid waste management for approximately 15.6 crore rural households at present. The total requirement works out to Rs.46,830 crore. The same may be supported in an incentive mode as is the case of IHHL to the extent of 50% in a phased manner a selective mode for States/Districts/Gram Panchayats which lead in sanitation coverage. Further, the same may be shared by Centre and State in the ratio of 70:30. The coverage during the XII Plan may support 50% of such households leaving the balance for XIII Plan. The requirement for XII Plan thus works out to Rs.8195 crore.
- d. IHHL funds for the balance project objectives work out to Rs. 14000 crore approximately for community coverage of entire GPs in addition to convergence with MNREGS as an additionality.

- e. Institutional Toilets including School and anganwadis (including government aided and private buildings) including community sanitary complex at the rate of 10% of the project outlay
- f. Fund for repairs etc at the rate of Rs.50, 00,000/- to be divided among GPs linked to population. The total requirement for 610 districts works out to Rs.305 crore.
- g. O&M and Calamity at the rate of 10% of the project outlay.
- h. NGP at the present rates i.e. up to Rs. 5, 00,000/- linked to the population. The total requirement works out to Rs.2200 crore for 50% of the balance PRIs.

## 22. PROPOSED BUDGET REQUIREMENT FOR XII PLAN

Rupees in crore (Central share)		
Sl. No	Component	Funds Required
1	IEC and Start-up Activity, including motivation, awareness and educational campaigns, advocacy	6617
2	Administration charges including training, support staff at Central, State and District level	3970
3	Solid and Liquid Waste Management	8195
4	IHHL funds	14000
5	Institutional Toilets including School and Pre-school and Community Sanitary Complex	4411
6	Revolving fund	305
7	O&M and Calamity	4411
8	NGP	2200
9	Governance	5
	TOTAL	44116

Similarly the funding required from the States as matching shares as per present system of centre and state share shall be to the tune of Rs. 14600 crore.

**The above requirement has been calculated as per current project objectives. With Census 2011 figures being released, project objectives shall be synchronized with the Census data.**





<b>Table -12th Five year Plan - Proposed outlay- Rural Sanitation (Rupees in Crore)</b>												
<b>Items/Year</b>	<b>Centre Outlay</b>						<b>State Outlay</b>					
	<b>2012 -13</b>	<b>2013 -14</b>	<b>2014 -15</b>	<b>2015 -16</b>	<b>2016 -17</b>	<b>Total Centre</b>	<b>2012 -13</b>	<b>2013 -14</b>	<b>2014 -15</b>	<b>2015 -16</b>	<b>2016 -17</b>	<b>Total State</b>
<b>Earmarked Outlays</b>							<b>To be decided by States</b>					
SCP(22%)	1,94 1	1,94 1	1,94 1	1,94 1	1,94 2	<b>9,706</b>						
TSP(10%)	882	882	882	883	883	<b>4,412</b>						
Allocation to North Eastern States(10%)	882	882	882	883	883	<b>4,412</b>						
<b>Major Components</b>												
IEC	1,32 3	1,32 3	1,32 3	1,32 4	1,32 4	<b>6,617</b>						
Solid and Liquid Waste Management	1,63 9	1,63 9	1,63 9	1,63 9	1,63 9	<b>8,195</b>						
IHHL and Institutional Toilets	3,68 2	3,68 2	3,68 2	3,68 3	3,68 3	<b>18,412</b>						
O & M and Calamity	882	882	882	882	883	<b>4,411</b>						
NGP	440	440	440	440	440	<b>2,200</b>						
Others (Admn, Rev fund, Governance)	856	856	856	856	857	<b>4,281</b>						
<b>Grand Total</b>	<b>8,82 2</b>	<b>8,82 2</b>	<b>8,82 2</b>	<b>8,82 4</b>	<b>8,82 6</b>	<b>44,116</b>	<b>2,92 0</b>	<b>2,92 0</b>	<b>2,92 0</b>	<b>2,92 0</b>	<b>2,92 0</b>	<b>14,600</b>

## MAJOR RECOMMENDATIONS OF THE WORKING GROUP

### Vision and Goal

1. The vision for rural domestic water supply should be to cover all rural households with safe piped drinking water supply @ 70lpcd. Considering the fact that the norm of 40 lpcd has been continuing from the last 4 decades and there is a large population that has to be provided with the higher service level, it is recommended that as an interim measure the goal be kept at 55 lpcd for the 12<sup>th</sup> FYP.
2. By 2017, it is targeted that at least 55% of rural population in the country will have access to 55 lpcd within their household premises or at a horizontal or vertical distance of not more than 100 meters from their households without barriers of social or financial discrimination. Individual States can adopt higher quantity norms, such as 100 lpcd. By 2017, it is targeted that at least 35% of rural population have individual household connections.

Three standards of service can be identified depending on what communities want:

- Piped water supply with all metered, household connections (designed for 70 lpcd or more) - with appropriate user charges as decided by States taking affordability and social equity into consideration.
  - Where this is not possible due to paucity of resources or cost considerations, basic piped water supply with a mix of household connections, public taps and handpumps (designed for 55 lpcd) -with appropriate costing as decided by States taking affordability and social equity into consideration.
  - Where neither of the above are possible, in extreme cases, the third option is of handpumps (designed for 40 lpcd), protected open wells, protected ponds, etc., supplemented by other safe alternative sources deemed fit – preferably free of cost.
3. A major focus area of the 12<sup>th</sup> FYP is health. While investing on health, there should be greater investment on the preventive and public health aspect of health than on the curative aspect. In this context improvements in health are possible only with concomitant investments in sanitation and safe water supply to households.

### Right to Domestic Water

4. Right to life is not possible without provision of right to drinking and domestic water. India being a signatory to global agreements should progressively work towards the Right to Domestic Water although s

5. Several difficulties in the practical implementation of these may arise, for which studies need to be carried out so that appropriate models suitable for India can be evolved.

### **Convergence of Drinking water and Sanitation**

6. Convergence between drinking water supply and sanitation should be strengthened by concrete measures to reduce bacteriological contamination. It is recommended that all villages that are covered with piped water supply be taken up for coverage to attain open defecation free(ODF) status on priority. Villages with 100% sanitation coverage and achieving ODF status should be provided piped water supply on priority basis. Similarly villages that have achieved certain milestones, say 50% of coverage, in reaching ODF status in terms of household coverage should be selected for provision of piped water supply schemes on a preferential basis. For villages with lower household coverage of toilets, a public handpump should be provided within 100m of every household. Construction of toilets should be completed within 3-6 months of completion of a pwss.

### **Integration of Housing and amenities**

7. Healthy living is possible only with integration of housing, safe drinking water supply and sanitation. As a step towards integration of these three programmes, Indira Awas Yojana including State housing programmes, NRDWP and TSC and providing these amenities in an integrated manner to rural people, it is recommended that a part of the Rural Water Supply outlay be set apart for funding integrated projects by States to provide these facilities on par with urban areas, like taps in toilets, bathrooms and kitchens, larger houses, sanitary toilets and solid and liquid waste management. Such projects can be proposed for blocks in IAP districts or blocks with high concentration of STs, SCs or minorities.

### **Methodologies, Terminologies and Definitions**

8. There should be shift in focus from monitoring of just construction of water supply systems to monitoring of service delivery. Service delivery parameters should be specified and monitored. IMIS should be revamped to capture service delivery aspects like quantity of water supplied, frequency, regularity, quality etc.
9. The following terminologies and definitions are suggested in the present context of rural water and sanitation in the country.
  - (ix) Access: Access to drinking water supply is measured as those households that are having access to piped water supply or improved spot sources within 100 metres radius and within 10 metres elevation in hilly areas from the dwelling unit.

- (x) Quantity: In the changed context of providing importance to piped water systems in rural areas quantity is defined as minimum of 55 litres per capita per day in non desert areas and 85 lpcd in desert areas.
- (xi) Quality: Quality of water is defined in terms of BIS: 10500 permissible limits.
- (xii) Time for collecting water: Time spent for collecting domestic water should be less than 30 minutes per day per household.
- (xiii) Regularity of supply: At least twice a day.
- (xiv) Number of hours of supply per day: Two hours per day minimum.
- (xv) Frequency of supply: One hour's continuous supply – twice a day
- (xvi) Reliability of supply: Supply from any improved source throughout the year.

### **Domestic Water Data base**

10. Strengthening of IMIS in the 12<sup>th</sup> FYP needs to be carried out both on the hardware aspect as well as on the software. Further there is a need to make it more people oriented and at the same time upgrade it using modern technology, specifically mobile technology and communication devices. There is an urgent need to set up a **Monitoring and Evaluation Division** in the Ministry to undertake monitoring through IMIS in the Ministry of Drinking Water and Sanitation with appropriate personnel consisting of Database Administrator, GIS Specialist, Programmers, Data Entry Operators, Statistician, Economist and Public Health personnel working together. The M&E Division can engage independent agencies to monitor and verify the status of water supply projects and sanitation.
11. It is recommended that there should be an evaluation of the status of drinking water projects every two years.
12. Inconsistency of data is one of the problems that is quite often faced in the information system. In order to make it error free, one way is to introduce checks in the data entry itself. The other is to make those who enter the data, responsible for wrong entry. The third is to have a sample cross checking and verification of IMIS reported data by independent agencies on a regular basis that will provide feedback to the Ministry and the States on the deficiencies in reporting and spur them to action. It is essential to set up a MIS Cell with Database Manager, Programmer, GIS Specialist, Statistician and DEOs at State level and MIS Consultant and DEOs at District level. The fourth is to have alternative avenues of collecting data from users.

13. IMIS should be developed as a feedback mechanism. Provision should be made for receiving public inputs in the IMIS data by taking feedback from consumers/ users/ other citizens on the functioning of water supply systems. These should be attended to and feedback given on action taken to consumers/users.
14. The Ministry has a responsibility to check the effectiveness and sustainability of implementation of projects at the grass root level and see how the States are implementing the Programme. The Ministry should also take up sample studies on various issues to effectively ascertain and rectify defects in the implementation of the Programme, if any.
15. Monitoring missions from MDWS to the states can considerably improve the quality of information as well as the quality of implementation of projects. The monitoring missions sent by the MDWS should consist of experts from fields such as Data Managers, Economists, Statisticians, and WATSAN experts. A Monitoring & Evaluation Division should be set up in MDWS headed by Director (Monitoring), and consisting of Statisticians and Secretarial staff. A similar division should also be set up in each State head quarters.

### **Coverage**

16. It is recommended that the NRDWP should primarily focus on funding the provision of piped water into the household premises through piped water supply schemes from the nearest feasible sources or roof water harvesting in the 12<sup>th</sup> FYP. Handpumps can be implemented by the State Governments from their own resources. For remote, small, tribal, SC habitations the States can be allowed to spend 5-10% of the overall allocation on handpumps.
17. At the village level, water security planning should start with knowledge of water resources management in the village, aquifer or watershed. A water budgeting exercise should consist of understanding water resources available, and methods of increasing the utilisation of available water resources, water requirements of different sectors like drinking water, livestock, agriculture, industry and commerce. The water budgeting exercise should culminate in arriving at a shared **Water Vision on Aquifer and surface water management** and equitable allocation for landless villagers and land holding agriculturists while protecting the domestic requirements.

### **Provision of universal access to and participation in domestic water supply**

#### **Community participation**

18. Participation of the beneficiaries in water supply schemes should be ensured right from the conceptualisation stage and the planning stage, spanning over construction and post-scheme completion management stages, including

O&M. Planning, investment and implementation of all new single-village piped water supply schemes or in-village distribution systems of multi-village schemes should be preceded by constitution of Village Water and Sanitation Committees, their training, and their preparing their Village Water Security Plan with approval by the Gram Sabha/GP and implementation by the GP/WSC. This preparatory phase of awareness generation, contact, motivation and training should be undertaken during the first 6 months of implementation of a pwss.

**19. Subsidiarity principle in water governance at habitation/ward level-**

There is need for effective governance of water and sanitation systems at the ward level where ever feasible, and wherever Panchayats have large areas, especially in SC/ST dominated areas. Subsidiarity principle has to be followed and decisions should be made at the lowest level possible especially on issues like location, implementation, sustainability, O&M and management while retaining an umbrella role for the Gram Panchayats for effective implementation.

**20. Model Detailed Project Reports (DPRs) for Domestic Water Schemes -**

Model DPRs should be made available to the State Govts for adoption after customizing them to suit the local conditions. Model DPR should inter alia, include sections on

- h) Assessment of water needs sought to be met
- i) Water security plan – water recharge and conservation measures
- j) Specifications and life cycle as well as capital cost estimates of water works and distribution system
- k) Water Safety Plan to ensure safety of drinking water sources
- l) O&M plan including the manner of its financing
- m) Management structure for operating the completed system
- n) Capacity building activities
- o) Waste water management should be incorporated in all DPRs through low cost measures like stabilisation ponds and other options by convergence with MNREGS, TSC, etc.

21. All future domestic water supply projects should address all these aspects. SLSSC should ensure that all new drinking water supply schemes include all the above components in the DPR.

22. A Project Appraisal Cell at the State level and the **State Technical Agency** or some qualified technical body should vet the quality of the project proposals that are placed before the State level Scheme Sanctioning Committees. A State level organization like WASMO should be engaged to help States in preparing composite projects.

23. All new drinking water supply schemes should be designed, estimated and implemented to take account **life cycle costs** and not just per capita capital costs. They should also take into account the water supply cycle, with (i)

recharge and water conservation structures wherever necessary and feasible, for the sources, (ii) constitution, training and support to VWSCs to plan, implement, operate, maintain and manage the schemes (in-village), and (iii) waste water management through stabilisation ponds and other options by convergence with MNREGS, TSC, etc.

24. Communities should be enabled to plan and implement schemes to have piped water supply with metered household connections and volumetric tariffs with appropriate cross subsidy for SC/ST and BPL households.
25. Where households within a habitation are self providing (for example, they have installed their own shallow hand pump or open well), the GP/VWSC still has a responsibility to ensure that they have an adequate supply of safe drinking water. The GP/VWSC can (i) provide public taps/ handpumps, (ii) provide water quality tests, and (iii) provide the services of a qualified mechanic for preventative maintenance.
26. GPs/VWSCs should ensure a minimum level of safe drinking water and sanitation for **transient communities**. For example, enterprises and contractors should be held accountable for providing the minimum level of safe drinking water and sanitation facilities for migrant labourers and in their labour colonies.

#### **Coverage of Schools and anganwadis**

27. All government schools and anganwadis should be provided with water supply for drinking and for toilets as per relevant quantity norms by convergence of NRDWP for existing schools and SSA for new schools set up under SSA. For private schools, supply of water should be ensured by enforcement of the provisions of the Right to Education Act by the Education Department.
28. All community toilets built with public funds and maintained for public use should be provided with running water supply under NRDWP.

#### **29. Promotion of solar powered pumps**

It is recommended that solar powered schemes be promoted for implementation in remote, small habitations and those with irregular power supply, especially in IAP districts, by converging subsidy available under Ministry of New and Renewable Energy and funds from Sustainability and Coverage components of NRDWP.

30. **Waste water treatment and recycling** should be an integral part of every water supply plan or project. Management of liquid and solid waste should be promoted together with recycling and reuse of grey water for agriculture and groundwater recharge and pollution control.



31. Design of schemes for **peri-urban areas** should factor in the requirements of increasing population and increasing per capita demand in the planning stage itself so as to avoid wasteful expenditure. SWSMs can make special provisions to ensure peri-urban areas get the level of services demanded by the inhabitants.
32. It should be ensured that the allocations for **SC and ST** concentrated habitations under NRDWP are utilized for the planned purpose. Proportionate allocation and expenditure should be made under NRDWP in **minority** concentrated districts.
33. **Women** should be included in all aspects of decision making with respect to drinking water security planning, implementation, operation, maintenance and management.

### **Ensuring drinking water security through Aquifer and surface water management**

34. States should review existing water resource allocations for irrigation, drinking water etc. in cases of new demands for improved or augmented drinking water supply in rural and urban areas. Water policy should also provide for review and reallocation of water resources among competing user groups giving primacy to drinking water supply.
35. **A holistic aquifer and surface water management approach** with active community and PRI participation in villages at aquifer or at hydrological unit level, especially in areas facing water stress in the whole or part of the year, should be followed to ensure drinking water supply as in the Andhra Pradesh Farmer Managed Groundwater Systems (APFMGS) project. Strategies should include a water budget with community monitoring of water tables to balance demand (especially irrigation and industrial demand) with available water as well as local measures for rainwater harvesting and groundwater recharge. States may also consider giving GPs more power over local water sources, so that agricultural and industrial use could be regulated so as not to jeopardize domestic water requirement.
36. The MDWS, through the National Water Mission and the National Drinking Water and Sanitation Council, should prepare a convergent approach with the Ministries of Water Resources, Health, Agriculture, Environment and Forests, Power, Industry and others.

### **Ground and Surface water legislation**

37. The Ministry should work with the Ministry of Water Resources on suitably incentivising States for enacting a comprehensive Ground and Surface Water Development legislation and its effective enforcement especially in over exploited blocks.

38. The lessons of the APFMGS, in terms of community based ground water monitoring and water budgeting and self-regulation to balance water supply and demand, should be upscaled in all over-exploited blocks through the schemes of Ministry of Water Resources and Ministry of Agriculture
39. The SWSM with the Irrigation, Agriculture, Environment and Forests, Power, Industry and Aquaculture Departments among others, should promote a common State Water Policy addressing the availability of overall water resources and water requirements of irrigation, rural and urban drinking water, and industry.

#### **District /Village Water Visions and Aquifer Management Plans**

40. The DWSM should prepare a District Water Vision based on the availability of overall water resources and water requirements for irrigation, rural and urban drinking water, and industry. It should systematise the monitoring and recording of groundwater levels and rainfall at sub-block or GP level. It should draw up **Aquifer Management Plans** with water harvesting and groundwater recharge structures to benefit drinking water sources on a watershed basis using Ground Water Prospects maps, GIS and Watershed Development Department technical inputs. These should be done on a priority basis for over-exploited, critical and semi-critical blocks. The works planned on this basis should be taken up under MNREGS, NRDWP (Sustainability) and IWMP.

#### **Water Quality**

41. Unless a minimum distance is maintained between the latrine systems and water sources, the problem of nitrate contamination can aggravate as the pace of construction of pit latrines goes up.
42. Over-exploitation and consequent ground water development is inducing more chemical contamination in aquifers. Therefore, wherever feasible hydro-geologically, the States should go in for artificial recharge of groundwater for insitu dilution of chemical contaminants.

#### **Bacteriological contamination**

43. Bacteriological contamination of drinking water sources is more evenly spread out in the country, especially during rainy season due to poor sanitation, poor O&M and hygiene leading to water borne diseases impacting on morbidity and mortality, more specifically among children. The first step to reduce the disease burden is to make rural people aware of what are drinking water quality standards, how to test them and what parameters could impact their health. IEC policies have to be tuned to influence women and children.
44. Existing drinking water sources and freshwater resources in general should be protected by implementation of the Total Sanitation Campaign to make

villages open-defecation free and maintain a clean environment; by safely disposing of solid and liquid wastes; by ensuring the control and treatment of industrial effluents; and by raising awareness about impacts of use of high concentration of fertilisers and pesticides on water.

### **Chemical contamination**

45. In order to tackle the arsenic menace in West Bengal, a three-pronged approach has been followed. This approach could be followed for tackling arsenic in other States also.
46. The approach followed in terms of short, medium and long-term measures for tackling arsenic may also be followed for fluoride affected areas.
47. To address salinity problem in drinking water, various technological options like tapping of alternate safe surface water sources, reverse osmosis, electro-dialysis, ion exchange, roof-top rainwater harvesting and in situ dilution through artificial ground-water recharge, solar stills, single stage flash distillation, multi-stage flash etc., could be adopted.
48. The best option for tackling iron is oxidation (aeration) or terracotta filters.
49. The best option to reduce nitrate contamination in drinking water sources is to minimize/ eliminate domestic sewage pollution and/or reduce excessive use of fertilizers and pesticides.
50. In order to address water quality problems, the VWSC must prepare and implement a Water Safety Plan.
51. Appropriate and effective water quality monitoring mechanism should be evolved and instituted at all levels starting with VWSC, Gram panchayats, Blocks and DWSSM and for the states, incorporating Primary health centres, NGO's, Schools and other organisations to ensure periodic testing and surveillance.
52. The decentralised process of drinking water quality Monitoring and Surveillance programme launched in 2006 should be continued with greater emphasis in the 12<sup>th</sup> Five Year Plan period also, with suitable modifications wherever required.
53. The Standing Committee on Rural Development suggested that the Ministry shall also have a national level laboratory so as to take up specific water quality problems and provide solutions to the States. In this regard, it is recommended to create a Centre of Excellence for Water Quality in NEERI, Nagpur with its regional laboratories to function as regional level laboratories.
54. The Ministry should pursue with the WQAA for notification of drinking water quality standards based on BIS Standard IS-10500 after consultations with

Ministry of Urban Development and the States, to come into force in a phased manner, after building necessary capacities of the water supply agencies and of State, district and sub-district water quality testing laboratories.

55. The WQAA should play a bigger role in ensuring drinking water quality assessment and monitoring . All States should be asked to set up a “Water Quality Cell” attached to the office of State Secretary dealing with rural water supply.

### **Jalmani**

56. The present Jalmani programme of providing stand alone safe drinking water to schools should be mainstreamed and continued under the NRDWP as part of its quality component in the 12<sup>th</sup> Five year plan, until all the schools are covered with safe water supply systems.
57. States, NGO organizations and private companies have developed several household water purification technologies. An expert team should carry out an assessment of efficacy of these technologies and their reject impact on environment, during the 12<sup>th</sup> plan period.

### **Source Sustainability**

58. Sustainability Plans should be prepared especially for over-exploited, critical and semi-critical blocks for taking up scientifically located recharge measures and water harvesting structures on a watershed or aquifer basis. These should be prepared using Ground Water Prospects (HGM) maps, GIS and GPS techniques to ensure maximum water conservation to benefit drinking water sources in a cost effective manner. These plans should be financed by convergence of NRDWP Sustainability MNREGS as well as Watershed Development Programmes.
59. Mining activity should not be allowed at any cost near major drinking water sources if it threatens the safety and sustainability of the source. If the drinking water source is affected due to illegal sand mining, mining or related activities, the cost of providing a new and sustainable source should be borne by the mine owner.
60. For sustainability of the RWS schemes all the completed schemes are to be handed over to PRI/VWSC for operation and maintenance for which incentive fund of 10% of State allocation has been provided in the NRDWP guidelines.

### **Sustainable model of Operation & Maintenance and Service Delivery**

61. The weakest aspect of rural water supply is O&M and there is need for raising O&M allocations. Allocation for Operation and Maintenance should be increased to take care of Capital Maintenance costs of pipes, pumps etc. to

- improve reliability of service delivery. It is recommended that allocation for O&M be increased from 10% of NRDWP allocation at present to 15%.
62. States should draw up a State O&M policy for rural drinking water supply focusing on ensuring sustainable service delivery at the village level and laying out the roles of VWSCs, GPs, PHEDs, operators, outsourcing agencies.
  63. VWSCs should be set up in all villages with 50% women members as a sub-committee or standing committee of the GP.
  64. All water supply schemes within the GP shall be maintained by the Gram Panchayat. Management by VWSC, metered supply, partial recovery of O&M cost and provision of O&M corpus fund to the VWSC/GP should form the basis of sustainable service delivery.
  65. **O&M Plan** - An O&M Plan should be included in the DPR of all schemes. The community and the VWSC should be engaged in developing the O&M Plan. A simple and practical O&M manual should be handed over along with the formal transfer of the scheme to the Managing Committee/VWSC.
  66. **Corpus Fund and User charges for O&M** - Schemes should be transferred to the MC/VWSC together with an O&M Corpus fund amounting to 10-15% of the project cost. This fund should be kept in a Post Office Monthly Income Scheme account. The interest accrued should be used for partially meeting O&M expenditure. This should be supplemented by recovery of user charges from the user households. The quantum of user charges should be determined by the MC/VWSC.
  67. Efforts should be made to provide local wage earners, women SHGs, Bharat Nirman Volunteers, local youth with training in masonry, plumbing, electricity through programmes like NRLM, BRGF etc. so that the VWSCs/MCs could hire their services as per their need for O&M of their water supply schemes.
  68. ZPs should equip and empanel private parties having skills in repair of water supply components and mechanical cleaning of latrine pits. Their training could be financed out of capacity building funds of NRDWP and TSC.
  69. A progressive tariff with different pricing tiers for different uses and different classes of consumers can be considered at various administrative levels i.e. the Gram Panchayat, District and State as appropriate. Incentives may be provided to the GPs for collecting user charges from the beneficiaries. A minimum collection of 50% of O&M cost (including electricity charges) through user charges is advocated.
  70. Per capita expenditure on O&M can be worked out and a grant of say, Rs 75/- per capita per year, may be given to the VWSCs every year for maintaining

the in-village water supply systems (excluding electricity charges). The cost could be shared with 25% coming from the Centre and 25% from the State government. The remaining 50% could be borne by the VWSCs from user charges. For SC/ST dominated Panchayats, Government support could be higher say, 75%.

71. For multi-village or bulk water supply schemes the source, treatment plants, rising mains etc., shall be maintained by Managing Committee/PHED or the concerned agency while the distribution and other components are to be maintained by the GP.
72. In multi-village schemes or large water grids, bulk supply should be managed/operated by Managing Committee/PHEDs or private operators with tariffs set by the State government/PRIs/water resources regulator.
73. Block or District Panchayats and Joint Scheme Level Managing Committees consisting of heads of VWSCs/GPs benefited by the scheme should be responsible for overseeing multi-village schemes.
74. Zilla Panchayats should have a Water Supply O & M Wing to provide continuous technical support to GPs in managing their water supply schemes.
75. States should introduce standard operating procedures for O&M of handpumps and piped water supplies and GPs/VWSCs should identify and assign key functions to the appropriate person/agency such as the handpump caretaker or operator.
76. Water metering, both bulk and individual household, should be promoted in all piped water supply schemes to reduce unaccounted for water.

### **Safe Water to Disadvantaged Sections**

77. Exclusion of habitations with concentrations of Scheduled Caste, Scheduled Tribe, minorities, and, remote habitations should be prevented by appropriate use of IMIS and GIS maps in the planning process.
78. The SCSP and TSP earmarked percentage for each State varies with the percentage of SC and ST rural population in the States. To tackle the issue of the social system, it is essential to prioritise moving towards household pipe water connections in SC and ST households, as has been envisaged in the Strategic Plan for the drinking water sector.
79. State Departments incharge of rural water supply and District Panchayats should be provided with sufficient powers and flexibility to allocate funds exclusively for non covered habitations of SCs and STs. States that need more resources for coverage of SCs and STs should earmark more of their resources for coverage.

80. Higher per capita cost should not be an obstacle to cover SC, STs and PTGs. Norms of handpump per population, minimum population for coverage with piped water supply schemes followed by some States should be relaxed in cases of SC, ST and PTG concentrated habitations.
81. Other efforts that are needed include having adequate representation of SCs and STs in Statutory bodies, Committees, Vigilance and Monitoring bodies and appropriate empowerment of SC and ST concentrated communities with IEC and HRD activities.
82. Inequities in water supply within villages especially in regard to SC, ST, OBC households need to be taken care of. It is also a pre-requisite to have a strong and effective monitoring unit with adequate staff and hardware at Central and State levels to ensure that benefits are actually reaching the SCs, STs and minorities.
83. To tackle the lower coverage of ST concentrated habitations, from 2011-12, an earmarked allocation of 10% of total budget for rural drinking water sector at the national level under TSP has been made. This expenditure has to be made with accurate identification of habitations with concentration of ST, Primitive Tribal Groups, Notified Tribals, Denotified Tribals.
84. Efforts should be made to obtain village level data from the Census to help better targeting of funds to minority concentrated habitations.

#### **Domestic Water in highly vulnerable areas**

85. People living in remote and small habitations in arid and semi-arid areas such as Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh, etc. should be encourage to adopt roof-top rainwater harvesting, creation of village ponds(Ooranies as developed in Tamil Nadu and Andhra Pradesh) and khad/nala-based water supply schemes (e.g. Himachal Pradesh).
86. Sea-water barriers, both at surface and sub-surface need to be provided after careful site selection using advanced techniques for sub-surface exploration and remote sensing. Waste heat generated from thermal and nuclear power plants located in coastal areas is a good resource for producing safe drinking water.
87. 10% of NRDWP allocation should be earmarked for IAP districts on a 85:15% sharing pattern with the State share supplementing the O&M of schemes in these districts.

#### **Decentralised Governance and Institutional Mechanism**

88. The State should carry out HRD, IEC and WQM&S activities, all of which are to be aimed at creating awareness and building capacities including those of the local population in managing the water supply schemes given to them.
89. The concept of prior consultation with Gram Sabhas and Gram Panchayats, with an accompanying provision for 'Entry Point Activity' provided for in every project proposal, can help in building trust between the community and the implementing agency, by allowing the community to express their requirements and allowing the agency to involve itself in a social good for the community.
90. To measure the claim of States on the 10% Incentive Fund under NRDWP, the Management Devolution Index being prepared should be used to give weightage for the allocation of the Incentive fund.
91. The Ministry has to be strengthened with technical and administrative staff to improve the quality of implementation and effectiveness of the programmes. There is need for ensuring availability of appropriate and adequate monitoring staff. The National Resource Centre should be strengthened on the lines of National Rural Roads Development Authority to play a greater role.
92. The Block Resource Centres that are being newly set up by the States shall be strengthened to provide motivation, training, and handholding support etc. to the GP/VWSC, on planning implementing and managing their water supply schemes and on other issues related to drinking water supply and sanitation.
93. Water and sanitation is more about changing of mind sets of people. There needs to be a plurality of approaches to overcome the problem and civil society can play a major role. Involvement of NGOs, CBOs, SHGs etc. has become important in those areas where the traditional engineering departments do not have core competence. They have a role in supporting implementation of drinking water and sanitation projects through mobilizing people, creating awareness, social audit, institution building, planning, monitoring and social audit, piloting innovative approaches, supporting PHEDs, GPs and VWSCs etc. They also have a role in planning, designing and piloting of model innovative schemes which require a high degree of handholding.
94. The role of the Gram Sabha has to be institutionalized to be able to obtain peoples participation in water management. It should be obligatory to obtain the approval of the Gram Sabha at different stages of planning, implementing and managing rural water supply schemes.

#### **95. Governance of NRDWP**

- The NRDWP and TSC should be administered in the State through a 3-tier Governance structure:



- State level: A multi disciplinary Rural Water & Sanitation Management Organisation (RWASMO) at the State level in the shape of a Society registered under the Societies Registration Act. It should consist of apart from official members, members from reputed CSOs, academic institutions, technical institutes working in the sector, representatives of VWSCs etc.
- It should have personnel with suitable academic qualification and experience to oversee work relating to water security planning, water conservation and recharge, water quality, construction, operation and maintenance of civil and engineering works, community mobilization, financial planning & management, accounting, mass communication, training, etc.
- The organization should be empowered to take financial and administrative decisions and should have flexibility to appoint personnel from open market on contractual basis or to take government servants on deputation.
- The Multi disciplinary District Water & Sanitation Mission (DWSM) for each district would report to the RWASMO.
- The Block Resource Centres would report to the DWSM and work with the Managing Committees/ VWSCs for implementing water supply and sanitation schemes.

96. PHEDs can be converted into Boards/Corporations with multi-disciplinary teams at State, district levels. Alternately the PHEDs can look after larger projects and PHED engineers be deputed to the multi-disciplinary organisation to plan and implement single village and in-village projects through GPs.

97. With more and more rural areas now being provided with urban facilities, and the spread of information to the remotest parts of the country through the information revolution, there is a case for merging the administrative departments of rural water supply and sanitation with that of urban water supply and sanitation in the new Ministry of Water and Sanitation.

98. **Incentive fund for reforms** - A fund should be created from which States will be given additional allocation to incentivise States for maximum investment in PWSS, adoption of Model DPRs and establishment of Rural WASMO. Completed schemes that recover adequate user charges to cover O&M cost should also be rewarded on the lines indicated in the full report.

### **Regulatory and Oversight Mechanism**

99. States should ensure mainstreaming of drinking water sector concerns like primacy to drinking water in overall water resource allocations, legal protection of drinking water sources and drinking water sanctuaries, service delivery and maintenance of water quality in the Water Regulatory bodies set up by them.
100. E-procurement should be introduced for rural water supply schemes in all States.
101. In line with the steps taken in MNREGS, Social Audit needs to be mandated by States for rural drinking water supply schemes.
102. At the National level MDWS should engage independent experts as National Quality Monitors as in PMGSY and as in Nagaland, to visit project sites on a random sample basis and submit reports to the State Govt and MDWS on deficiencies and suggestions for improvement. Similarly at the State level, State Quality Monitors should be engaged.

### **IEC**

103. As recommended in the Mid-term Appraisal of the 11<sup>th</sup> Five Year Plan on Rural Drinking Water, IEC for habitations affected with fluoride and arsenic etc. in drinking water and in LWE districts, should be taken up on the same scale as that of IEC campaign for HIV/AIDS & Pulse Polio Campaign.
104. An entertainment feature film like "Manthan" by Amul should be produced by MDWS, with the help of NFDC ( for production ,distribution & marketing as done for Doordarshan) ,for being shown in villages, Blocks and BRCs.
105. For schools and Anganwadis, IEC should be strengthened for institutions ,use of water testing kits(FTKs)taught, social mobilization through rally & door –to-door IPC by school children coordinated , chapter on sanitation, water and hygiene in school syllabus introduced, School Cabinet introduced in each school in coordination with Education Department.
106. With a view to facilitate formulation of appropriate IEC plan for each village ,GP, Block and District, MDWS should plan and coordinate implementation of capacity building on IEC for IEC personnel of WSSOs ,DWSMs, BRCs.

### **Capacity Building**

107. Initially atleast 5 members of each VWSC should be given 2-3 days of training and one-day extra for office bearers. All VWSC members should be given training on water supply and sanitation for 1-2 days once in 2 years.

108. National Key Resource Centres should be identified in all major States. States should identify State Key Resource Centres at State and regional/district levels to provide continuous training and resource support to districts, blocks and GPs/VWSCs in drinking water supply service delivery.
109. It is recommended that a one-time grant of Rs. 10-15 crores be given to each state to establish a State Resource Centre to train rural water supply engineers, water managers, PRI representatives, master trainers and grass root level workers. The state should provide the land and staff for running the centre.

### **Role of CSOs**

110. Role of CSOs is also critical to bring about behavioural changes and to ensure equitable access of drinking water and sanitation by ensuring proper dissemination of information to all sections of rural society in all habitations especially to the women, children, Scheduled Castes, Scheduled Tribes, BPL families etc.
111. Through processes such as social audits and joint monitoring, CSOs can enable a dialogue between service providers and the user community to optimise the programme delivery.

### **Financing the 12<sup>th</sup> Five Year Plan**

112. Besides own sources of funding by States and the Centre, finances for drinking water supply should be raised from other domestic and external sources.
113. A separate piped water supply programme for assisting lagging States should be launched to meet their enhanced funding requirements to achieve the goals set out in this Report and the Strategic Plan of the Ministry. The needs of these States should be taken into consideration in the financing of rural water supply schemes by MDWS and external funding agencies.
114. The increase in the 11<sup>th</sup> Plan outlay is 282% over that in the preceding Plan. While the Central outlay increased by about 242% the State outlay increased by much more namely, 324%. Looking at these figures it is feasible to invest about 275%-300% higher outlay in the Rural Drinking Water Sector in the 12<sup>th</sup> FYP given the necessary demand.
115. A total outlay of between Rs. 2,72,377 crore and Rs.303165 crore is suggested for the 12<sup>th</sup> Five Year Plan for Rural Domestic Water Supply i.e. for all the components of National Rural Drinking Water Programme (NRDWP) including that for lagging states. The Central outlay taking the lower outlay of Rs. 2,72,377 cr. would be about 45% i.e. Rs.1,22,570 cr. This would be about 305% of the actual allocation in the 11<sup>th</sup> FYP for the sector. The

State outlay would be 1,49,807 cr. i.e. a similar increase. This would be feasible for States also considering the increase in the 11<sup>th</sup> Plan over the previous Plan.

## **SECTION(B) - SANITATION**

### **Vision**

- Open defecation free, hygienic and clean environment in rural India where good sanitation practices lead to positive health outcomes, greater access to education especially for the girl child, and reduction in gender empowerment differentials providing a fillip to economic betterment and consequent improved quality of life of rural society.

### **Goal**

- Gram Panchayats of the country should attain Open Defecation Free (ODF) status and all rural schools and Anganwadis provided with toilets by the year 2017 with interventions for adequate solid and liquid waste management

### **Linkage with Health:**

- Significance of good sanitation as one of the major preventive measures for desired health outcomes including reduction of Infant and Mother Mortality Rates, reduction in incidence of water-borne diseases and malnutrition levels, should be recognized and integrated to adopt a holistic approach for attainment of overall health benefits.

### **Linkage with Education:**

- Sanitation must be understood as a major contributor to the country's intent for ensuring universal education as it majorly affects school dropout rates especially of the girl child for achieving objectives of removal of gender inequalities in access to education and education for all.

### **Right to Sanitation:**

- India being a signatory to global agreement should progressively work towards the 'Right to Sanitation' for which appropriate models relevant to the country for practical implementation should be studied and worked out through an exhaustive consultative process.

### **Conjoint approach to Sanitation and Water**

- Conjoint approach to sanitation and water should be strengthened by conjoint measures to increase effective usage of sanitation facilities. Convergence between Total Sanitation Campaign and National Rural Drinking Water Programme should be imperative looking to the significance of water availability for achieving sustainable sanitation. The current approach of demand driven stand alone TSC should give way to the strategy of first creating demand through contact and motivation during the planning of the Water Supply Schemes and undertaking toilet construction parallel with the construction of water supply mechanisms.
- For institutional sanitation it should be ensured from the planning stage that running water availability is essentially provided in all school and Anganwadi toilets and Community Sanitary Complexes under National Rural Drinking Water Programme.

### **Phased Approach**

- A phased approach should be adopted for achievement of goals through focused implementation. Districts should be given flexibility for fund utilization so that fund flow is accelerated to incentivize Gram Panchayats(GPs) that have achieved identified milestones of sanitation coverage to achieve full sanitation objectives. This would ensure a dedicated approach for attaining community outcomes against the current methodology of monitoring individual achievements. Districts may also have flexibility to prioritise funding for Information, Education and Communication to Nirmal Gram Puraskar (NGP) awarded GPs for sustainability and to the GPs that need effective demand generation.

### **Integrated Habitat Development**

- Integrated habitat development should be adopted through convergence of housing, sanitation and safe drinking water supply. Possibility of bathing facilities to be provided should be explored in the model of integrated habitat development.
- It is recommended that a part of rural sanitation outlay be set apart for funding integrated projects with sanitation facilities included. Such projects should preferably be proposed in areas of concentration of SCs/STs/Minorities, as a parallel stream under Total Sanitation Campaign(TSC).

### **Communication Strategy:**

- Success of the TSC is dependent on behavior changes in the community with a view to ushering in healthy and hygienic environment. Motivating the members of the community to adopt good sanitation practices is of critical importance.

- Appropriate strategies and tools of IEC will need to be applied to persuade people for behavioural change. Personal contact and motivation and peer influences work best to attain this objective. Office bearers of the GP, members of Village Water and Sanitation Committees (VWSC), Block Resource Centre (BRC) personnel, Swachhata Doots (Messengers of Sanitation) should collaborate to bring about the desired changes.
- Space should be made for engaging NGOs and CSOs having requisite background and experience .
- A countrywide Sanitation Week /Fortnight must be observed to prioritise sanitation.
- A National Communication Strategy should be developed and implemented taking into consideration the scenario of sanitation, experience and achievements over past decade. The IEC component of the project cost may be proportionately divided for pre and post IEC activities for sustained sanitation. Key Resource Centers may be identified for training of State and District level functionaries (Training of Teachers- ToT) in addition to the National Level Key Resource Centres(KRCs).

### **Financial Incentive for community outcomes**

- Sanitation has been a grossly under-funded programme so far. Substantial enhancement of allocation during the XIIth Plan is necessary. Quality sanitation is not possible within the kind of funding that has so far been provided for TSC.
- APL/BPL divide needs to be bridged for community outcomes. APLs should therefore also be considered for appropriate incentives for community level outcomes. Alongwith SC/ST/OBC/landless/ small and marginal farmers, there are households that do not have the required surplus to invest in sanitation who need to be assisted for achieving total sanitation. Differential funding for needy groups like disabled, underprivileged and other notified groups should be provided to fulfill their specific sanitation needs.
- Although the quantum of financial assistance has been revised from time to time, these should be examined and individual incentive component of TSC should be revised appropriately with an inclusive approach for sustained sanitation. Provision of bathing facility with a toilet encourages women in particular and is a significant trigger for better sanitation outcomes.
- Incentive amount barely covers the cost of construction materials for a toilet and is disbursed after construction and putting into use of the toilet. The beneficiary is,

therefore, required to arrange his own funds for taking up toilet construction. Need for funding may exceed allocation in some areas. This leads to the need for bank finance, particularly if the beneficiary wishes to construct a bath together with the toilet. It is, therefore, also necessary to make arrangements for bank finance for toilet.

- The revolving fund placed at the disposal of DWSMs has failed to attract APL families to borrow from it. Keeping this experience and the need for bank finance in view, Reserve Bank of India should be requested to include financing of toilet construction as an activity of SHGs eligible for bank financing. The revolving fund may be converted into a credit guarantee fund for financing of toilet construction in order to provide a level of comfort to the banks in all GPs with Grade A SHGs.
- Another option for increased funding for quality sanitation facilities is effective convergence with Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS) for permissible earthwork for all MNREGS job card holders that must be looked at.
- Grass root level workers like Swachchhata Doot, Self Help Group (SHG) members, and members of VWSCs etc. should be considered for financial incentive for successful achievement of Open Defecation Free (ODF) and NGP status

#### **Revised incentive for ODF villages:**

- NGP award should be given in two installments as at present but the 2nd installment may be released to the awarded GPs only if one year of continuous use of toilets by all households in the GP is conclusively verified.
- The award money in respect of GPs was decided as early as in the year 2005 and has effectively reduced in value because of general rise in prices coupled with the fact that the award is given in two installments. The Ministry should, therefore, revise the award amount substantially so as to make it commensurate with the efforts made by PRIs in making the GP Nirmal.

#### **Implementation mechanism**

- TSC will be implemented at the GP level through identified Village Water & Sanitation Committees (VWSCs)/NGOs/CBO etc. VWSC should mandatorily be a Standing Committee of GP to ensure community participation in planning, construction, operation and management. Activities under the TSC should be carried out under the supervision of VWSC. Members of VWSC should be engaged actively in contact and motivation of the community for moving towards the NGP

status. The Gram Panchayat should provide overall guidance to the VWSCs falling within its territory.

- TSC incentive funds should be routed to the GPs through State Water and Sanitation Mission (SWSM) and District Water and Sanitation Mission (DWSM). The DWSM will be able to release funds to GPs based on performance milestones. The significance of management of funds and monitoring at the Block level must however, not be overlooked.
- Administrative fund components under the campaign should be increased to 9% from existing 5% to strengthen the institutional mechanism.

### **Capacity Building**

- A State Resource Centre and Regional/ District Resource Centres may be set up that alongwith DWSMs should impart sanitation related training to the members of VWSC, Panchayati Raj Institutions, Block Resource Centre (BRC) personnel and Swachchata Doots.
- Local wage earners/SHGs should be trained in trades such as masonry work, brick-making, toilet pan making and plumbing so that households could hire their services as per their need for construction, O&M, repairs, etc under National Rural Livelihood Mission.
- Setting up of 'Nirmiti Kendras' for development and manufacture of cost effective construction materials would ensure availability in localized areas for toilet construction. The Production Centres set up under TSC may also be revived on this model.
- To make up for lack of academic and practical expertise in the sanitation sector, University Grants Commission (UGC) and other appropriate bodies should introduce sanitation related Graduation and Post Graduation courses.

### **Operation and Maintenance**

- While O&M of individual toilets should be the responsibility of the household, incentive should be provided for turning the old defunct/dysfunctional toilets into functional ones. For this purpose, identification of old dysfunctional toilets should be done with the approval of Gram Sabha/VWSC. Funds should be made available to the GPs to repair defunct/dysfunctional toilets, maintain community toilets, O&M of waste water structures and other sanitation activities. 10% of TSC funds should be earmarked for O&M/repairs.



- Provision for special training to local daily wagers / SHG etc. for O&M and repair of defunct/damaged toilets should be made under TSC or in convergence with National Rural Livelihood Mission (NRLM).
- Business models for Rural Sanitary Marts and Production Centres should be examined.
- For mechanical cleaning of pits the Zila Parishad/ Panchayat should maintain a panel of private parties with the requisite suction equipment whose service could be hired by the VWSCs/ households. Necessary training for this purpose should be funded out of TSC funds.

### **Calamity Fund for Disaster and Emergency Situations**

- It has been observed in States particularly vulnerable to natural calamities like flood, drought, and earthquake etc., there is need for provision of funds in a scenario where sanitation facilities have got destroyed due to natural calamities. Provision of funds should be made for natural calamities at Central level which could be used as per defined methodology to restore the sanitation facilities in project districts.

### **Inclusive approach for vulnerable communities and areas.**

- In conformity with the thrust of Government of India for inclusive growth vulnerable communities like SCs, STs, PTGs, NTs, DNTs, Minorities in Minority Districts, Physically disabled, People affected with HIV should be brought under the ambit of financial assistance. Differential funding for needy groups may be provided to fulfill their specific sanitation needs. Disabled friendly toilets should be constructed in institutions and appropriate technology should be explored and provided in the households to suit the requirement of normal as well as differently abled.
- Focused social mobilization and IEC drive should be carried out for vulnerable areas like North Eastern States, Minority Districts, and LWE districts, BRGF districts etc. and separate data should be maintained for focused approach for each category.
- Provision for girl friendly toilets with suitable water facilities and for safe menstrual management in all the existing schools is recommended. Facilities need to be developed in convergence with Ministry of Health and Family Welfare, especially in rural schools, so that girls can have sanitary napkin free of cost or at affordable price. Women should be included in all aspects of decision making with respect to planning, implementation, operation and maintenance of sanitation facilities.

- Proportionate funding and expenditure should be ensured for SCs/STs concentrated districts.

### **Monitoring & Evaluation**

- Evidence based real time monitoring will be done by MoDWS through IMIS.
- The focus of monitoring will shift from tracking individual household toilet coverage to tracking communities for achievement of total sanitation outcomes. Thus, open defecation free communities would be an outcome of the revised TSC.
- DWSM will collect, compile, analyse and transfer data to MDWS through IMIS.
- Outcomes will also be assessed through tracking of water-borne diseases through ASHA workers and independent studies that should also track IMR, MMR, malnutrition etc.
- There will be mandatory independent evaluation of programme once in two years by all States and the result of the evaluation should be linked to fund releases.

## **CONVERGENCE ISSUES**

### **Governance Structure**

NRDWP and TSC should be administered in the State by establishing a 3-tier Governance Structure as explained below:

- Government of India level : A dedicated Monitoring Directorate should be set up.
- State level: A multi disciplinary Rural Water & Sanitation Management Organisation (RWASMO) at the State level in the shape of a Society registered under the Societies Registration Act. It should be headed by an officer from All-India Services of 12-16 years of seniority. It should have personnel with suitable academic qualifications and experience to oversee work relating to water security planning, water conservation and recharge, solid and liquid waste management, sanitation, construction of civil and engineering works, financial planning & management, social and community mobilisation, accounting, mass communication, training, etc. The organization should be empowered to take financial and administrative decisions and should have flexibility to appoint personnel from open market on contractual basis or to take government servants on deputation.

- **District level:** Multi disciplinary District Water & Sanitation Mission (DWSM) for each district that would report to the RWASMO. A dedicated Group A level officer on deputation should head DWSM at District level to plan, co-ordinate & implement activities relating to domestic water supply and sanitation.
- **Block level:** Block Resource Centres with a Block Programme Officer for Sanitation that would report to the DWSM and work with the GPs/ Users Managing Committees/ VWSCs for implementing water supply and sanitation schemes. Jalsurakshak (Water) and Swachchhata Doot (sanitation) at GP level should be encouraged.

### **NRDWP & TSC to complement each other**

- Water is essential for sanitation and without sanitation quality of potable water cannot be ensured. Hence, there is a need for comprehensive action where the activities under NRDWP & TSC complement each other. This is sought to be achieved as following:
- While selecting locations for new Piped Water Supply Schemes(PWSS), priority should be accorded to villages where TSC has reached identified milestone of higher coverage, including Nirmal Gram Panchayats for sustainability, In other villages with lesser TSC coverage, a public hand-pump should be provided within 100 metres of the households.
- In all new PWSSs, TSC should be implemented simultaneously with the water supply scheme. Publicity, contact, motivation(IEC) should be undertaken during preparatory phase of PWSS. Steps should be taken to complete construction of toilets within 3-6 months of completion of construction of the PWSS.
- In the coverage area of existing operational PWSSs, action should be taken under TSC to attain Open Defecation Free status on priority.
- Adequate availability of water to maintain clean toilets and handwashing based on volumetric assessments should be ensured under NRDWP.
- Bacteriological testing of water sources should be made mandatory through kits provided under NRDWP.

### **INTEGRATED HABITAT DEVELOPMENT SCHEME**

- Rural housing schemes taken up under Indira Awas Yojna (IAY) will provide toilet and domestic water facilities within the houses. Provision for bathing facilities with toilets constructed should be considered under the

scheme. Solid and Liquid Waste Management (SLWM) should also be an essential component of these habitats. State rural housing schemes should also be supported with NRDWP and TSC for provisioning toilets, SLWM and domestic water supply in houses to be constructed.

- Necessary funds for construction of toilets will be provided by MoDWS as a second stream under TSC and SLWM should be supported under MNREGS.

### **CONVERGENCE WITH MGNREGS, MPLAD AND OTHER SCHEMES**

- Construction of toilets in households, schools, anganwadis, SLWM and community sanitary complexes should be taken up under TSC in convergence with MNREGS.
- Ministry of Statistics and Programme Implementation should be requested for inclusion of individual household toilets based on a community approach under the MPLAD Scheme and one time grants for Operation and Maintenance of Community Toilets.
- Convergence of TSC with other centrally sponsored schemes like PURA, IAY, NRHM, Adarsh Gram Yojana and other schemes and Departments/Ministries should be adopted at all levels.

### **SOCIAL AUDIT:**

- Provision of Social Audit has since been introduced in TSC for ensuring transparency, appropriateness of technology, quality of materials, finishing, durability, maintenance, IEC usage etc. The same should be made operational and effectively monitored in the 12th plan.

### **SCHOOL SANITATION:**

- SSHE is an important component to ensure universal sanitation coverage in rural areas of the country. There should be designed capacity building of school teachers, ASHA and anganwadi workers on hygiene and sanitation. Education Departments in States and Centre should include functionality and usage of toilets and hygiene practices including handwashing with soap, in all inspection reports and reviews of programmes. Moreover, sanitation must be made a part of the school curriculum.
- Ministries in charge of School Education and Anganwadis must be exhorted to ensure functional toilets in schools and anganwadis located in private premises. On full coverage of schools and anganwadis in government

buildings, Government of India must take a view on coverage of remaining such Institutions housed in private buildings and particularly Government - aided schools.

### **COMMUNITY TOILETS:**

- The present concept of community toilets is limited to provisions for landless and floating population apart from provisions at common places like bus stands and market places in the rural areas. Tie-ups should be made with concerned Authority like NHAI to provide public toilets, along Highways. Efforts should be made to bring out Government orders to make appropriate sanitation facilities essential for petrol pumps, restaurants and dhabas. The issue regarding operation and maintenance of such facilities should also be suitably addressed and onetime Government funding option should be included under TSC.

### **INCREASED FOCUS AND EMPHASIS ON USAGES**

- One of the important policy changes to be implemented in XII Plan should be to shift focus from access to emphasis on usages to achieve expected outcome of ODF communities. TSC guidelines provide for evaluation of TSC implementation to assess usage of sanitation facilities along with quality of implementation for mid-course correction to achieve the intended results. While Government of India has made such efforts successively, there are hardly any studies carried out by the States to independently assess their own sanitation situation in the rural areas. Independent study for each State through random sampling should be made mandatory atleast once in two years linked to the release of funds to assess the actual progress made and gainful utilization of funds released in the previous years.

### **ROLE OF CIVIL SOCIETY**

- Civil Society Organisations (CSOs) should play key role in facilitating 'development planning capabilities' at the GP level. Space should be made for CSOs to be involved in policy formulation, planning and project implementation.

- Joint Monitoring Committee with PRIs and CBOs should to be created and strengthened for comprehensive monitoring and evaluation of the water, Sanitation and hygiene promotion.

### **SENSITIZING POLITICAL LEADERSHIP:**

- The political leadership at national, state and district levels should to be sensitized on the principles of demand driven approaches to total sanitation, to enable high level political support for sanitation.
- Addressal of the sanitation issue should be ensured at the level of Chief Ministers, Ministers, and other political representatives to convey messages of priority they attach to sanitation. Annual conference of Ministers in-charge of sanitation from all States should be held to get renewed commitment from political leadership towards sanitation.

### **BROADER MENU OF TECHNOLOGIES**

- Development of cost-effective models of low cost superstructures using hollow bricks, tin sheets, bamboo super-structure, plastic & dust wood made module door panel etc. should be widely propagated. A dedicated institutional mechanism for pursuing Research and Development works coupled with sufficient fund allocation may be created at national level for desired outcomes.
- Differential level of incentives for different technology options against evidences to promote broader menu of technology should be adopted. Technology options should be promoted based on region based appropriate plurality of models.

### **RESEARCH & DEVELOPMENT:**

- Research and Development has been a weak area as evident from the pace at which new and appropriate technologies have been developed/introduced in the sector in the past. Ministerial level tie-ups with R&D institutes of repute should be made for evolving suitable technologies. Utilization of funds in R&D should be one of the parameters of effective administration.

- Requirement of studies and research in the sector should be met through involvement of academic institutions and the private sector as a Corporate Social Responsibility.

#### **COMPANIES / PRIVATE FOUNDATIONS:**

- India has been emerging as one of the global forces in terms of industrial development. The corporate sector has emerged as leader of development. Of late, the concept of corporate citizenship has also gained momentum in the corporate world. Although sanitation has not been high on the agenda of corporate world in India, this is being suitably addressed in other developed countries. This can be taken as a ripe time to address the issue of sanitation to the corporate world and get the subject suitably inculcated in their CSR agenda.
- Getting sanitation on the agenda of CSR can also help bring in new technologies and innovations in this field leading not only to increase in sanitation facilities but also to better technologies in terms of management of Solid and Liquid Waste at both micro and macro levels. A positive interaction with the corporate houses can be initiated focusing TSC to influence the corporate world to suitably incorporate sanitation in their CSR policy. These institutions could provide funding for software or hardware, undertake social mobilization activities in the village, provide R&D support to develop innovative approaches, technologies, etc. In addition to approaching development activities as a part of corporate social responsibility, there is scope to enlarge the role of the private sector e.g. through competitive bidding to perform social mobilization activities to make an identified area such as a cluster of Gram Panchayats or a block free from open defecation.
- Corporate houses and NGOs can also be entrusted with multi-panchayat level schemes with assistance from the respective district units.

#### **REGULATORY MECHANISM:**

- While strategy under TSC has been to incentivize creation and use of sanitation facilities, there is a need to introduce and support existing regulations for safe environment. The Ministry should consider showcasing case studies of various Panchayats on legal steps taken against open defecation in enabling Panchayat to build up social norms against open defecation. State governments should be encouraged to introduce

regulations making it obligatory for PRIs to ensure that all households in the GP including public representatives use sanitation facilities. All Government employees should be required to build and use toilets at their residence even if it is rented.

### **PRIORITIZING SOLID AND LIQUID WASTE MANAGEMENT:**

- Solid Liquid Waste Management should be priorities by developing a clear roster of options and activities to be developed and disseminated through the best training institutions in India. A large number of Master Trainer Organizations should be developed within each state, which would in turn build capacities of functionaries and people's representatives at the GP level. For effective implementation of SLWM, it should be converged with MNREGA. Exhaustive capacity building of PRI representatives on SLWM should be taken up, followed by exposure visit to be arranged in other parts of state and outside the state. The Ministry should play a key role in coordination in arranging exposure visit in other states. In each block, one model GP village with SLWM should be targeted as pilot for replication.
- States should be encouraged to go for district specific tie-up with CSOs & corporate houses, after adopting "Outcome Based Community Centric" model.
- R & D on cost-effective models should be encouraged.

### **DATA MANAGEMENT AND MONITORING:**

- Introduce latest concepts of effective monitoring and reconciliation of data received through various sources for consolidated reporting on sanitation status as the nodal Ministry. A dedicated monitoring directorate should be created for continuous and effective monitoring coupled with sufficient funds.
- Fresh assessment of the Status of coverage should to be carried out with major emphasis on the status of coverage of SC and ST and other deprived groups. The rural sanitation coverage reported by census 2011 should be taken as base for revised project objectives to be identified for 100% access to sanitation facilities by all rural households.
- The online monitoring system maintained by the Ministry should be upgraded to evidence based on real time monitoring in convergence with identifications like BPL card number / UIDAI in addition to visual evidences.
- Impact assessment of sanitation on incidence of water-borne and other related diseases should be undertaken through ASHA workers and independent studies.



- States should mandatorily conduct independent studies on TSC implementation and impact every two years to assess outcomes and plan for the way forward.
- There should be effective system of independent regulator to check programme implementation and actual progress at state/district level. The system of independent assessment of sanitation status should be more specific and periodic in nature with fixed intervals to create a reliable data base and trends. This shall also help in mid course corrections in programme implementation through policy interventions.

**Annexure-**  
**I**

File No 25(1)/A/2010-WR  
Government of India  
Planning Commission  
(Water Resources Division)

436 Yojana Bhawan, Parliament Street,  
New Delhi Dated 15.10.2010

**ORDER**

Subject: Constitution of Working Group on *Rural Domestic Water and Sanitation* for the Twelfth Five-Year Plan (2012-2017).

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It has been decided to set up a Working Group on Rural Domestic Water and Sanitation for the formulation of Twelfth Five Year Plan (2012-2017) with the following composition.

1	Shri Joe Mediath, Executive Director, Gram Vikas	Chairperson
2	Shri Arun Kumar Misra, Secretary, Department of Drinking Water Supply, Ministry of Rural Development, New Delhi	Co-Chairperson
3	Ms. J. Geetha, Executive Director, Gramlaya, Tiruchirappalli, Tamil Nadu	Member
4	Shri Depinder Kapur, National Coordinator, Water & Sanitation Forum, WASH, New Delhi	Member
5	Director, National Institute of Hydrology, Roorkee	Member
6	Shri Dipankar Chakraborty, Dept. of Environmental Sciences, Jadavpur University	Member
7	Shri Ravi Narayanan, Arghyam, Bangalore	Member
8	Pr. Secretary & Chairman, WASMO, Government of Gujarat, Gandhi Nagar	Member
9	Managing Director, TWAD, TWAD House, Kamaraj Road, Chapauk Chennai 600005	Member
10	Dr Indira Khurana, Director Policy and Partnership, Water Aid India, New Delhi	Member
11	Shri Sandeep Tambe, Special Secretary, Rural Management and Development Department, Government of Sikkim	Member
12	Shri Subhash Pandey, Scientist E-II WT&MD, NEERI, Nagpur	Member
13	Shri T.M.Vijaybhaskar, Joint Secretary, Department of Drinking Water Supply, Ministry of Rural development, Government of India, New Delhi	Member - Secretary

2. The Terms of Reference to the Working Group will be

- Provide a critical review of the physical and financial performance of the sectors during the 11<sup>th</sup> Plan (including a review of the present approach, strategies, priorities, on-going policies, institutional arrangements and resource allocation) and suggest strategies, priorities and allocations for the 12<sup>th</sup> Plan
- Review the current methodologies, terminologies (like coverage) and definitions thereof, used to represent the population with access to water and sanitation and suggest alternative framework to capture this

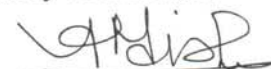
data/information in a comprehensive, conclusive manner. Based on this, arrive at firm estimates of habitations and households covered by safe, sustainable water and sanitation and suggest ways of improving data collection and management systems, especially in view of continual “slip-back”

- Develop a national picture of domestic water vulnerability in terms of quality & quantity based on available data. Suggest mechanism to develop rigorous database on water quality and quantity. Suggest strategies to address issues related to inconsistency of data
- Suggest steps to ensure safe domestic water and sanitation for women, dalits, adivasis and other disadvantaged sections and groups
- Suggest steps to ensure safe domestic water in highly vulnerable situations like floods, desert areas, coastal, groundwater-overexploited areas, salinity, fluoride, arsenic affected areas etc. Also suggest steps to improve water security over a wide range of conditions arising from climate variability
- Suggest institutional mechanisms at the Gram Panchayat level for including local stakeholders in design, operation & maintenance and monitoring (citizen audits) of drinking water supply projects, including mechanisms for participatory tariff determination and cost recovery; suggest strategies to mainstream and institutionalize monitoring including citizen audits
- Suggest ways in which capacities can be built at the GP level to develop local cadres to plan and service drinking water supply and sanitation projects in an integrated, sustainable manner
- Suggest mechanisms which would enable taking a holistic view of local water resources such that demands for urban, irrigation and commercial use do not jeopardize domestic water security
- Suggest mechanisms of programmatic convergence and integration of water supply projects with sanitation, MGNREGA, IWMP, revival of traditional water harvesting structures etc.
- Suggest reforms in the TSC to give greater momentum to the programme in the 12<sup>th</sup> Plan
- Review functioning of NGP and suggest reforms to make it more effective
- Any other issue considered relevant by the group.

3. The expenditure on TA/DA of official Members in connection with the meetings of the Working Group will be borne by the parent Department/Ministry/ Organization as per the rules of entitlement applicable to them. This expenditure in respect of non-official Members will be borne by the Planning Commission as per SR190 (a).

**5. The Working Group will submit its report to Planning Commission by June 30th, 2011.**

6. Shri T.M.Vijaybhaskar, Joint Secretary, Department of Drinking Water Supply, Ministry of Rural Development, Government of India, New Delhi and Member Secretary of the Working Group (Telephone 011-23461043) will be the nodal officer for this Working Group and further correspondence / query may kindly be addressed to him.



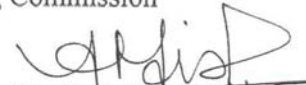
(Avinash Mishra)

Deputy Adviser (WR)

Telefax: 011-23096732

To

1. Chairman and all Members of the Working Group.
2. PS to Deputy Chairman, Planning Commission
3. PS to all Members/Minister of State, Planning Commission
4. PPS to Member-Secretary, Planning Commission
5. Senior Adviser (Water Resources), Planning Commission
6. Adviser (Water Resources), Planning Commission.
7. Adviser (Administration), Planning Commission.
8. Adviser (Agri), Planning Commission
9. Adviser (Plan Coordination and Management Division) Planning Commission



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