

**WASH Security in India: Can the New Policy
Guidelines Deliver?**
Critical Assessment and Operationalization of 2010 Guidelines

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September, 2012

WASHCost (India) Project



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Acknowledgements

This paper is part of an ongoing action research project, WASHCost, supported by IRC, The Netherlands, in four countries (India, Ghana, Mozambique and Burkina Faso) and is prepared by Shri.V. Kurian Baby I.A.S, Senior Programme Officer, South Asia, (IRC) International Water and Sanitation Centre, The Hague, The Netherlands and Professor.V. Ratna Reddy, Director, Livelihoods and Natural Resource Management Institute (LNRMI), Hyderabad and Research Director, WASHCost (India) Project. For more information on WASHCost project see www.washcost.info. Thanks are due to Dr. Maria Saleth, Director, Madras Institute of Development Studies, Chennai and Dr. Meenakshi Sundaram I.A.S, Chairman, WASH Forum, Former Principal Secretary, Department of Drinking Water Supply, GoI for their critical comments on the earlier drafts of the paper. However the usual disclaimers apply.

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ABSTRACT

India has been making policies relating to Water, Sanitation and Hygiene (WASH) sector since independence. The 2010 policy guidelines for water as well as sanitation have embarked on a new path of water security by identifying and emphasising the importance of hitherto nagging bottlenecks to sustainable service delivery. Thus the new guidelines are a step in the right direction, but fall short in number of follow up aspects for achieving the stated objectives. Besides, as is the case with earlier guidelines, they fail to provide effective framework for operationalising the guidelines at the implementation level. This paper attempts to assess these policies critically and suggest ways to make them effective in terms of operationalising them. The key issues include:

- i) WASH sector financing need to be addressed upfront with more realistic assessment of unit costs and their composition. Adoption of Life Cycle Cost Approach (LCCA) framework would be a useful tool in this regard.*
- ii) Within the WASH sector, sanitation needs special focus in terms of planning and allocations. Treating sanitation as an add-on to water would not be enough to improve the poor sanitation and hygiene conditions. These sub-sectors need main streaming.*
- iii) Approach to sanitation need to be focused on creating demand at the household level, segregating private and public responsibilities in this regard. Subsidies towards private toilet construction is not effective and needs to be channelized towards environmental sanitation such as solid and liquid waste management.*

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- iv) Though the new guidelines tries to bring the much needed balance between cost components of new capital investment, it is not clear on post construction support, especially capital maintenance. As in the case of irrigation, WASH sector needs to incorporate asset management approach in its budgeting with clear allocations towards capital maintenance. This could be in the range of 5 to 10 percent of the capital allocations.*
- v) Another related aspect is regarding ring fencing the allocations towards Operation and Maintenance (O & M) as well as capital maintenance.*
- vi) While the role of institutions is critical for sustainable service delivery, the standard approaches of voluntarism and philanthropy in participatory decentralized community management will no longer be effective in the changing socio-economic milieu in the rural areas. These institutions need to be made professional and organically linked and made accountable to the constitutional bodies like village panchayats.*

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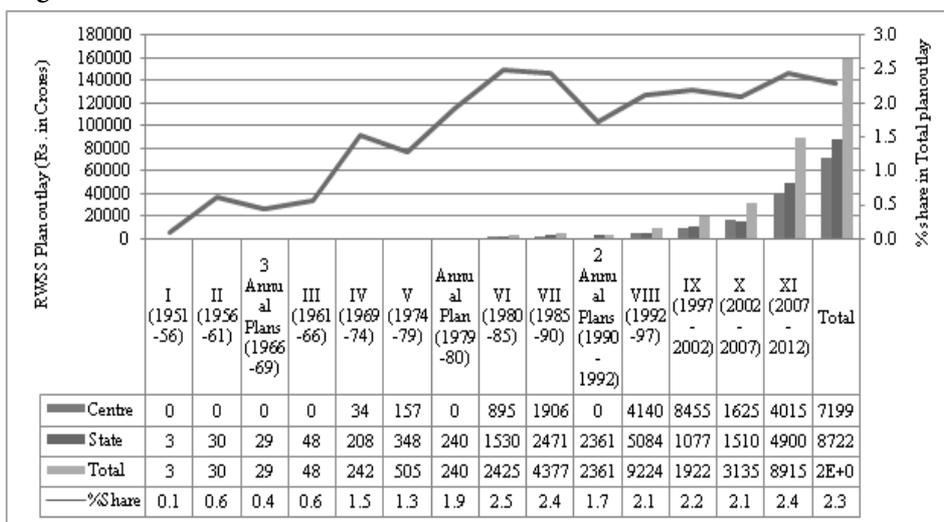
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I. Introduction

India has been investing in Water, Sanitation and Hygiene (WASH) sector over the years. Government of India (GoI), State Governments and the Local Governments together have spent over US\$ 35 billion (1\$=Rs. 45) over last six decades of planning (fig. 1) to provide adequate potable water to more than 90 percent rural people in 1.5 million habitations, which is a major accomplishment in coverage. An average of US \$ 4 billion per annum was spent during the 11th plan period (2007-2012) alone (GoI, 2011). The share of rural water supply and sanitation in the total plan out lay remained around 2 percent since 1980s. Of this the share of sanitation is marginal i.e., less than 10 percent (Reddy and Kumar, 2011). Though these allocations towards water and sanitation have helped in improving the coverage, defined as access to water and toilets by households, the objective of achieving 100 percent coverage remains elusive. As per the 2011 census only 74 percent of the rural households have access to public water sources (Tap and hand pump), which are expected to be safe and reliable though 13 percent of the households get untreated tap water and there are wide variations across the states. Hand pumps continue to be the single largest source of water in the rural areas (44 percent), which are unreliable, involves drudgery and time. This is one of the main reasons for poor accessibility (time spent on fetching water) in India (Reddy, et. al., 2012).

¹ The paper critically examines (i) Rajiv Gandhi National Drinking Water Mission (NRDWP) Guidelines April 2010 - Movement towards ensuring people's drinking water security in rural India; (ii) Strategic Plan - 2011- 2022, Department of Drinking Water and Sanitation - Rural Drinking Water, "Ensuring Drinking Water Security In Rural India" and (iii) Govt. of India - Ministry of Water Resources 'DRAFT NATIONAL WATER POLICY (2012). Previous policies and guidelines are also referred though the above set is considered as the road map to determine Wash sector landscape of India for the next 10-15 years.

Figure 1: Allocations towards Water and Sanitation in the Five Year Plans in India



Source: Different Plan Documents, Planning Commission, Government of India.

As per official estimates the coverage of sanitation is as high as 68 percent (GoI, 2012). But, the census data shows that only 33 percent of the rural households have access to toilets and 67 percent of them still defecate in open. The census figures corroborate 2008-09 National Sample Survey Organisation (NSSO) estimates and there are wide variations across the states. Access to toilets in rural areas is as low as 8 percent in Jharkhand and as high as 93 percent in Kerala. While the official estimates of water and sanitation show that Millennium Development Goal (MDG) targets are met in terms of access (infrastructure), the actual situation does not seem to support this especially in terms of usage and quality of services. Even in the case of drinking water only 18 percent of the households get treated tap water. Though the MDG target on drinking water appears to be feasible the target of achieving Open Defecation Free (ODF) status by 2015 appears to be far behind (Table 1). Water quality is another serious problem in substantial number of habitations (Table 2), though this is not considered in assessing the MDG targets. However, some of the states would achieve the Millennium Development Goal (MDG) targets despite data discrepancies between sources. According to a recent assessment of Total Sanitation Campaign (TSC) it was reported that Sikkim has achieved 100 percent ODF status by 2008 itself (WSP, 2010). As per the 2011 census none of the states have achieved ODF status. On the contrary, census data shows that 11 percent (Rural 15 percent and urban 2 percent) of the households in Sikkim still practice open defecation. Kerala in fact reported lowest percentage of households (4 percent overall; Rural 6 percent and Urban 2 percent) practicing open defecation.

Table 1: Attaining MDGS in Sanitation and Drinking Water in India

Year	Use of Sanitation Facilities (percent of Population)			Use of Drinking Water Sources (percent of Population)		
	Urban	Rural	Total	Urban	Rural	Total
1990	49	7	18	90	66	72
2000	52	14	25	93	76	81
2008	54	21	31	96	90	93
2015 MDG Target *	72	72	---	94	80.5	---

Source: JMP 2010-WHO and UNICEF, * MDG India Country Report 2005

Table 2: Presence of Contaminants in Habitations across India

Habitations	Fluoride	Arsenic	Iron	Salinity	Nitrate	Total
Total	26180	6548	80015	28706	3133	144582
Targeted	7613	3477	22936	3507	1134	38667
Covered	4724	2818	13975	2226	912	24665

Source: JMP 2010-WHO and UNICEF, * MDG India Country Report 2005

Thus, deteriorating water quality, un-sustainability of source, weak institutions, poor coordination and convergence, inequity and exclusion pose serious threat to its drinking water security. Community centric institutional delivery models are also showing symptoms of un-sustainability on account of developing complexities in management that require professionalism and improved capacity, both technical, financial and managerial. In the drinking water supply landscape, once the capital investment phase is over asset management responsibility is transferred to the Panchayathi Raj Institutions (PRIs) and communities, which have never been properly capacitated. To add to the existing complexity and management challenges, the national draft XII Five Year Plan (2012-17) envisages enhancement of rural service level from 40 to 55 lpcd and a shift to piped water supply with house connections. India has also been identified as a hot spot of climate change vulnerability that can redefine water security, resource management and even technology options.

It is also known that lack of adequate sanitation leads to significant losses for the country. As per a recent study carried out by water and sanitation program (WSP) the economic losses linked to poor sanitation are of the order of Rs. 2.4 Lakh crore (US\$ 53.8 billion), or Rs. 2,180 (US\$ 48) per person. This works out to be 6.4percentof Gross Domestic Product in 2006 (WSP, 2010). While the country has come a long way since then and all these indices stands improved to a great extent, the linkage between inadequate sanitation coverage and economic loss is of extreme significance.

In order to improve the sector efficiency and sustainable service delivery, the GoI in April 2010 has issued a set of comprehensive and purposive guidelines (GoI, 2010). The guidelines indicate marked shift towards addressing key sector concerns in line with the principles of sustainability - in quantity and quality - adequacy, convenience, affordability and equity. Recently, the Ministry of Drinking Water Supply and Sanitation (MDWSS) has presented its long term strategic plan (2011-2022) for ensuring drinking water security to all rural households (GoI, 2011). The strategic plan aims to cover 90 percent of households with piped water and at least 80 percent of households with tap connections during the period. The strategy emphasizes achieving water security through decentralized governance with oversight and regulation, participatory planning and implementation of improved sources and schemes. Sustainable service delivery mechanisms are a central feature of the program, with state institutions or Zilla Panchayats implementing and managing large multi-village schemes, delivering bulk water to villages in water stressed areas, and GPs implementing and managing in-village and intra-Panchayat schemes. The strategy highlights source sustainability measures, water quality safety, monitoring and surveillance, convergence of different development programs, and building professional capacity at all levels. Thirdly, the GoI has released a draft new National Water Policy 2012 (GoI, 2012), to take cognizance of the existing situation and to propose a framework for creation of an overarching system of laws and institutions and for a plan of action with a unified national perspective.

On the sanitation front, central guidelines were released in June 2010 (GoI, 2010). Total Sanitation Campaign (TSC) and the Nirmal Gram Puraskar as an incentive program with awards for 'open defecation free' villages, is an effective step by GoI for promoting sanitation facilities as well as eradicating open defecation practices with information and awareness raising campaigns. As per Nirmal Bharat Vision (GoI, 2011), the strategy is to: i) create totally sanitized environment by 2017 through achieving open defecation free and clean environment where human faecal waste is safely disposed; ii) adopt improved hygiene practices by 2020 through adoption of safe hygiene practices by all during all times; iii) effective management of solid and liquid waste by 2022 such that the village environment is kept clean at all times. Important challenges in the case of sanitation include: a) low usage of toilets; and slippage among NGP villages, and (iii) very poor environmental sanitation including solid and liquid waste management. The states which are having high sanitation coverage and usage have started facing serious second generation issues like sewerage treatment and disposal. It was observed that only 109 out of 162 GPs surveyed were having toilet usage of more than 60percent, i.e. the balance slipped back to the open defecation status (WSP, 2010). While the performance of TSC is measured in terms of ODF status, monitoring of individual sanitary latrine (ISL) use at the household level is quite poor, which may explain the poor performance.

Both financial and institutional arrangements are observed to be closely linked to the TSC performance (WSP, 2010).

II Objectives and Approach

As stated, in conjunction with the new strategic plan 2011-22, Water Policy 2012, the National Rural Drinking Water Programme (NRDWP) and sanitation guidelines 2010 mark a set of overarching policy guidelines as sector road map. However, the policies have been seldom implemented fully and monitored effectively with rigor and commitment. Water being a state subject in federal India, the impact of GoI guidelines on states is limited though central allocations and grants are substantial. GoI issues national policies and guidelines launch large investment programmes and influence states through instruments of policies, financial support / grants and political process. Notwithstanding basic question of the relevance of GoI guidelines in creating a procrustean bed, as implementation modalities will differ from one state to another depending on the degree of decentralization and institutional structures, capacities, political imperatives of discretionary allocations widen the policy - implementation gaps. For example, a state with a strong net - work of Panchayati Raj institutions will opt for implementation through decentralized institutions of governance and some other state that does not have a vibrant local government set up may opt for implementation through District Water and Sanitation Committees (DWSC) comprising of only bureaucracy. The institutional dichotomy of *de jure* responsibilities with PRIs that are weak financially, technically and managerially with *de facto* powers with Government Departments / Water Boards pose a serious threat to operationalization of guidelines in letter and spirit. Though water and sanitation is a state subject, decentralization is a constitutional obligation of the states and WASH sector service delivery is mandated to the PRIs. Legally, rather than the policy guidelines, more focus shall be given by GoI in deepening decentralization process and the sector funding topped up with other grants to be used as an incentive to accelerate decentralized water governance.

This paper proposes to explore the implementation gaps and to recommend modalities for better operationalization to achieve sector strategies and goals.

As stated earlier, India has been making water policies and programmes for drinking water and sanitation, since its independence. Though the recent policies are the evolution of various policies over the years, the paper attempts to explore how the new policies differ from the earlier policies in terms of approach and methods. Some of the important issues in this regard include: i) what are the major deviations?; ii) how these policies and guidelines are going to impact unit costs and service levels; and iii) how far these guidelines could be operationalised and what could be the institutional requirement. Such an

assessment calls for a review of new policies and the existing institutional arrangements and their potential in achieving the policy objective of water security 'for all and forever'.

A critical assessment of the new guidelines in achieving the policy objectives would be taken up for water and sanitation. The costs involved and institutional arrangements required would be assessed based on the field study on WASH service delivery. The existing unit costs and service levels are estimated using the primary and secondary data from Andhra Pradesh state. The WASHCost project findings from Andhra Pradesh, India, is used as a case to supplement and complement the policy review. The case study is based on the data from a scientifically drawn sample of 187 habitations for the purpose of unit cost estimates and a sub-sample of 107 habitations for assessing the service levels. The sample habitations are spread over the 9 agro-climatic regions of the State and hence could provide broad representation for generic conclusions. The details on the methods to assess the costs and service levels are discussed in the relevant section.

This paper is organised in six sections. The policy background of the sector is presented in section three where a historical perspective on policy evaluation is provided. A critical assessment of the current policies and their effectiveness in the existing institutional context is discussed in section four. A reality check of present costs and service levels and likely impact of the new policy guidelines on these costs and service levels are assessed using the case study from Andhra Pradesh in section five. And the last section makes concluding remarks and provides future policy options.

III Policy Evolution

WASH policies in India were initiated way back in 1949 immediately after the independence with the setting up of the committee on Environment and Hygiene (Bhor committee) (See Appendix Table 1). A nominal allocation of Rs. 3 crore was provided towards rural drinking water and sanitation during the first plan period (1951-56), whereas, urban water supply and sanitation was provided with Rs. 43 crore. The first ever National Rural Drinking Water Supply Program (NRWSP) was launched in 1969 with technical support from UNICEF. An amount of Rs. 254.90 crore was spent under this programme on digging 1.2 million bore wells and 17,000 piped water supply schemes. However, the history of planned investment in rural water sector in independent India started in 1972-73 with the launch of Accelerated Rural Water Supply Programme (ARWSP). Under ARWSP (1972-1986), the thrust was to ensure provision of adequate drinking water to the rural communities through the Public Health Engineering (PHE) System. The second generation programmes were started with the commencement of Technology Mission in 1986-87, renamed in 1991-92 as Rajiv Gandhi National Drinking Water Mission. During this period attention was given to water quality, technology

intervention and human resource development support. The year 1987 has seen the first water policy in India setting drinking water as first priority.

From the governance and institutional perspective the 73rd constitutional amendment of 1993 has created the basis of decentralization of WASH services by putting the management responsibilities in the hands of Panchayati Raj Institutions (PRIs) at the village level. In this direction, for ensuring sustainability of the systems, steps were initiated to institutionalise community participation in the implementation of rural drinking water supply schemes through sector reform. The year 1999 could be seen as another land mark year for the WASH sector with the formation of separate Department of Drinking Water Supply in the Ministry of Rural Development. Besides, the WASH sector was brought under sectoral reforms emphasising on investment sustainability, both technical and financial, progressively moving towards a decentralized institutional framework. Sector reforms ushered in a paradigm shift from the 'government-oriented supply-driven approach' to the 'People-oriented demand driven approach', indicating a shifting role of government from that of service provider to facilitator. The year also has seen special focus on sanitation for the first time. Total Sanitation Campaign (TSC) as a part of reform principle was initiated in 1999 in order to ensure sanitation facilities in rural areas with the specific goal of eradicating the practice of open defecation. TSC gave strong emphasis on Information, Education and Communication (IEC), Capacity Building and Hygiene Education for effective behaviour change with involvement of PRIs, Community Based Organizations (CBOs), and NGOs.

The commencement of the third generation programmes (1999-2000) was marked by the sector reform projects involving community in planning, implementation and management of drinking water related schemes, later scaled up as Swajaldhara in 2002. Under this programme flexibility was given to the states / Union Territories (UTs) to incorporate the principles of decentralized, demand driven, area specific strategy taking into account all aspects of the sustainability of the source, system, finance and management of the drinking water supply infrastructure. The National Water Policy was revised in 2002 with priority to underserved villages in terms of quality and quantity. India has expressed its commitment to the MDGs to halve the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015, from 1990 levels.

During 2005, the Government of India launched 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. The year 2009 has seen the merger of all the existing programmes and missions under the uniform programme of National Rural Drinking Water

Programme mainstreaming Swajaldhara principles.

The year 2010 is another milestone in the history of WASH policies in India. During this year the Department of Drinking Water Supply was renamed as Department of Drinking Water and Sanitation. More importantly, the year has seen the introduction of new guidelines for drinking water and sanitation, which mark a clear deviation from the earlier policy guidelines. For the first time, the guidelines (GoI, 2010a) emphasised the shift away from the conventional approach of normative service levels measured in Litres Per Capita per Day (LPCD) and a move towards water security at the household level, which includes equity aspects. The guidelines, in order to ensure water security across locations and socio-economic groups, recognise the importance of source sustainability by allocating 20 percent of the funds to that end. Substantial allocations are also made for water quality (20 percent); operation and maintenance (10 percent) and to mitigate the impact of natural calamities / climate change (5 percent), alongside the allocation for coverage (45 percent at the state level). The guidelines also propose the devolution of resources and responsibilities to local bodies (Gram Panchayats, the lowest level of local government in India) with the line departments playing only a facilitating role.

The new guidelines for the Central Rural Sanitation Programme (CRSP) were also issued in June 2010 (GoI, 2010c). These guidelines have emphasised a move towards "demand driven" approach named as "Total Sanitation Campaign (TSC)". The revised approach emphasizes more on Information, Education and Communication (IEC), human resource development, capacity development activities to increase awareness among the rural people and generation of demand for sanitary facilities. This will also enhance people's capacity to choose appropriate options through alternate delivery mechanisms as per their economic condition. The Programme is being implemented with focus on communityled and people centred initiatives.

TSC also intends to tap children's potential as the most effective advocate of good sanitation practices in their own households and schools. The aim is also to provide separate urinals / toilets for boys and girls in all the schools / Anganwadis in rural areas. The strategy is to create demand for sanitation through promotional activities and technology options that suit the people's requirements. Subsidy for individual household latrine has been replaced by cash incentive to the poorest of the poor households. Rural school sanitation is taken up as an entry point activity for creating awareness. IEC campaign is to be made specific to the location (region). Decentralised approach is being adopted by involving PRIs; Co-operatives, Self Help groups (SHGs), NGOs, etc. Intensive IEC activities along with entry point activities would form the start up activities to bring about behavioural changes and demand for sanitation facilities.

Provision of alternate delivery system, proper technical specifications, designs and quality of installations are provided to effectively ful-fill the generated demand for sanitary hardware. The cost composition includes: start up activities (5percent); IEC (15percent); market support (5percent); infrastructure (subsidies on ISLs; school and anganwadi sanitation, etc) (60percent); solid and liquid waste management (10percent) and administrative costs (5percent). Following the new guidelines the Department of Drinking Water and Sanitation was upgraded as a separate Ministry of Drinking Water and Sanitation in 2011 and in 2012 the new water policy is being introduced.

IV WASH Policies: Critical Issues for Operationalization

In this section a brief review of the recent guidelines in conjunction with the new draft national water policy 2012 and the strategic plan 2012-17 as against vision and the policy goals outlined therein is taken up. The idea is to trace evidences as to how well the guidelines have been actually translated into action and what are the implementation gaps. It would also examine whether the key processes and methodologies that are prerequisites for achieving policy goals have been set in motion, monitored and progress made. This analysis would support a set of recommendations that could accelerate the pace of operationalization. An assessment of the policy guidelines highlight three policy/operational concerns viz., i) water security issues; ii) institutional and governance issues and iii) policy paradigm.

i) Water Security and Holistic Approach

The guidelines stress the value of a holistic approach, however, there is very little that the guidelines can offer on account of the institutional and budgetary fragmentation. The most critical concern of source sustainability needs more holistic approach of taking competing uses with conservation and savings in agriculture into account. An analysis of the relationship between rainfall-runoff and groundwater-stream flow levels over a period of time shows that groundwater depletion enhances rainfall infiltration, but reduces runoff yields. Similarly, aquifer depletion also brings down groundwater outflow, thereby reducing stream flows. The complexity of environmental flow dynamics have never been understood scientifically (Batchelor, et.al., 2012). The political economy of water dominated by informal systems makes the analysis difficult. Rigorous analysis and studies are required to incentivize and regulate inter-sectoral prioritization and transfer of water on the basis of differential incremental value.

Additionally, though the NRDWP guidelines provide for earmarked funds towards source sustainability, most of the investments are engineering driven like check dams, may only encourage shifting water resources from say down - stream / environmental / agricultural purposes, etc. to drinking and not to augment resources to compensate

incremental demand (Batchelor, et.al., 2012). We need a fundamental U-turn from production - storage - distribution thrust to source sustainability. The committees constituted for vetting proposals are also not driven by environmental sustainability considerations. The states also use the source sustainability window as yet another hardware funding stream. Same is the case with sanitation where infrastructure allocations are as high as 60 percent despite the reduction in household subsidies. Though IEC activities get reasonable allocations the actual expenditure is quite low in most cases. Similarly, allocations towards solid and liquid waste management are inadequate or abysmally low and not properly spent. Therefore, actual fund requirements on ground need proper estimation and expenditure needs to be monitored.

Poor governance has resulted in weak convergence at policy, programme and institutional levels and consistently undermined efforts towards achieving water safety and security. GoI as part of its initiatives in operationalizing 2010 NRDWP guidelines have now identified about 10 districts in different agro-climatic zones to pilot the concept of village water security. However, the programme is partial as the focus is confined only to 'drinking water security' and do not address the critical factors of sustainable convergence and governance. Moreover, the water security plans are carried out at the village level instead of viewing water security at the basin, watershed or aquifer level. A minimum requirement for water security plan is to prepare the plan at the hydrological unit level or sub-watershed level. The programme also lack mechanism for convergence, regulation of competing use and to address the issues of groundwater anarchy.

Approaches towards sustainable WASH service delivery and most of the action research programmes hitherto have been largely focused on improved system performance without adequately addressing the fundamental question of source sustainability, which is an integral part of water security at *micro, meso and macro* levels both in the medium and long run. Undoubtedly, research and experiments on improved hardware performance in developing country context have generated global best practices. However, critical issues of sustainability of such models at scale have remained as elusive as ever on account of (a) institutional fragmentation and convergence challenges, (b) weak process of decentralization and poor capacities of PRIs, and (c) un-sustainability of source and related trade-offs, legislation and regulatory frameworks that are either weak or virtually un-implementable given the nature of India's huge informal water economy.

The GoI has constituted a committee for convergence in the context of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), but at the field level various operational issues still mar progress. The states have very little incentive to utilize MGNREGA as a potent instrument towards water security by adopting location specific interventions. MGNREGA needs to be suitably modified and implementation

streamlined as this is an open ended opportunity for water security once the operational field level issues are ironed out and technical quality and transparency ensured. Water security and sustainable service delivery is also critically linked to other related sectors like agriculture, rural development, groundwater, energy sector, etc. The externalities arising from these inter linked sectors could strengthen or subvert water security at the community as well as at household level.

ii) Institutions and Decentralised Governance

Despite all its good intentions the guidelines are weak in effectively addressing the critical issues of institutional and legal reforms essential to create enabling environment for the sectoral change. Drinking water crisis manifested mainly in terms of poor coverage, inefficient service delivery, exclusion and un-sustainability, which are largely managerial issues. Asset management, fundamental to Operation and Maintenance (O&M) efficiency and improved service levels have been entrusted to weak PRIs / Communities. Till the country has not resolved the decentralization conundrum, rationalize institutional mandates and capacitate PRIs, there is no clear solution for O&M un-sustainability (GoI, 2010). Alternatively every state should be allowed to develop contextualized O&M mechanisms. In order to achieve source sustainability, conjunctive use and the question of water rights are to be much more holistically addressed, delinking land and water rights with in a workable regulatory and enforcement model.

India though has a constitutionally decentralized governance structure, in practice only de-concentrated. The decentralization process is in varying degrees and in most states the devolution has been limited to transfer of O&M responsibility (GoI, 2010). States have created Village Water and Sanitation Committees (VWSC) under sectoral reform programme (*Swajaldhara*) but none of the states could boast about functional VWSC's. PRI centric decentralized governance is still evolving or stagnating. Local government institutions need comprehensive support to carry out their mandates of ensuring service provision. Increasing capacity and competence as part of mainstream public sector reform is badly needed if local government is to play this role fully. Local private sector provision needs to be stimulated and supported to help deliver more professional services and higher (more complex) levels of service. Strong PRIs however are an essential prerequisite to nurture an effective and accountable professional private sector in WASH services. NGOs should be encouraged to transform from a role as primary providers of services to professional support agencies to PRIs on a competitive basis, support community mobilization and advocacy / demand generation, especially in the case of sanitation. Though the guidelines have emphasized the decentralized governance and community participation the mainline investments are still heavily supply driven engineering solutions. In order to operationalise the guidelines, clarity of mandates, roles and

responsibilities and building capacities are required.

As the PRIs do not have adequate capacities technical and financial and sector allocations are managed by line departments, they perform mostly agency functions without much ownership. The twin processes of decentralisation and sector reform have often left the rural water sector as an orphan, while more obviously 'influential / visible' urban utilities and comprehensive schemes being managed by Public Health and Engineering Departments (PHEDs). Even in relatively well established states, where comprehensive frameworks have been established, local government is often weak, ill-equipped and poorly resourced to carry out the mandate of ensuring water (or indeed any) services. Structured support for local government is seldom in place, and normally not adequately budgeted for. Lack of meaningful fiscal decentralization remains a core barrier towards sustainability. The options are either decentralize and capacitate or mandate the builder / provider accountable for maintenance as well.

Major reason for sector failure is weak management and institutional capacities. Given the constitutional mandate of decentralized governance for the country the options are (i) make Water Boards / Departments autonomous as a corporate entity and enable them as technical service providers to PRIs on a competitive service contract; (ii) integrate the lower functionaries of water departments with PRIs, and (iii) allow Water Boards to bid on competitive basis for service provision. There are evidences that the role of public sector in supporting PRIs in improving service delivery has significant edge over private corporate sector. More importantly, any institutional modality designed in accordance with the local conditions of different states shall have the under pinning vision of empowering PRIs and not to undermine or encourage reversal of the process, which should be a critical guiding spirit of any guideline.

One of the key factors inhibiting sustainability is weak yet rigid institutions. Significant investments are required to initiate and sustain change management process and to build capacities and reorientation. GoI has done commendable beginning in earmarking component-wise allocation, however, at the implementation level the spirit is diluted and there exists inadequate mechanism to track deviation. Fundamental to change management is clarity in accountability which is not fully reflected in the operational guidelines.

Participation and voluntarism are key assumptions for stronger and effective institutions as per the guidelines. However, the broad contours of the concept need to be redefined in the changing socio-economic fabric of rural India. The assumptions needs to be recast based on rational economic behaviour of individuals / communities and shifting dynamics of social capital. A major reason for un-sustainability is the absence of

professional /quality technical and other support services to communities and PRIs at affordable rates. The scope to transition from volunteerism to more professionalized management is evident globally. There are excellent models with in the country that facilitate formation of federations of Beneficiary Groups (BGs) and support trained Water and Sanitation (WATSAN) centric micro-enterprises. The separation of service authority from provision function is essential. Communities retain the ultimate management and decision-making power, through their elected representatives (either in Local Government or in as Water Boards). But equally, are able to separate out specific tasks, or all of the operation and maintenance to entrepreneurs. Adequate framework for regulating such functional specialization and service provision need to be fostered for a vibrant private sector that competes with public utilities.

As stated earlier, (a) water is a state subject and central guidelines lack the authority of law for enforcement and (b) the states in India are in varying degrees of decentralization and the implementation modalities shall vary. Under such a scenario, GoI could inter alia follow the following mix of options:

- (i) The underlying principle of any institutional structure and composition (like State /District Water and Sanitation Missions (DWSM) and VWSC's) with fund flow pattern shall be to support and strengthen decentralization process in the medium /long term with indicative deadlines
- (ii) Independent / professional audit of institutional models against the principle of decentralization.
- (iii) Use central funding as incentives (being done) or resort to direct funding through PRIs
- (iv) All externally aided programmes and borrowing from multilaterals like the World Bank and ADB shall have the reform mandate of decentralized governance
- (v) Use political process, advocacy and governance /service delivery benchmarking to support reforms
- (vi) Accelerate the urban sector reforms, cost recovery and efficiency improvement linking urban local bodies (ULBs) to assuage the thinking that urban rich are untouched while reforms start from rural poor
- (vii) Increase institutional grants like Finance Commission tied and linked to specific programmes and release linked to achievements
- (viii) Ring fenced repair and maintenance and O&M funding under central assistance

and reduce new investment component over a time frame (if necessary let the state provide from its own budget for financing new capital)

- (ix) Clarity in cost recovery by every state and assured provision for gap funding under benchmarked provider efficiency parameters
- (x) Strengthen the network of Key Resource Centre (KRC) and Block Resource Center's (BRC) linked to location specific business models for post construction support and improved application of ICTs to support sector governance and service delivery
- (xi) Third party monitoring (by the public sector independent institutions for monitoring performance linked release of grants /GoI funds

iii) Policy Paradigm

The guidelines and draft water policy have indicative bias towards privatization. Contextualized privatization models globally show only mixed results. Ideal framework should be selective market participation subject to the capacity of regulatory governance. Being a state subject, having varying ideological frames and governance capacities, India needs a very cautious and balanced approach on merit. The best intentioned and designed reforms in the water sector may be frustrated if key partners (state governments) work against them. In India where water has become a scarce factor of production, action in the water sector should be consistent with other key economic factors.

The new GoI policy emphasizes a shift towards piped water supply plus house connections. The shift is perfectly in accordance with the demand drivers like rate of economic growth, rising expectations, and growth in rural populations and a trend towards more densely populated rural villages and small towns tending towards a move up the ladder from basic point sources to reticulated systems with street or household connections. At the same time there remain a significant and growing number of those relying on point sources in rural areas, particularly for the poorest populations and most scattered. Studies have shown that typically for every comprehensive scheme around 30 percent of the households are excluded from services on account of technical and other challenges. Moreover, the guidelines appear to be regressive and biased against scarce rainfall regions. Moving away from LPCD norms and towards water security the guidelines provide flexibility in fixing the norms i.e., a lower norm is acceptable for scarce regions due to supply constraints. This goes against the inclusiveness principle across regions, that too when the aggregate norms are being raised from 40 LPCD to 55 LPCD. Hence the core objective of public provision is to ensure adequate and reliable access to quality services and not piped connection per se. Secondly, under the guise of

piped connections as we have seen historically, there could be a very strong argument to move towards large and comprehensive schemes which are in general not cost effective as against location specific small schemes. Hence the choice of technology options shall certainly scrutinise for both technical and economic considerations in real terms and not normatively as being in vogue.

In India it is ironic that the water sector reforms are largely in rural leaving urban relatively rich sectors untouched. Even when the rural poor are expected to pay full or partial cost recovery, urban rich is heavily subsidized. Many peri-urban settlements are un-served and households pay heavily in a vendor controlled water market. This dichotomy is to be addressed seriously in order to ensure effective reforms. The main challenge is switching from a build-and-rebuild approach to a build-and-expand approach where the Gram Panchayats (GPs) maintain their facilities and States invest in expanding systems to meet the demands of growing population aspiring for higher and sustainable services. The real choice is political - whether as a nation we need satisfied people with sustainable services or short term political gains out of harbouring utilities and providers that are accountable to political leaders and not directly to the people. Once the choice is made, then the going is easy, make utilities and providers autonomous and accountable contractually where the weaker sections of the population are subsidized and not the bad utilities.

Though the guidelines emphasise the importance of inclusion, equity and gender, specific measures to ensure inclusive and equitable service delivery have not been spelled out for operationalization. Most often the poor are excluded from service delivery and also they are ill-served. Specially targeted approaches giving appropriate and affordable technology options shall be offered. Specific strategies are needed for last mile coverage in drinking water and sanitation and generate demand for improved access and coverage. More clarity is required for subsidies, targeting and analysis of real outcomes and inter-generation equity. Special indigenous people component plan shall be built into the allocations and monitored by independent agencies and results published to ensure compliance of implementing agencies.

The policy guidelines to be effective shall have a right mix of incentives and disincentives structure embedded, market or non-market. Water is an economic good. The approach towards tariff, cost recovery, subsidies and cost efficiency are not clear in the guidelines. Sheltered under this ambiguity, institutional inefficiencies thrive and there exists very weak accountability structures. Basic reforms to alter and ensure provider accountability are not visible in the guidelines. Water tariffs are also to be seen as a way of actively managing demand, setting prices according to long run marginal costs. There is evidence of enough elasticity of demand in the household sector to make tariffs an effective

instrument for water demand management. Additionally, central allocations could be used as a powerful tool to incentivize efficiency; instead profligacy and waste get incentivized. There are instances of malaria occurrences due to clogging of water over extracted in a desert state like Rajasthan, marginal farmers getting poorer due to steep fall in groundwater and marginal lands become saline due to over subsidized flood irrigation. At utility level subsidization of inefficiency always lead to poor performance as evident from the abnormally high (35-40percent) unaccounted for water. For communities, there are opportunities for construction of new schemes and no one is accountable for the cost of failures, as if the schemes are designed to fail.

There are contradictions in priorities and policy elements at national and state levels. These policy gaps and inconsistencies often create serious practical issues in operationalization and implementation. Government of India shall invest in inventorizing policies and legislations and to create appropriate institutional framework to vet and audit polices for harmonization and alignment with the National Water Policy. For instance, the role of regulatory framework in rural sector is under debate, however, clear accountability relations between consumers and service providers are critical, which could develop during the years into a formal and more structured regulatory framework. PRIs shall have an overarching role both in monitoring service delivery and supporting community based surveillance of service levels, reliability, quality and demand management.

The creation of regulators in India has not been accompanied by critical reflection on their role or attention to the political, legal and institutional contexts within which they operate, separated from executive branch of government to make them function independently. Water regulator set up by Maharashtra in 2005 and legislation to introduce water regulators is in process in States like Arunachal Pradesh, Gujarat, Delhi, Kerala. The Maharashtra Water Resources Regulator Agency (MWRRA) was constituted as part of a World Banks' larger programme "Maharashtra Water Sector Improvement Programme'. By determining entitlements and regulating water trading, the MWRRA has to ensure that water goes to the highest value user, which will have significant social consequences (Dharmadhikary, 2007). Braithwaite (2005) argues that developing countries having regulatory capacity problem are ripe for responsive regulation in a model of networked governance where State rely heavily on non- state actors to participate in the task. Regulation would have to be guided by a larger substantive framework that make consideration of social goal as an integral part of regulatory objectives and communities will have a clear decision making and conflict management role.

Historically, investments in water sector in India have been largely around the concept

of Multi-Utility Systems (MUS), whether it was in public or community / household domain. Analyzing the trajectory of sector investments have also revealed that, traditionally household /community investments have been dominant and focused towards water conservation, harvesting, source augmentation and sustainability - all are directly or indirectly reinforcing the concept of MUS. However, during the period of exponential expansion of government functions, post-independent India has witnessed three distinct features:

- Vertical fragmentation of functions and multiplicity of departments and agencies dividing water into industrial, agricultural, drinking / domestic and environmental etc.
- Fragmentation of budgets and allocations in line with the above process
- Water quality deterioration and environmental pollution of sources

Empirical studies in recent years have corroborated significant externalities and incremental benefits of investments in MUS, when compared to single use service delivery models (Koppen, 2006). The linkages have been proved to be significant by way of improved health, livelihood / poverty reduction and welfare gains. It has also been proved that communities meet water requirements from multiple sources as well. The reality of MUS and multiple sources need to be adequately recognized.

The guidelines speak of convergence, however there are no clear cut process / framework to enforce and monitor. Fragmented bureaucracies make uncoordinated decisions, reflecting individual agency responsibilities that are independent of each other. Too often, government planners develop the same water source within an interdependent system for different and competing uses. This project-by-project, department-by-department and region-by-region approach is no longer adequate for addressing water issues. At operational level, convergence is critical in achieving source sustainability, water security, prioritized allocations and sustainable service delivery.

There are critical gaps in data collection, analysis and monitoring. Externally funded programmes design independent monitoring systems that are rarely harmonized and institutionalized. The sector contradictions are best reflected in the coverage and service level data provided by different sources like Ministry of Drinking Water Supply and Sanitation (MDWSS), Census, National Family Health Survey (NFHS), National Sample Survey Organisation (NSSO). India needs to fundamentally depart from the normative indicator based information management systems that could be useful only to harbour inefficient public utilities and to support political agenda. The set of policy guidelines do not offer much clarity on this count. Being futuristic the guidelines should

also look forward to a post MDG scenario by developing innovative indicators that capture truthfully the real time field realities in service delivery. Excellent data capture systems using handheld devices in cloud computing environment embedded in GIS make a lot of sense in development of water sector towards scientific decisions. Packages like FLOW that utilizes Android handsets (now getting compatible with windows as well), SMS and web entry to feed a comprehensive, cloud-based GIS-aware data analysis and mapping platform can help to track and analyze the operational status of water and sanitation projects in India.

IV Life-Cycle Cost Approach (LCCA) for Sustainable Service Delivery - Case from AP

Central Guidelines are used by the States to estimate and draw allocations for the sector. In majority of the components the ratios are 50:50 in terms of fund sharing. On the other hand, state governments use their own discretion to estimate the costs and budget allocations. In this section we assess the unit costs and their allocation in the context of AP State based on the actual expenditure at the village level. At the State level investments in WASH sector are made on the basis of unit cost norms i.e., per household or per capita costs at the State level assuming a life span for the systems. These costs are used across the geographical areas irrespective of actual requirements. However, the actual or observed life of the systems vary across regions due to Hydro-geological conditions, water quality, etc. The life of the systems could vary even across villages in similar hydro-geological conditions due to the differences in maintenance of the systems. These differences in normative and observed life spans influence unit costs. Besides, the composition of various costs also impacts the life span of the system. A balanced investment towards capital investment, capital maintenance, operation and maintenance, source protection, planning and designing, etc., is expected to enhance the life of system and provide sustainable service. The new guidelines provide various cost components that help sustainable service delivery. Notable and new among them are source sustainability and climate mitigation investments. At the same time the guidelines miss out on important components like capital maintenance.

In this section we try to compare the actual costs with the normative costs using the actual cost data from Andhra Pradesh (AP)¹. Cost estimates are made using the life-cycle cost approach in order to arrive at actual expenditure on different cost components. The WASHCost study data is collected from 187 habitations in rural AP. The cost components and methodology are drawn from the WASHCost research².

~~Unit Costs and their Composition~~

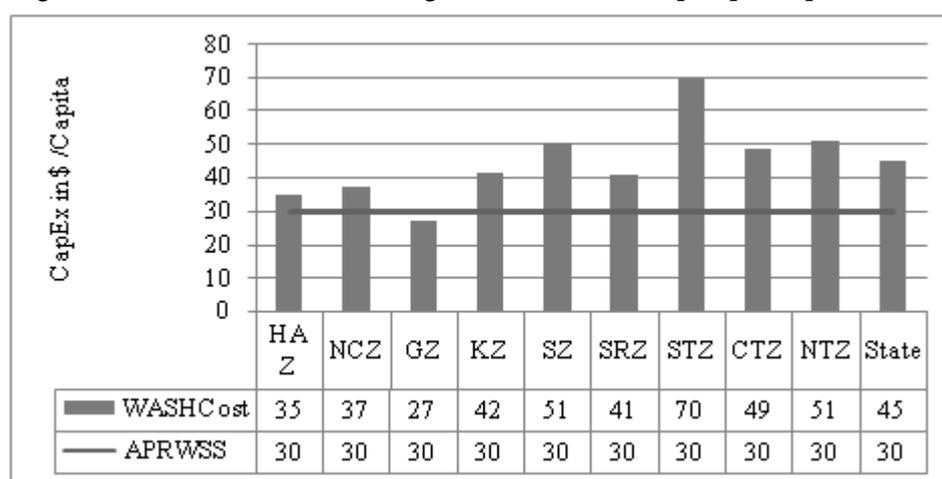
¹ The data is drawn from the WASHCost Project.

² For details see WASHCost (India), 2010.

Water

When systems and sources work to full normative life span the per capita fixed costs work out to be US\$ 45 in the sample villages as against the norm of US\$ 30 per capita (Fig. 2). While the RWSS unit costs are almost uniformly allocated across all the regions in the state, the unit costs in reality vary between US\$ 27 in Godavari zone (GZ) to US\$ 70 in South Telangana zone (STZ). This brings out two important issues: i) the real unit costs are substantially higher than the normative unit costs fixed by the department using the Standard Schedule of Rates (SSR) even though they are adjusted to market prices regularly³; and ii) there exist substantial variations in unit costs within and between zones⁴. This is mainly due to the differences in observed life of the systems across villages (and zones) consequent to the variations in the functionality of the systems. One of the main reasons for this is source failure. Source protection gets negligible allocations within capital expenditure. The substantial (20 percent) allocations provided for source protection in the new guidelines would help addressing the issue of slippage effectively when implemented. There is also need for a revision in unit costs reflecting the reality especially in terms of life span of the systems or allocations towards capital maintenance that would increase the life of the systems. Differential allocation of resources across locations based on hydro-geological conditions is needed in order to address the differences in unit costs across zones or locations.

Figure 2: Cost of Provision across Agroclimatic Zones (CapEx per Capita in US\$)



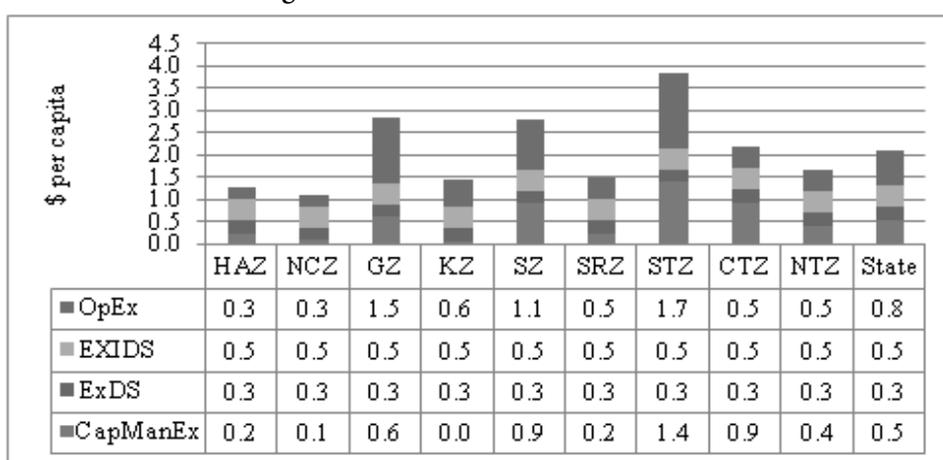
Source: WASHCOST Study (2011)

³ This varies from state to state. Some states have a lag of 2-3 years.

⁴ These variations go beyond political economy factors, where a part of higher investments could be attributed to political interference.

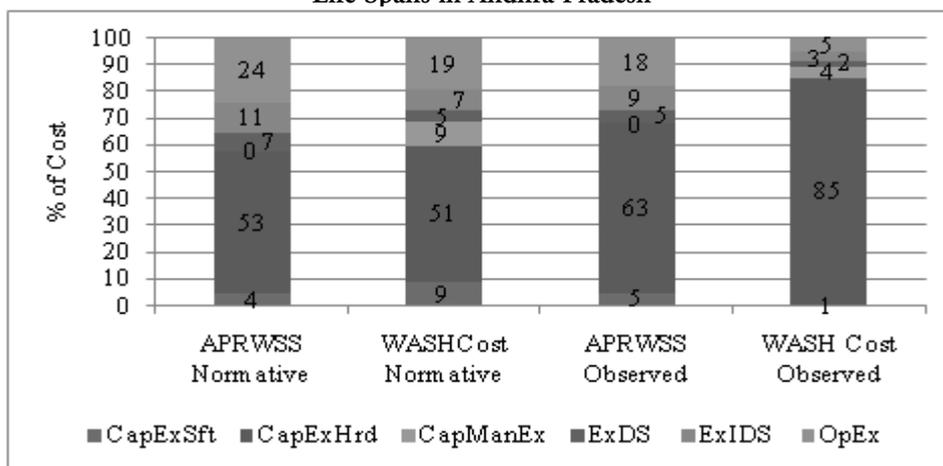
Apart from fixed costs recurrent costs also influence service levels. While capital or fixed costs are one time investments, recurrent costs are incurred on a regular basis in order to maintain the systems. These costs include capital maintenance (CapManEx), direct and indirect support costs (ExDS and ExIDS) and operation and maintenance costs (OpEx). At the state level these costs account for US\$ 2.1 per capita per year (Fig.3). Across the zones these costs range between US\$ 1.2 in North Coastal Zone (NCZ) and US\$ 3.9 in South Telangana Zone (STZ). STZ has high capital costs as well as recurrent costs.

Figure 3: Recurrent Costs across Zones



Source: WASHCost Study (2011)

Figure 4: Composition of Unit Costs (in percent) with Normative and Observed Life Spans in Andhra Pradesh

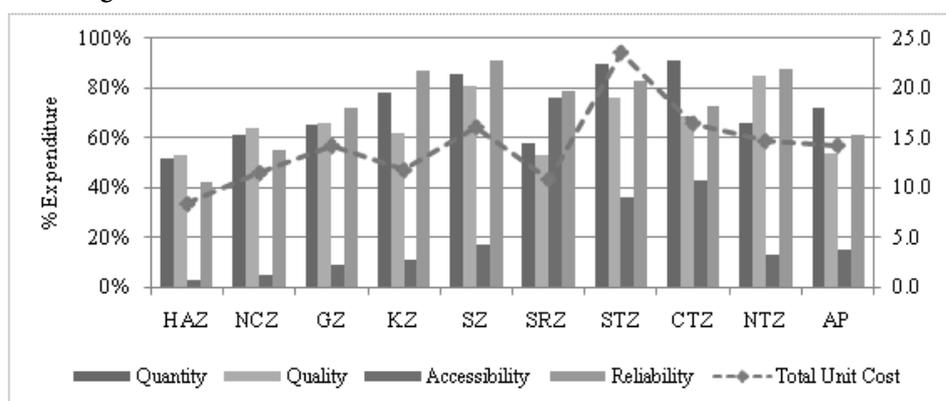


Source: WASHCost Study (2011)

The cost composition indicates that capital expenditure on hardware gets higher allocations even as per norms i.e., above 50 percent, when compared to new guidelines (Fig. 4). In reality it gets as much as 85 percent of the total expenditure. Support costs get about 5 percent, this too is mainly in the form of salaries and macro planning. At the state level, capital maintenance (CapManEx) accounts for 4 percent of the total expenditure, though these costs are not part of the norms. Capital maintenance expenditure is ad hoc i.e., as and when need arises. Operation and maintenance costs account for 5 percent in reality when compared to 10 percent as per the guidelines. Comparing cost allocations between normative life span and observed life span indicate that most of the operation and maintenance might have been diverted to capital maintenance. That is when unit costs are worked out in accordance with actual life of the systems or separate allocations are made towards capital maintenance, allocations towards operation and maintenance would be utilised for the actual purpose.

While assessing service levels is complex, as it represents multiple indicators, a service ladder approach using four parameters viz., quantity, quality, accessibility and reliability is adopted in WASHCost research (for details see Moriarty, et. al., 2011). Service levels are assessed in terms of proportion of households receiving basic and above service level for the four different parameters⁵. For, basic and above service levels correspond with the Indian norms of service levels. Majority of the households (above 50percent) get basic and above service levels for three parameters in all the zones (Fig. 5). Accessibility

Figure 5: Service Levels (basic and above) and Unit Costs across Zones.



Source: WASHCost Study (2011)

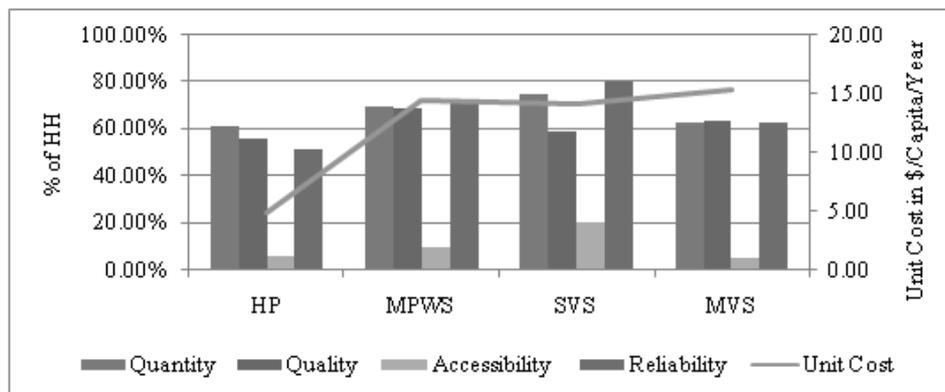
⁵ Detailed analysis of service levels in Andhra Pradesh is taken up in another paper (WASHCost India, 2011: Briefing Note). For instance, in the case of quantity service levels are defined as: <20 lpcd=no service; 20-40 lpcd= Sub-standard; 40-60 lpcd= Basic; 60-80 lpcd= Intermediate; and >80 lpcd= High.

gets the lowest rating with only 15 percent of the households reporting above basic service level. Across the zones, Scarce Rainfall Zone (SRZ) reported highest proportion (>50percent) of the households receiving basic and above service levels in all the four parameters. On the other hand, High Altitude Zone (HAZ) has the lowest proportion of households receiving basic and above services in all the four parameters.

Unit Cost versus Service levels per Technology⁶

The differences in unit costs are not very different between the technologies, except that HP is the cheapest and the combination of three technologies (MPWS+SVS+MVS) is the most expensive (Fig. 6). When unit costs are plotted against the service levels, it is clear that while HP is associated with poor service levels, the most expensive technology provides only marginally better service, that too in the case of quantity, quality and accessibility. On the other hand, Single Village Scheme (SVS) and Mini Piped Water Supply Scheme (MPWS) provide relatively better services when compared to MVS. It may be noted that better quality and accessibility is also associated with buying water (Reddy, et. al., 2012). In the absence of buying water MVS would do well in terms of quality, due to its dependence on surface water sources. Even in terms of cost per unit of water, Multi Village Scheme (MVS) has relatively high unit costs with low service levels when compared to MPWS (Reddy, et. al., 2012).

Figure 6: Service Levels (basic and above) and Unit Cost across Technologies



Source: WASHCost Study (2011)

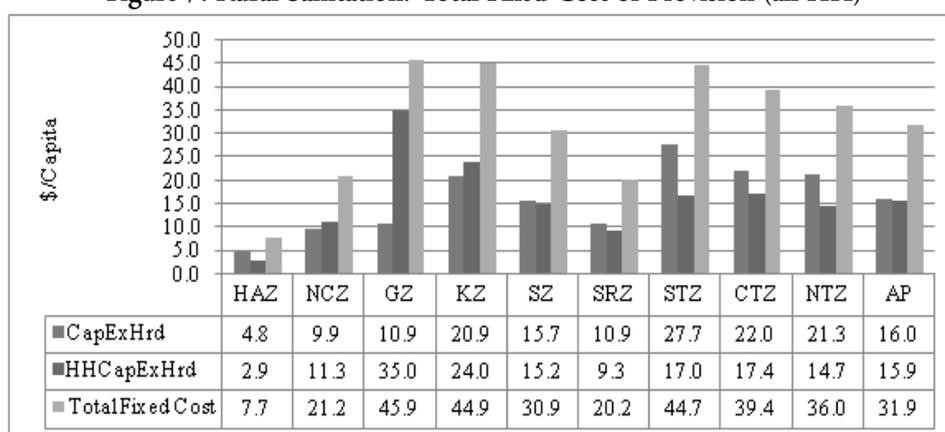
⁶ For details on technologies see Reddy, et. al., (2012).

Sanitation

The main cost components of rural sanitation include household level and community level investments. The cost estimates thus include public expenditure including subsidies and household investments over and above subsidy or excluding subsidy. At the community level the major investment includes public or common toilets at schools⁷, public places, anganwadis, drainage systems, solid and liquid waste disposal systems, training and awareness programmes, etc. All these components are grouped under life-cycle cost components and come under public expenditure. In the case of sanitation mostly single pit toilets are used though double pit toilets and septic tanks are also in use in a limited way. Therefore, we do not differentiate between the technologies in the case of sanitation. Technology is not found to be influencing the service performance (WSP, 2010).

At the present level of coverage the fixed cost of sanitation is about US\$ 32 per capita at the State level (Fig. 7). Fixed costs vary between US\$ 8 in HAZ to US\$ 45 in Krishna Zone (KZ). Fixed costs are equally shared between households and public expenditure. The variations in costs could be due to the coverage levels rather than cost differences, as these costs are estimated for all the households i.e., with ISL and without ISL. This was done mainly due to the reason that public expenditure other than subsidies on Individual Sanitary Latrine's (ISLs) are accessed by all the households. In order to arrive at more realistic figures we have grouped the sample villages in to NGP and Non-NGP villages. For, access to ISLs in NGP villages is close to 100 percent and hence the unit costs would reflect the costs when full coverage is achieved. The fixed cost of provision

Figure 7: Rural Sanitation: Total Fixed Cost of Provision (all HH)

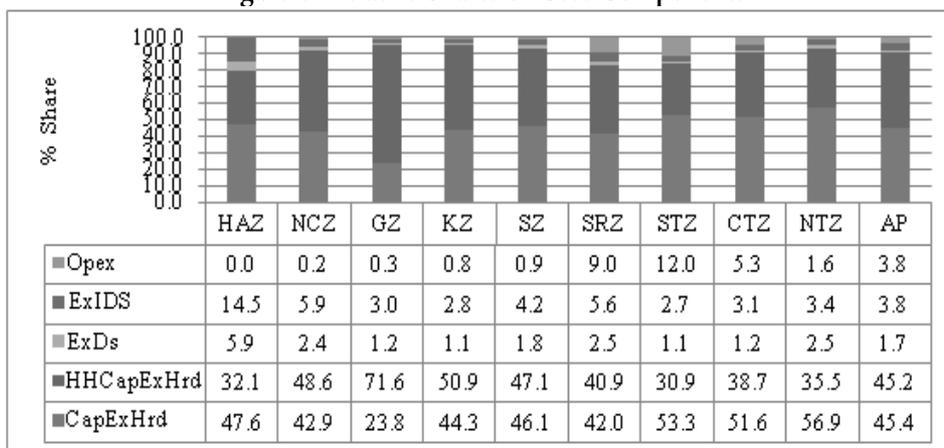


Source: WASHCost Study (2011)

⁷ School toilets are constructed by the Education Department

is as high as US\$ 54 in the case of NGP villages as against US\$ 22 in the case of Non-NGP villages. This indicates that the present allocations need to be more than doubled even to achieve full ISL coverage. The costs would be much higher if we include other expenditure like solid and liquid waste management. Relative shares of costs indicate that capital costs (public + household) account for more than 90 percent, while recurring costs are negligible. More importantly, expenditure on software components like IEC are absent. In fact, these investments are more important in the case of sanitation.

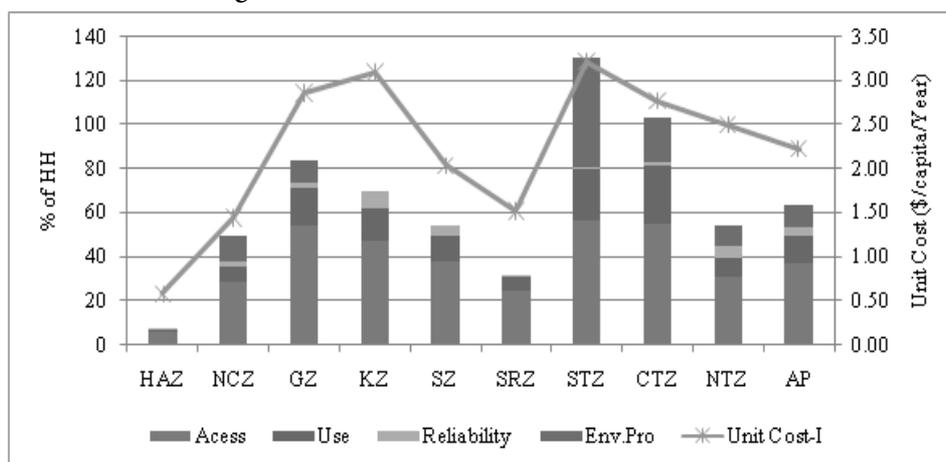
Figure 8: Relative Shares of Cost Components



Source: WASHCost Study (2011)

When the unit costs are juxtaposed with service levels, access to sanitation is closely associated with costs (Fig. 9). But, there is no one to one correspondence between costs and use of ISL. Use levels are very low across the zones. This indicates that while public expenditure towards subsidies could improve access it may not result in usage, unless supported by behaviour change. Usage is a major concern even among the NGP villages (WSP, 2010). In this context, the reduction in household subsidies in the new guidelines is in the right direction, though the effective enforcement is yet to be seen. Besides, even after reduction the share of these subsidies is as high as 60 percent. This calls for a rethink regarding the way sanitation is perceived at the policy level.

Figure 9: Service Levels (>Basic) and unit Costs



Source: WASHCost Study (2011)

V Conclusions

The new guidelines for both water and sanitation could provide a flip to the WASH sector in India if they are implemented in word and spirit. These guidelines provide a new direction to the sector in terms of moving towards sustainable service delivery. However, these guidelines need further strengthening in order to make WASH security at the household level a reality. Some of the important issues in this regard pertain to financing the sector and composition of the allocations. Here we capture some of these aspects by comparing the guidelines with ground realities from the AP case study.

Sector financing is an important tool for sector efficiency. As per the actual costs, allocations towards water should be enhanced by 50 percent. This should be supported by appropriate choice of technology, benchmarking services, clarity in accountability, improvement in efficiency. In the case of sanitation the allocations have to be more than doubled, with a strong focus on behaviour change, generation of demand and environmental sanitation for health outcome. Adopting LCCA for financing the sector would help getting the unit costs right and getting the right balances among different cost components for sustainable service delivery. The situation is rather alarming as far as sanitation is concerned. Though separate guidelines are issued for sanitation, it is dovetailed to water for all practical purposes. The need of the hour is to mainstream sanitation with sufficient allocations and planning. This is possible through creating not only awareness but also creating the necessary facilities and infrastructure for safe disposal and management solid and liquid waste management. This calls for a total shift away from the subsidy driven ISL provision to creating demand for private sanitation.

Post Construction Support (PCS) is another major concern. Allocations to the sector should include capital maintenance on a regular basis so that adhoc allocations towards major breakdowns would not be diverted from the O&M allocations. The impact of this imbalance between capital and other recurrent expenditures becomes increasingly critical when coverage rates start to climb. The result is that water supply systems continue to fall out of service as fast as new ones are constructed. Though the approach has gained dominance as a rural service delivery model in progressively enhancing rural coverage, recent evidences suggest critical second generation sustainability concerns. The PRIs / communities require professionalized market driven post construction support for sustainability. A standard O&M and asset management guideline is to be designed, tested and adopted as operating procedures and support States to get them implemented.

Strategically India needs to refocus towards sustainable service delivery moving drastically from the engineering model hitherto followed to leverage the benefits of high investments. The programme will focus on software, build capacities, trigger and sustain change management, institutionalizing accountability and a structured approach towards sustainable services at scale. Apparently now the question of universal coverage is a near achievement, at the macro level, India is ripe enough to trigger the shift to sustain the gains of coverage to improved and sustainable service delivery.

The assumption of community management has failed to work on account of lack of ownership, poor cost recovery and inadequate technical and managerial capacities. Both the VWSCs and GPs are weak in discharging the mandate. Over the years it has become evident that Professional Post Construction Support (PPCS) is necessary for replacing voluntarism and rigid and archaic concepts of participation. Local Self Government's (LSGs) could play the key role in regulation, quality assurance, oversight and coordination. Considering the capacity variations of PRIs in India different models could be evolved to support the process.

Roadmap to Sustainable Wash services that Last

Important aspects of service delivery approach among other things include: support to rural operators (i.e. community management entities or local private sector), professionalization of community management, greater attention to investment planning for longer-term capital maintenance and asset renewal. To support the more positive trends there is an urgent need from the GoI to re-assess the role and investment decisions, sector status in the States. A similar exercise has been done during the sector reform phase in India and the sector assessment reports prepared for most of the States; however there has been little progress after the study.

Over the years there are new evidences in rural water sector in India and abroad and it would be worthwhile to have a reassessment in the backdrop of these developments. The key focus of policy shall be to incentivize States to shift from project to shift towards Service Delivery Approach (SDA), benchmark utilities and services and managers made accountable in an autonomous decision making environment. A common and critical weakness is the lack of reliable data and / or multiple and competing monitoring systems and data sets at fairly disaggregated level to facilitate analysis and to support decision making. There is urgent need to encourage up-gradation and migration towards new platforms, national level systems that can serve both the upward demand for strategic planning and the downward demands for operational planning and decision-making at the local level, ensuring both vertical and horizontal flow of information.

The political economy of water generate powerful disincentives to reforms and often play critical role at all stages of the life cycle of a project leading to wrong investment decisions. The key challenge is to transform the negative impact of political decision making process towards positive energies to drive complex reforms and changes through visionary leadership. The software elements and capacity building process envisaged in the guidelines could be effectively oriented to achieve this goal.

References

- Batchelor Charles, V. Ratna Reddy, Conor Linstead and others (2012), "*Do water-saving technologies improve environmental flows?*" Paper Prepared for WWF, London, UK.
- Dharmadhikary, Shripad (2007), '*A Flawed Model for Water Regulation*' *India Together*, May 23 (<http://www.india together.org/2007/may/env-mwrra.htm/>)
- Braithwaite John (2005), *Markets in Vice, Markets in Virtue* (Oxford: Oxford University Press, UK).
- Fonseca, C. et al., (2011). *Life-Cycle Costs Approach. Costing Sustainable Services*, Briefing Note 1, IRC International Water and Sanitation Centre, The Hague, The Netherlands.
- GoI (2002), *Swajaldhara Guidelines* [Online]. Available at http://ddws.nic.in/popups/swajal_pop.htm [Accessed 25 October 2010]
- GoI (2008), *Rajiv Gandhi National Drinking Water Mission*, Department of Drinking Water Supply Ministry of Rural Development, Government of India, New Delhi.
- GoI (2009), *State of the Panchayati Raj: Theme Report 6- Panchayats and Natural Resource Management: Water*, Volume 1, Ministry of Panchayathi Raj, Government of India.
- GoI (2010), "*Strategic Plan 2010-2022*", *Department of Drinking Water and Sanitation, Ministry of Rural Development, Government of India*, New Delhi.
- GoI (2010a), *Strategic Plan - 2010-2022: Department of Drinking Water and Sanitation- Rural Drinking Water*, Ministry of Rural Development, Government of India.
- GoI (2010b), *Rajiv Gandhi National Drinking Water Mission - Movement towards Ensuring People's Drinking Water Security in Rural India - Framework for implementation 2009 - 2013* Department of Drinking Water Supply, Ministry of Rural Development, Government of India.
- GoI (2010c), *A Hand Book for Gram Panchayats: To Help Them Plan, Implement, Operate, Maintain and Manage Drinking Water Security*, *Department of Rural Drinking Water, Ministry of Rural development, Government of India and Water and Sanitation Programme, The World Bank*.

- GoI (2011); "12th Five Year Plan- 2012-17: Report of the Working Group on Rural Domestic Water and Sanitation", Ministry of Drinking Water and Sanitation, Government of India, September, New Delhi.
- GoI (2012), *Census of India - 2011 Preliminary Report*, Government of India, New Delhi.
- GoI (2012), "Background Note and Agenda for Conference of State Ministers and State Secretaries In-charge of Rural Water Supply and Rural Sanitation" Ministry of Drinking Water and Sanitation, Government of India, New Delhi, 24-25th May, Vigyanbhavan.
- Koppan, Barbara van, et al., (2006), *Multiple-Use Water Services to Advance the Millennium Development Goals*, IWMI Research Report 98.
- Moriarty, P. et al., (2010), - *Ladders for assessing and costing water service delivery*. WASHCost Working paper 2 IRC International Water and Sanitation Centre, The Hague, The Netherlands.
- Reddy V. R, et. al (2011), *Cost of Provision: How good are Unconditional Allocations? A study of water services delivery in rural Andhra Pradesh, India*, WASHCost (India) - CESS - Working Paper - 15, Centre for Economic and Social Studies, Hyderabad.
- Reddy V. R; M. Snehalatha and M. Venkataswamy (2012), *Costs and Service per Technology in Rural Water Supply: How Efficient are Multi Village Schemes?*, WASHCost (India) - CESS - Working Paper - 18, Centre for Economic and Social Studies, Hyderabad.
- Reddy, V. Ratna, et. al., (2009), *Costs of Providing Sustainable Water, Sanitation and Hygiene Services in Rural and Peri-Urban India*, Working Paper 1, Centre for Economic and Social Studies, Hyderabad.
- WASHCost India (2010), *Cost of Providing Sustainable WASH Services: Experiences from the Test Bed Study Areas, Research Report*, Centre for Economic and Social Studies, Hyderabad.
- WASHCost India (2011), *Cost of Providing WASH Services in Andhra Pradesh (India): Need for a Paradigm Shift, Research Report*, Centre for Economic and Social Studies, Hyderabad.
- World Bank (2008), *Review of Effectiveness of Rural Water Supply Schemes in India*, Sustainable Development Unit, South Asia Region, The World Bank, June 2008.
- WSP (2010), *A Decade of Total Sanitation Campaign: Rapid Assessment of Processes and Outcomes*, Vol.1; The World Bank, New Delhi.

Table A1: Drinking Water Supply Programs & Policies at a Glance

Year	Policy Event
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.
1950	The Constitution of India specifies water as a state subject.
1969	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 bore wells being dug and 17,000 piped water supply schemes being provided.
1972-73	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.
1981	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.
1986	The National Drinking Water Mission (NDWM) was launched to accelerate the process of coverage of the country with drinking water.
1987	First National Water Policy drafted by Ministry of Water Resources giving first priority for drinking water supply.
1991	The National Drinking Water Mission (NDWM) renamed as Rajiv Gandhi National Drinking Water Mission (RGNDWM).
1994	The 73rd Constitution Amendment makes provision for assigning the responsibility of providing drinking water to the Panchayat Raj Institutions.
1999	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 behaviour change with involvement of PRIs, CBOs, and NGOs
2002	Scaling up of sector reform initiated in the form of Swajaldhara programme. The National Water Policy 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 the Millennium Development Goals to halve the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015, from 1990 levels.
2005	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.
2007	Pattern of funding under Swajaldhara changed: 50:50 centre-state share.
2009	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 <i>Swajaldhara</i> principles.
2010	Department of Drinking Water Supply renamed as Department of Drinking Water and Sanitation. New Guidelines for drinking water (NRDWP) and Sanitation are issued along with strategic plan.
2011	Department of Drinking Water and Sanitation upgraded as separate Ministry of Drinking Water and Sanitation
2012	Draft New Water Policy

Source: Adopted and updated from 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, September 2011

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