Working Paper No.113
WASHCost - CESS Working Paper No.19
February, 2012

Qualitative Challenges in Improving Performance of Water Points…

Insights from Community Based Performance Assessment of Water Points in Andhra Pradesh

M.V. Rama Chandrudu
R. Subramanyam Naidu
Safa Fanaian
Radha Shree

February, 2012

WASHCost (India) Project
CENTRE FOR ECONOMIC AND SOCIAL STUDIES
N. O. Campus, Begumpet, Hyderabad - 500 016, A.P., India
Web: www.cess.ac.in, email: post@cess.ac.in
Ph: 040-23416610-13, 23402789, 23416780, Fax: 040-23406808

Acknowledgments

Thanks are due to Vijay Krishna (Arghyam) and Rupa Mukerji (HELVETAS Swiss Intercooperation) for their constructive comments on the earlier drafts of the paper. Also would like to thank Professor V. Ratna Reddy (Director, Livelihoods and Natural Resource Management Institute (LNRMI), Dr. M. Snehalatha - Country Coordinator, WASHCost (India), Centre for Economic and Social Studies CESS) and Dr. M. Venkata Swamy - WASH Specialist WASHCost (India), Centre for Economic and Social Studies CESS) for their continuous support during the paper preparation. However, the usual disclaimers apply.

.

Qualitative Challenges in Improving Performance of Water Points…

Insights from Community Based Performance Assessment of Water Points in Andhra Pradesh

M.V. Rama Chandrudu[1], R. Subramanyam Naidu[2], Safa Fanaian[3], Radha Shree[4]

ABSTRACT

Perceptions of communities on the performance of 1400+ public water points in their locality gave an insight to the complex nature of WASH governance, influence of technology and natural resource endowment in 9 agro climatic zones of Andhra Pradesh. This community based performance assessment gave an opportunity to the rural households to reflect on the service levels (adequacy, quality, predictability and accessibility) of each of these water points. The assessment indicated that the good practices in WASH services are in minority, which also reflected WASH governance in the state. Based on this community's assessment, one could infer that several key elements of WASH policy are not being implemented in true spirit. The gaps between policy and practice seem to have influenced the performance of water points negatively and the villagers are certainly not happy with the current level of service in rural Andhra Pradesh.

[1] MV Rama Chandrudu, Director, WASSAN
[2] R Subramanyam Naidu, Senior Program Manager, WASSAN
[3] Safa Fanaian, Program Officer, WASSAN
[4] Radha Shree, Program Associate, WASSAN

Introduction

It is expected that the investments on WASH sector would ensure standard norms/ levels of services and ultimately "user's satisfaction". But, what do villagers think about the water supply facilities and the level of services they receive? What factors influence the performance of water points? Policy framework[1] for providing safe drinking water in rural areas clearly recognizes the need for assessing the performance of drinking water services against standard indicators of performance (Box No 1). WASHCost (India) Project contextualized these key "performance indicators" (Box No 2) and attempted to assess the "perceptions" of rural communities on the level of services they are receiving from water points in their village.

This assessment covered 1400+ common water points (public stand posts, handpumps and wells) in 107 villages in 9 agro climatic zones of Andhra Pradesh including 21 villages that received Nirmal Gram Purashkar (NGP) awards, for attaining "zero open defecation status". Quantitative Participatory Assessment (QPA) tools were used to document the perceptions of villagers on the performance of water points. This methodology enables the local communities to score the performance of each water point against standard performance indicators - adequacy, predictability, quality and access. Using these tools, rural communities assessed the performance of water points providing them water. These perceptions would not be uniform. An attempt is made to understand the community's perspectives on the service levels of water points and variables that may have an influence such as type of local governance arrangements; technology through which water is supplied; location of the village itself (agro climatic zone) and population size of the village.

[1] Chapter on Community Monitoring and Social Audit, National Rural Drinking Water Program, RGNDWM, GoI (2010)

Box No 1: Norms and Standards for Drinking Water in India

There has been a shift towards making norms and guidelines broad-based and allowing flexibility to community to plan water supply schemes based on their needs and local conditions. The norms suggest that desirable service levels should be decided in consultation with the local community.

1. Access: Coverage of population is calculated on the percentage of people within habitation getting basic minimum quantity of potable water within a distance of 500 mts from household from either a public or a community source. Less than 250 persons per hand pump / stand post means that there is no crowding. There should be no social exclusion.
2. Quantity: 40 litres per capita per day; 70 litres per capita per day (with high livestock density).
3. Quality: Water is defined as safe if it is free from biological contamination (guinea worm, cholera, typhoid, etc) and within permissible limits of chemical contamination (fluoride, brackishness, iron, arsenic, nitrates, etc) as per IS-10500 of Bureau of Indian Standards.
4. Reliability: The concept of security to access is used rather than reliability. Security is seen as households having access to at least some water even in times of stress. As all systems breakdown sometimes, security is defined as having access to at least two separate systems/ sources. There should be supply of water at least once in a day.

Purpose and Methodology of Performance Assessment:
The main purpose of the assessment was to:

- Understand the community perspectives on service levels of common water points, and
- Explore the enabling factors behind the high level of service delivery.

Quantified Participatory Assessment (QPA) methodology was used for assessing the perceptions of user communities on service levels (mainly - quantity, reliability/ predictability; quality and access). This methodology allows scoring the perceptions of user communities on a scale of 0 to 100. The scores in turn indicate the level of service of each water point - higher the score, higher the service level and vice versa. A standard benchmark was developed for every performance indicator to facilitate comparisons of water points across different villages. This process also helped in standardising the ranges of scores and related responses. A team (about 4 to 6 persons) of trained facilitators

stayed in the sample villages for three to five days to conduct a variety of tasks, as part of the assessment. This included household surveys, data collection from Gram Panchayat, Focused Group Discussions (FGD's), etc. Focused group discussion with users of a particular common water point (hand pump, public stand posts, wells and different localities in the village) concentrated on the perception of communities on the level of services from their water point. Each focused group discussion covered about 10 to 30 participants (both men and women, though, in general women participants were more), who are the users of the identified water point.

The investigators were trained on the process of inquiry and facilitating the group discussions. A detailed checklist was developed and field tested, before finalization of the methodology. Considerable discussions/ debates took place during these meetings among the user community, about various dimensions of performance of each water point. The facilitators could steer these discussions/ debates to arrive at commonly agreed performance description, after carefully triangulating the responses within the group. Each discussion took about 2 to 3 hours time. Depending on the nature of response, the performance/ service level of the water point was indicated with a "score". These scores ranged from 0 to 100, 0 being worst scenario and 100 being the best possible situation. As an illustration, if a particular water point is dry/ non-functional and users go to unprotected water sources (ponds, rivers, canals, agricultural wells, etc), such water point gets a low score (0 points). Another water point which provides adequate water for all needs throughout the year, for regular and additional users, gets the highest score (100 points). This scoring system was used for all other performance indicators of water points. Though five ranges of performance (0; 1-25; 26-50; 51-75; 76-100) were used to slot the perceptions of user communities, the water points were finally divided into two categories for simplifying the analysis: "low level of performance" (water points that scored less than 50 points) and "high level of performance" (water points that scored more than 50 points). This scoring system allowed "standardizing" the responses within the ranges and was useful for comparisons across the regions and with standard norms. The process of enquiry also explored the performance of water points in different seasons. Box No 2 gives the performance of water points under these two categories, against standard indicators. The % of villages under each category of performance (low and high) is also presented in the Box No. 2.

Box No 2: Contextualizing Performance Indicators of Water Points - Categorization of Villages as per Service Levels that villagers received		
Performance Indicators	**Low Level Service (Water Points that got less than 50 Points)**	**High Level Service (Water Points that got above 50 Points)**
Quantity/ Adequacy	**% of Villages: 38%**	**% of Villages: 62%**
	- Low Pressure - Not enough for all uses - Not sufficient for regular users additional users - Pumping is hard in case of HPs	- High pressure - Enough water for all uses - Sufficient for regular and - Easy pumping in case of HPs
Reliability/ Predictability	**% of Villages: 81%**	**% of VIllages: 19%**
	- No scheduled timing in water supply - Supply unpredictable in case of repairs - Takes time for groundwater recharge	- Scheduled timings followed in water supply - Agreed policy on down time - Spares, tools and mechanic available - Sufficient groundwater.
Quality	- **% of Villages: 97%**	- **% of Villages: 3%**
	- Water unfit for drinking - Complaints on colour, taste, smell etc	- Fit for drinking - No complaints on water quality - Water quality is tested and results are known to villagers.
Accessability/ Level of Social Barriers	**% of Villages: 1%**	**% of Villages: 99%**
	- Alternative source do not exist - Restrictions on accessing water from water points based on caste/ class/ creed - Crowding at water point	- Alternative sources exist for accessing water - No restrictions among defined and un-defined users in accessing water from water points - Follows 'Q' system or 'first come first serve'

The key observations and findings of this community based assessment are presented in subsequent sections of the report. An attempt is made to understand how communities scored in different situations (agro climatic zones; size of village; local governance system; technology used, etc). Good practices in each performance indicator are presented in box items.

Adequacy

The communities assessed the water points, based on the quantity of water they are getting for different purposes i.e., drinking, cooking, washing, other domestic needs, livestock, kitchen gardens, livelihoods, etc. The regular and additional users considered a water point as a best performing water point if they are getting sufficient quantities of water for the aforesaid uses. Any water point that could not meet this expectation got lower scores. (Box No. 3 for good practices in adequacy of water supplied)

- Villagers in 62% of the sample villages mentioned that they have adequate water supply from their water points. Villagers in remaining 38% of the sample villages thought that they are not able to get adequate water from their water points. Community's assessment is systematically analysed to co-relate with the context

Box No 3

Adequate waters for all seasons and all reasons....

In 5 NGP villages, people mentioned that the water supply is adequate for all types of uses, for all types of users and in all seasons... What made this possible?

Local institutions:

Local committees (VWSC/ Village Development Committees) and Gram Panchayat take joint responsibility of managing water supply system.

Humanizing the technology...

Representatives of Rural Water Supply and Sanitation (RWSS) Department, Village Water Sanitation Committee (VWSC), Gram Panchayat (GP) and some villagers participated in the feasibility study and technical survey conducted for establishment of water supply related infrastructure. Women's voices/ preferences were considered in establishing the public stand posts, etc. The water from all sources is pooled and distributed through a single pipe from Overhead Storage Reservoir (OHSR). Adequate pressure is maintained at all water points, by using uniform size of pipelines and fixing the taps at the same and highest level. So, all households get water at the same time and with equal pressure. The water supply is extended as per the decision of the Gram Sabha/village meetings. The water is not only sufficient for baisc and additional uses of the regular uses but also for additional uses.

in which the villagers are located. The following dimensions are assessed, as part of this process:

Adequacy and Variations between NGP and Non-NGP Villages:

- 78% of NGP villages and 57% of Non-NGP villages are providing adequate waters to their citizens, as indicated by their citizens. Though NGP awards are generally awarded for better sanitation (for attaining "zero open defecation status"), these villages seem to have developed a better governance and management systems for both sanitation and water supply systems. Higher share of NGP villages seem to reflect this dimension of WASH services.

Adequacy in Different Zones:

- Villagers in four zones, namely High Altitude Tribal areas (Srikakulam, Vijayanagaram and Vizag districts); Scarce Rainfall zone (Kurnool and Anantapur districts), Southern zone (Nellore, Chittoor and Kadapa Districts) and Krishna zone (Krishna, Prakasam and Guntur districts) observed that they are better served by the water points in terms of adequacy. More than 75% of villages in these zones get higher level services, as per their perceptions. Villagers mentioned that a high share of water points (about 60% to 80% of total water points in these zones) is able to provide high level of service (adequate quantities of water). The share of high performing water points is relatively low in other zones.

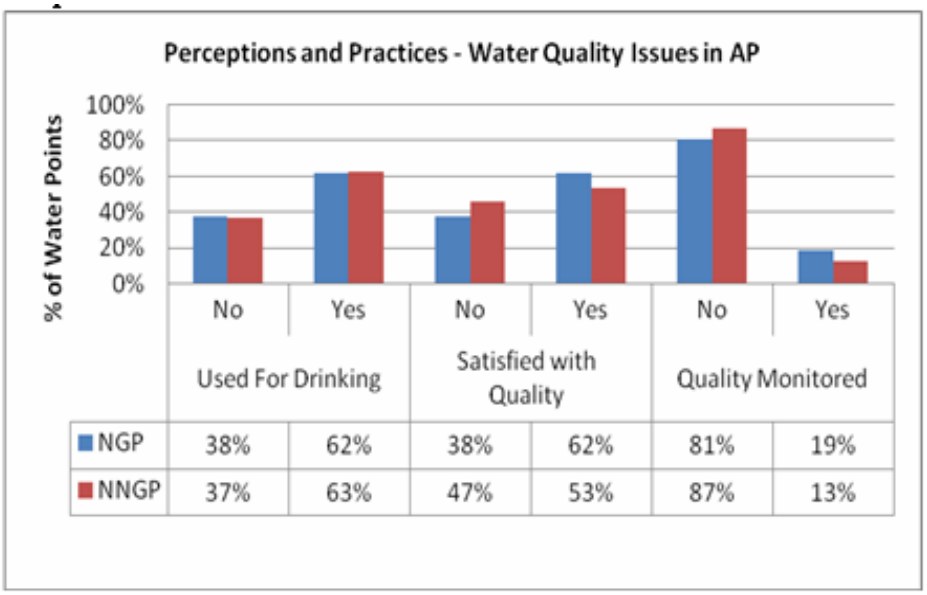
- Majority of the villages (ranging from 50% to 70%) in North Coastal zone (Srikakulam, Vizianagaram and Visakhapatnam districts); Central Telangana zone (Khammam, Medak, Warangal districts); Godavari zone (East Godavari and West Godavari districts) have low level of services (quantities) from their water points.

Adequacy and Type of Technology for Water Supply:

- Eight types of technical options are used for supplying water to villages. More than 80% of villages that are dependent on only handpumps; a combination of mini piped water supply scheme and multi village schemes are getting high level of services (quantities), as per the perceptions of the communities in these villages. Though handpumps are generally used as a last resort for fetching water (particularly when other options are available), villagers in high rainfall zones such as Krishna zone and High Altitude Tribal areas are still dependent on handpumps and wells and they are happy with level of services from these water points.

- People collect water mainly from three types of water points - wells, handpumps and public stand posts. Each of these water points could create a particular image in the minds of the user communities in terms of its services (Refer Graph 1)Wells constituted 3% of the total sample of the study. People consider that 60% of these wells provide high level of service (adequate quantity). Smaller share of the open wells indicates declining use of open wells in different parts of the state. As already mentioned, Krishna, High Altitude Tribal zone have highest number of wells in the sample.

Graph No. 1



- 36% of total water points in the study were handpumps. People consider that 56% of these handpumps are providing higher level of service. Krishna zone and Southern zone have highest share of handpumps that provide high level of service.

- 60% of sample water points are public stand posts. As majority of villagers have tapped water supply systems (at common points and at private households), the sample again reflects the actual universe. 43% of these public stand posts provide high level of service (quantity), as indicated by user communities.

- About 60% of villages that are part of Single Village Schemes (SVS); Multi Village Schemes (MVS) and a combination of these two are able to get high level of services. Remaining 40% villages under these schemes are not able to get adequate services (quantity). Though located in scarce rainfall zone, villages in

Anantapur district have the benefit of multiple sources/ schemes such as Satya Sai Water Supply Scheme, which help to get adequate water supplies. This is not the case in majority of the Multi Village Schemes.

Adequacy and Population Size of Villages:

- About 60% villages are getting high level of service (quantities), irrespective of population in the village. This indicates that adequate physical infrastructure is provided in almost all habitations to ensure adequate water supply. However, villages where population is between 1500 and 2500, only 43% of villages got high level of services (quantity).

Reliability/ Predictability

Reliability/ predictability of water availability from any particular water point is an important performance indicator. Any uncertainty of water supply might affect the daily schedule of peasant communities who go to farm work early in the morning and return late in the evening. Since several water points depend on groundwater, the availability of water is influenced by groundwater levels and power (to pump the water) during summer and non-summer seasons. Other factors that ensure predictable waters are - regular operation and maintenance systems; staff/ qualified human resources that are responsible for water supply systems; adequate infrastructure facilities for storage/ distribution, etc. (Box No 5 and 6).

- People in 81% of the sample villages mentioned that the water supply is unreliable and unpredictable in their villages. People in remaining 19% of the sample villages felt happy about high level of services from the water points in their village in terms of predictability/ reliability of water supply systems. Villagers in these 19% villages have a clarity/ knowledge about timings, availability of services from waterman; operation & maintenance practices including policy during break period, etc.

Reliability/ Predictability and Variations between NGP and Non-NGP Villages:

Predictability is a result of institutional processes. When WASH related institutions are functional, they could make sure that water supply system is reliable and predictable. This was the case in 86% of NGP villages; whereas only 1% of villages in Non NGP villages could provide effective institutional support for high level of predictability. Villagers in 99% of Non-NGP villages are living with unpredictable and unreliable water supply systems. This is indicated by higher average values of institutional indicators of NGP villages and higher average values of predictability in NGP villages.

- Evidence showed that quantity and reliability/ predictability of water supply could be addressed effectively with better governance structures and practices in place (Box No 4 and 5). Water supply systems are likely to breakdown due to a variety of reasons. The local management has to develop a policy and practice for providing WASH services during breakdown periods and also restoring them. A strong policy and practice for breakdown periods would ensure better service levels, particularly the predictability of water supply. The key elements of this policy are - operation & maintenance (O&M) systems for handpumps/ public stand posts; financial arrangements, etc. Strong local institution is essential for addressing O&M systems which has to deploy human resources for maintenance purpose and enforce financial discipline.

Box No 4
Variations in NGP and Non-NGP Villages in Institutional Processes and its influence on "Predictable Waters"

Indicators for Institutional Processes	Average Scores	
	NGP Village	N-NGP Village
Functioning of VWSC	10	3
Operation and Maintenance (PSPs)	31	23
Operation and Maintenance (HPs)	3	1
O&M Systems	32	20
Water supply and sanitation records	43	16
Tariff Collection	34	12
Financial Management	36	13
Policy and Practice during Breakdown	75	62
Panchayat Response	56	37
Service Level Indicator - Predictability	68	36

- The most common problems observed are - burning of motor (due to electric fluctuations); breakage/ leakage of pipes and drying of source. Wherever local committee is active, the members take active role in restoring the services within stipulated time. The Gram Panchayat allocates funds for the repairs or seeks support from Mandal level office for this purpose. When the local committees have adequate funds, they also invest from their own resources. Where there is a trained waterman, the breakdowns are minimal and the breakdown period is short. Usually Sarpanch/ President of Gram Panchayat makes the initial investment for repairs. When the local institutions are strong, they could easily mobilize

local contributions and tide over the crisis period. Culture of community contributions is internalized in these villages.

Reliability/ Predictability in Different Zones: While villages in majority of the zones felt that there is no reliability, people in Southern Telangana zone (Ranga Reddy; Nalgonda, Mahabubnagar districts) thought that the water supply is reliable in 50% of their villages. This perception is based on the fact that these villages have a defined schedule for water supply and the Gram Panchayat attends to any breakdown of the systems. Similar response was elicited in 33% of villages in Godavari zone. Here both groundwater dependent systems and public stand posts are offering reliable water supply as per the agreed timings.

Box No. 5

Predictable Waters

In 86% of NGP villages and 1% of Non-NGP villages, water supply is found to be more predictable. The following good practices made it possible:

Technical aspects...

Water supply systems are established as per the recommendations of technical/ feasibility study. By and large, contour levels are considered in laying pipelines as well as fixing the taps. Thus all parts of the village get adequate, equal and predictable waters. Water storage tanks are used effectively to offset the influences of unpredictable power cuts.

Human Resources....

Waterman is appointed, who operates water supply systems and is capable of attending to minor repairs. He also has a set of tools and spare parts with him (E.g.: spanners, rods, nuts, bolts, washers, etc). Gram Panchayats sent the watermen for necessary training programs on operation and maintenance of water supply systems including preventive maintenance. Local committees/ Gram Panchayats get support from cluster level office for repairing handpumps within stipulated time.

Breakdown Policy...

Gram Panchayat has an agreed policy on downtime in water supply; if major repairs occur, they would get it done in agreed time period by engaging mechanics from outside. The stand-by handpumps are used in case of emergencies.

Timings...

The local committees announce the timings of water supply in different localities of the village, which is followed strictly. Water is supplied twice in a day (for a minimum of an hour and for a maximum of four hours) according to the scheduled timing.

- About 20% of villages in North Coastal zone, Southern zone and Krishna zone have high level of reliability in water supply system.
- In 90% of the villages in High Altitude Tribal areas; North Telangana; Central Telangana and Scarce Rainfall zones, the villagers are not very happy about the way water is being supplied through their water points.

Reliability/ Predictability and Type of Technology for Water Supply:

- About 80% villages that are covered under Multi Village Schemes; combination of Multi Village Schemes and Single Village Schemes; Mini Piped Water Supply schemes reported high level of "unreliable and unpredictable" water supply systems. All villages under multi village schemes complained about undependable water supply systems in their village.
- About 20% to 25% villages that get water from handpumps, a combination of single village schemes and mini piped waters supply schemes mentioned that the water supply from these sources is reliable.
- It is interesting to note that in majority of the cases, systems that could supply "adequate" waters (higher quantities of water) are not really "dependable".
- People in rural Andhra Pradesh are served with undependable water supply systems, as indicated by communities. Majority of three types of water points (90%+) - handpumps, public stand posts and wells are ranked low in terms of reliability. The main reasons behind this unpredictable behaviour of these water points are given below:
    - Groundwater is depleting in majority of the villages and handpumps/ wells are not useful in those villages, where groundwater is depleting fast.
    - Even when groundwater resources are good, the rusting/ breakage related maintenance is not properly taken care of (in Krishna, Godavari, Southern zones).
    - Unreliable power supply makes the water supply unpredictable in majority of the villages.

Reliability/ Predictability and Population Size of Village:

- Though the level of predictability is low in general, it is found that higher share of villages that have populations between 500 and 1500, enjoy higher level of predictability of the water points. About 20% of villages under this category mentioned that water supply in their villages is more predictable.

- Smaller villages (less than 500 population) and bigger villages (above 1500 population) suffer more with unpredictable water supply systems. More than 90% of villages in these categories reported that water supply is unreliable.

Quality

The depletion and/ or restoration of groundwater influences water quality. Similarly contamination of surface water bodies also negatively influences the water quality. Chlorination, preventing from contamination, arresting leakages, etc., could ensure acceptable quality of water. The department also supplies kits to Gram Panchayat for testing quality of water on periodical basis for taking curative measures.

- Community scores clearly indicated that 97% of villagers are unhappy with the quality of water they receive from public water supply points. Only 3% of villages indicated their satisfaction with quality indicators.

Quality and Variations between NGP and Non-NGP Villages

- This performance indicator got very poor scores across all the zones. All NGP villages reported serious quality problems in their villages, while 96% Non-NGP villages also thought that they have poor quality water. Only in 4% Non-NGP villages, community members expressed satisfaction about their water points on this indicator.

Quality Issues in Different Zones:

- Though very small share, 18% of villages in High Altitude Tribal areas and 11% of villages in Godavari zone have reported high level of quality. In rest of the zones, not even a single village expressed their satisfaction over quality of water.
- Different types of water contamination were reported in different zones. In Central/ North/ Southern Telangana zones, where dependency on groundwater is high, people felt that the water is contaminated with fluoride. In zones that have abundant surface/ groundwater, the contamination is by faecal matter/ other biological contents. In the absence of regular monitoring by local institutions/ Gram Panchayat/ department and any discussions related to the results of such tests (if any), the "perceptions" of poor quality are perpetuated.

Quality and Type of Technology for Water Supply:

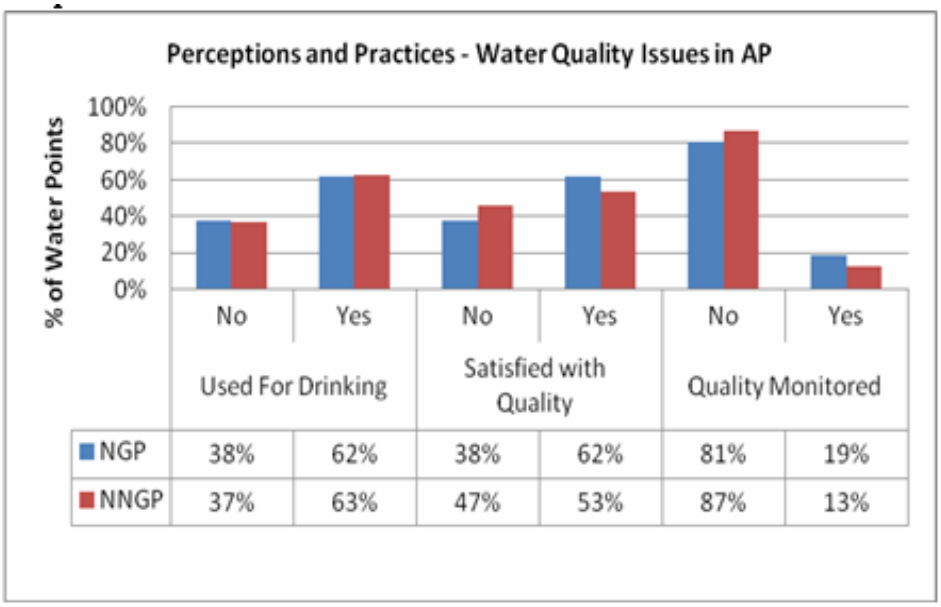
- About 10% of villages that get water from a combination of multi village schemes and single village schemes and handpumps reported that they get good quality water from their water points. All remaining technical options could not impress the villagers in terms of quality of water supplied.

- Very low share of water points - handpumps (6%); public stand posts (7%) and wells (5%) are considered to be supplying good quality water, while remaining water points are discarded by local communities on quality indicators.

Quality and Population Size of Village:

- Thought there is no specific relation, a small share of villages that have smaller population size seem to be getting good quality water, as perceived by the villagers (10% of villages that have less than 500 Nos and 3% of villages that have population between 500 to 1000 Nos).
- People are not aware of technical parameters for assessing quality of water for drinking and cooking. They have certain thumb rules to assess the quality. The testing for water quality seems to be abandoned in several villages. They could hardly recall incidents of water quality testing and any discussions on the results during the meetings. The system for regular monitoring of water is not yet internalized in majority of villages, even after distributing water quality testing kits by the department. However, there is a strong "perception" that the quality of the water from their water points is "poor" (Graph No 2).

Graph No 2



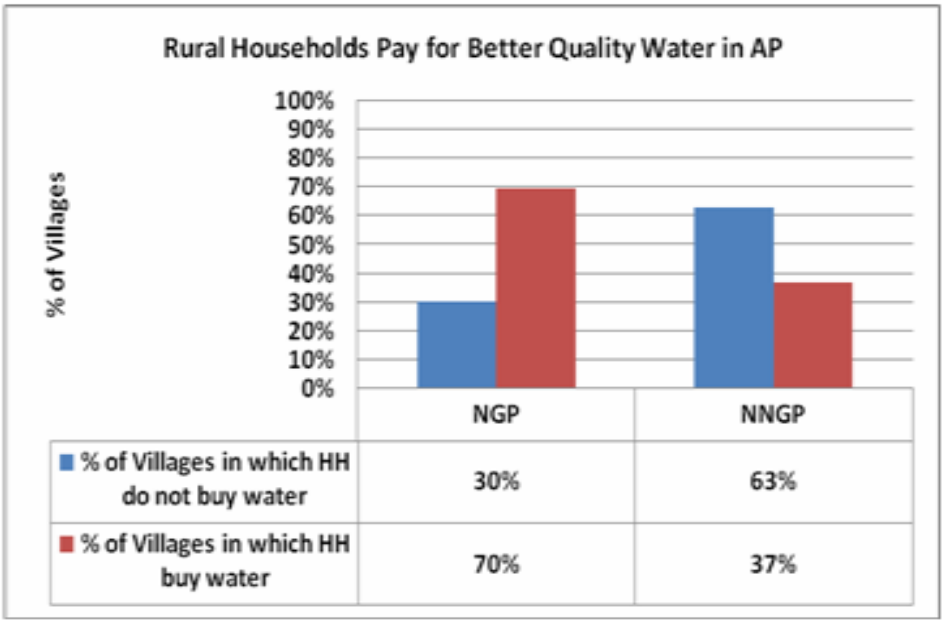
- About 38% of the water points are not used for drinking purpose in both NGP and Non-NGP villages. This trend is observed in both summer and non-summer seasons. About 38% to 48% of the water points are reported to be supplying

"poor quality" water. The variations in NGP and Non-NGP villages are minor and seasonal variations are also insignificant.

Poor Quality of Water - Myth or Reality or Role of Water Markets?

The quality of water is also an indicator of aspirations of the communities (whether they are forced to consume poor quality water) and local governance/ management systems (whether they are addressing this issue). On the issue of water quality, the community is divided on the lines of rich and poor. Poor people had no option but to use the water from local water points (even though they believe that this water is contaminated) or fetch water from far away sources. Relatively better off families are buying water and the share of such families in rural Andhra Pradesh is growing very fast (Graph No 3).

Graph No 3



- Families in 70% NGP villages and 37% Non-NGP villages are "buying" water from local water purification plants. The cost of water differed from village to village. In several NGP villages, the local committees themselves are running/ managing the water purifying plants. In these villages, they offer water to poor families at subsidized rates. There are also private vendors who "sell" pure water. The costs ranged from 1 to 5 rupees per 20 litres, depending on who sells the water. In fact water quality related problems triggered a collective action among the villagers to find out a solution. Local leaders (mainly in the form of village

President/ elders) could also see that the solution to this problem could give a good image to village and to the leaders themselves. Several NGOs supported the process. Funds were mobilized from different sources including villagers, local leaders, well wishers of the villages, corporate houses, etc. Gram Panchayat donated land for the building of the treatment plant. People agreed to "buy" water at the rates that were decided in the management committee of the water plant.

- While the villager's concern on water quality is a reality, the perceptions of the water quality from public water points are not always based on facts. Meanwhile, the market for "safe" drinking water is growing in size and there are different shapes to it. Most of these markets are promoted by local entrepreneurs and they are largely dependent on local water resources for this business. It is a common knowledge that these plants also do not necessarily maintain standards that are essential for producing "safe" drinking water.

Access

Physical infrastructure was established as per norms (one water point for 250 persons) in all the villages. Several villages have multiple sources and systems of water supply (predominantly piped water supply) and the handpumps are a last option. This intensity of infrastructure helped in high level of access to all families in the village. All localities of all the sample villages have a water point, as per the norm.

Depending on the location, there is an informal definition of dependent families for the water points. However, communities felt that there are no restrictions among defined user group and they also allow outsiders of any caste, creed, class to fetch water from 'their' water points. Formal norms such as 'first come first' in fetching water are followed. In spite of the spread and outreach of the physical infrastructure, the service levels (on other performance indicators - quantity, quality and predictability) seem to be not equitably distributed in several villages, in Andhra Pradesh.

Access and Variations between NGP and Non-NGP Villages

- All the NGP villages and 99% of the Non-NGP villages provide barrier free water to its citizens. There are no significant variations between NGP and Non-NGP villages in terms of access to water points. However, there is a variation in the quality of the access to water points, in NGP and Non-NGP villages.

- Clean surroundings and physical condition of water points enhances the quality of water as well as physical access to the water point. Dependent families can "easily" access a water point, when the surroundings are clean and hygienic

(Box No 6). Proper draining of excess water improves sanitary conditions around water points. Stagnant water might pollute the water source, increase mosquito breeding and spreads diseases. It is expected that the Gram Panchayat/ local committee keeps the surroundings of water points clean; periodically applies bleaching/ lime, repairs damages to water points and also helps resident families in taking up kitchen garden/ trees with the excess water etc. Similarly, communities are also expected to keep the premises of water points clean, use excess water for growing plants etc.

Box No 6
Sane Sanitation around Water Points...

About 61% in NGP and 7% in Non-NGP provided better sanitation facilities around water points.

The physical condition of water points (platforms, drainage arrangements, etc.) was good and there is no visible pollution of water.

Excess water flows freely either into soak/ leach pit and/ or drainage lines. Some households use the 'grey' water for growing plants, kitchen garden, etc.

If the public stand posts do not have proper control systems ("ON and OFF"), the Gram Panchayat or local committee takes action on the dependent families. Household garbage is either collected daily by a person on tricycle (appointed by Gram Panchayat/ local committee) or heaped in their household premises and then transported to fields for use as manure. The surroundings of water points, drainage lines and roads are regularly cleaned by the staff of Gram Panchayat and also dependent families.

- 93% of Non-NGP villages and 39% of NGP villages (Box No 7) are not maintaining environmental sanitation around water points. People in these villages observed that physical condition of water points is deplorable. There are no platforms around water points in several places. If they exist, they are damaged/ broken. A majority of public stand posts do not have proper regulatory arrangements for controlling water flows (ON and OFF systems for taps). Excess water does not flow freely because of the damaged platforms. The water points enjoy the company of pools of dirty and stagnant water, in which mosquitoes breed. The sight of pigs, buffaloes, dogs at this pool of water is also not an uncommon sight. At times, it is very inconvenient to collect water from such water points. Drainage lines are cleaned occasionally. There is no scientific and/ or convenient method for disposing household and animal waste. There is no system for monitoring the sweepers by the Gram Panchayat.

- Except Scarce Rainfall, Krishna and Southern zones, remaining zones reported good sanitary conditions around water points in NGP villages. Several NGP villages also formally closed/ abandoned the public water points and encouraged private tap connections at family level. As a result, the disposal of waste water/ solid waste from individual households is a major concern in these villages. These villages evolved a variety of systems for cleaning the village on a regular basis.

There are limited variations on other parameters (zone variations, technology of water supply and population of the village) and more than 95% water points are accessible to user communities.

Main Findings:
The main findings of this assessment are mentioned here:

62% of the villages are being served with adequate water. Some of the limitations of agro climatic zones could be overcome by providing necessary infrastructure for water supply (E.g.: Multi Village Schemes in Scarce Rainfall zone), while the natural agro climatic features (high rainfall, groundwater tables) had their positive impact on adequacy of water supplies (E.g.: Krishna zone). Higher share of handpumps are providing adequate water, even after establishing several types of water supply schemes. Water points that are connected to Single Village Schemes are ranked high in terms of adequacy of water supplies, in comparison to other types of water supply systems. Though majority of the villages got adequate water, the predictability/ reliability of water services is very low in 81% of villages. Better governed villages (majority of NGP award winning villages) are able to provide "predictable waters" to its citizens. This highlights need for improving

governance arrangements in majority of the villages. Quality of water supplied is a major concern in 97% of villages in Andhra Pradesh. Absence of any quality monitoring system seems to perpetuate several confusions on the quality of water. Considerable share of rural Andhra Pradesh is "buying" safe (?) water, due to a variety of quality related problems in different zones of the state. Though creation of infrastructure helped in uniform distribution of water supply points in different localities of the villages, performance of other service indicators (predictability, quality and environmental sanitation around water points itself) do not match this distribution. Ultimately several water points end up providing low level of services, due to poor performance in one or other service indicators. This assessment indirectly presents the gap between policies on paper and practices on ground, which seem to have strong bearing on water service levels in rural Andhra Pradesh. (Refer Annexure No 1 for comprehensive data base).

Factors that Influence Performance of Water Points:

Obviously there are strong reasons/ factors behind the variations in performance of water points in different zones of the state. ***Villages that promoted good practices gave a deeper understanding*** on these enabling factors, while villages that had low scores of performance gave insights on disabling factors. The distribution of habitations in terms of performance levels for each influencing factor is presented in Box No. 7. This box also provides an insight on the nature of practices followed in high and low performing habitations, for each influencing factor.

Box No. 7
WASH Governance and WASH Services - Distribution of Habitations as per performance of water points

Influencing Factor	Low performance		High performance	
	NGP - 39%	Non-NGP - 99%	NGP - 61%	Non-NGP -1%
Responsiveness of Local Institutions	● There is no complaint redressal system. ● There is no citizen's charter.		● System of complaint redressal is followed. ● Citizen's charter is exhibited on water supply.	
	NGP - 4%	Non-NGP -26%	NGP - 96%	Non-NGP -74%
Existence of Policies and Practices during breakdown	● Frequent repairs, delay in restoring water supply. ● Policy exists on downtime but not followed. ● Spares, tools and mechanic not available.		● Occasional repairs. ● Water supply is restored in a day or two. ● Spares, tools and mechanic available. ● Local waterman is trained on minor repairs.	
	NGP - 39%	Non-NGP -93%	NGP -61%	Non-NGP -7%
Environmental Sanitation Around Water Point/ Cleanliness	● Platform is damaged/ broken. ● Excess water stagnates around water point. ● Possibilities of mosquito breeding. ● Possibilities of water getting contaminated.		● Well-constructed platform around water point. ● No visible pollution around water point. ● Excess water is used for trees, plants etc.	
	NGP -78%	Non-NGP -100%	NGP -22%	Non-NGP -0%
Institutional Space for decision making	● Gram Panchayat does not take interest in water supply systems and VWSC is not established. ● Women and other disadvantaged groups do not get opportunities in decision making processes related to water supply systems.		● Gram Panchayat facilitated the formation of local committees/ VWSCs which are active in ensuring better water supply systems. ● Women members and disadvantaged groups get space in decision making opportunities. ● Priorities are set during Gram Sabha and common meetings	

Involvement in planning of WASH Services Responsiveness of Local Institutions	**NGP -70%**	**Non-NGP-95%**	**NGP- 30%**	**Non-NGP -5%**
	● Limited efforts to conduct feasibility surveys and planning. Even if they are conducted, only some persons are aware of this process.		● Extensive planning processes are facilitated based on technical and social feasibility of activities. Results of feasibility/ technical studies are shared in Gram Sabha/ Committee meetings. ● Uncovered localities/ families are given high priority. ● Systems and schemes are integrated to develop uniform water supply to all localities.	
Capacity Building Inputs	**NGP- 74%**	**Non-NGP -98%**	**NGP -26%**	**Non-NGP- 2%**
	● Except occasional awareness camps (in few villages), there are no capacity building inputs in the village.		● Members of Gram Panchayat/ VWSC participated in training programs (in limited number of events). ● Awareness generation on sanitation is a common process. ● Waterman is trained on minor repairs of water supply systems.	
Financial Management	**NGP -78%**	**Non-NGP -99%**	**NGP -22%**	**Non-NGP -1%**
	● No clarity on financial issues. ● Gram Panchayat does not maintain any record of tariffs/ incomes on water related issues. ● Tariff collection is ad-hoc, irregular and incomplete. Villagers do not know where this fund/ revenue is going.		● Elaborate arrangements/ norms are fixed for financial aspects (tariffs/ fee for tap connection/ fines/ others). These decisions are known to all the villagers. ● Financial records/ transactions are transparent and Gram Sabha/ Committee meetings are organized for this purpose. ● Funds generated are utilized for operation & maintenance (including salary of waterman, minor repairs, etc).	

Conclusions

Perceptions of communities on the performance of public water points in their locality gave an insight to the complex nature of WASH governance, technology and natural resource endowment in different agro climatic zones of Andhra Pradesh.

- Higher level of services from water points is a result of several factors, including WASH governance arrangements. 99% of Gram Panchayats are reported as "non-responsive" by citizens in Non-NGP villages. The village Water & Sanitation Committees are conspicuous by their absence in these villages. In these villages, water supplies are unpredictable and water supply points are surrounded by pools of stagnant water. People mentioned that about 61% of Gram Panchayats are responsive to people's needs in NGP villages. In these villages, higher level of WASH services is also visible (particularly predictability of water supply and operation and maintenance systems), which could be attributed to better management/ governance arrangements in these villages.

- It is expected that NGP villages which have relatively better governance arrangements would have higher performance in water supply too. While this hypothesis is reasonably confirmed, evidence of such strong correlation is available only in limited number of NGP villages. Predictability is a result of institutional processes. When WASH related institutions are functional, they could make sure that water supply system is reliable and predictable. This was the case in 86% of NGP villages; whereas only 1% of villages in Non-NGP villages could provide effective institutional support for high level of predictability of water supplied.

- The factors that influence water supplies (in adequate quantities) such as availability of groundwater; dependable power supplies; appropriate investments/ funds for operation and maintenance (including trained man power at village level) - are already part of stated policy of central and state governments. There is a clear priority for decentralized and locally managed water supply systems in rural areas with a focus on investments for source sustainability, proper planning (water security plans), etc. However, the people's perceptions during the assessment clearly indicate that these noble thoughts are not reaching the ground. Several issues related to performance indicators - adequacy, predictability, quality and access are not systematically addressed in majority of sample villages, in spite of relevant policy provisions in the guidelines.

- The perception of quality of water supplied challenges the policymakers in terms of action, while private water vendors/ companies (genuine and spurious) are

already thriving on the inaction of the state in addressing this concern. There is considerable inconsistency in the results of quality tests conducted at district and state level, by the Department itself. The Gram Panchayat level water testing processes are not institutionalized. Meanwhile, the perception of "poor quality" of water is also getting deep rooted. Given this complex nature of quality assessment, the need for independent quality surveillance system is urgent for the sector. There is no systematic approach for creating awareness on water quality issues at local level.

- In the absence of such knowledge of water quality, individual families are forced to "buy" water, in spite of huge investments for "covering" the habitations, by the government. While water markets are already dominating the rural landscape, the public systems are likely to be further neglected by Departments and local institutions. Unfortunately, the state government contemplated a major project to establish such water purifying plants, which was shelved due to changes in leadership and priorities.

The policy framework clearly emphasized the need of local governance systems and comprehensive approach (including water security plans) for improved water supply systems. One could infer from the community's assessment that several key elements of this policy are not being implemented in true spirit. The gaps between policy and practice seem to have influenced the performance of water points negatively and the villagers are certainly not happy with the current level of service.

This paper is expected to trigger a process through which the policy makers, practitioners, civil society organizations, academicians, donors and community members find a way to address the gaps and concerns emerging from community's perspectives.

References:

TARU (2008). *"Impact Assessment of Nirmal Gram Puraskar Awarded Panchayats"*, study conducted by TARU for UNICEF.
Available at http://www.indiawaterportal.org/sites/indiawaterportal.org/files/Impact Assessment of Nirmal Gram Puraskar awarded panchayats_TARU_2008.

James, A. J., (2003). *"Quantified Participatory Assessment: Capturing Qualitative Information in Large-Scale Development Projects"*, Water Households and Rural Livelihoods (WHIRL) Project, Department for International Development, unpublished monograph, Government of the United Kingdom, November.

GoI (2010). *"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.
Available at *ddws.gov.in/sites/upload_files/.../RuralDrinkingWater_2ndApril.pdf*

Rama Chandrudu M. V, et. al (2009). *"Institutional Mapping and Analysis of WASH Services and Costs"*, WASHCost-CESS Working Paper No 4, Centre for Economic and Social Studies, Hyderabad. Available *at http://www.washcost.info/page/1642*

Rama Chandrudu M. V and Snehalatha M, (2010). *"Can WASH Services be improved by TAPping? Insights from WASHCost (India) Project"*, A paper presented during IRC Symposium - Pumps, Pipes and Promises: Costs, Finances and Accountability for Sustainable WASH Services, at The Hague. The Netherlands.
Available *at http://www.washcost.info/page/1647*

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. Available *at http://www.washcost.info/page/753*

GoI (2010-2011), "Results Framework Document for Department of Drinking Water Supply" Department of Drinking Water Supply, Ministry of Rural Development, Government of India.
Available at performance.gov.in/RFD_2010-11/.../DRINKING%20WATER.pdf

Reddy, V. Ratna, et. al.,(2009). *"Costs of Providing Sustainable Water, Sanitation and Hygiene Services in Rural and Peri Urban India"*, WASHCost-CESS Working Paper No 1, Centre for Economic and Social Studies, Hyderabad.
Available at http://www.washcost.info/page/1639

Reddy, V. Ratna and Batchelor, C., (2010), *"Can water, sanitation and hygiene services be improved by mainstreaming life-cycle cost approaches (LCCA) into planning and other governance processes?* (An initial assessment of LCCA in Andhra Pradesh)", WASHCost-CESS Working Paper No 7, Centre for Economic and Social Studies, Hyderabad. Available at http://www.washcost.info/page/1645

Web Sites accessed:

- Arghyam - India Water Portal (www.arghyam.org/indiawaterportal)
- Web Site of the department of drinking water department, GoI: (http://ddws.nic.in/mis_prog.htm)

Annexure No 1:

Community Perceptions on Performance of Water Points in Andhra Pradesh Classification as per Key Parameters - Population, Technology of Water Supply, Zones and NGP Status (As % of Villages)

Sl. No.	Parameters Sub Parameter	Service Levels	Adequacy/ Quantity	Predictability	Quality	Barrier free Access	Adequacy/ Quantity	Predictability	Quality	Barrier free Access
			As % of Total Sample (Vertical Total)				As % within the Sub Parameter (Horizontal Total)			
A.Parameter - Population of the Village										
1.	Below 500	Low	6	17	17	1	32	89	89	5
2.	Below 500	High	13	2	2	18	68	11	11	95
3.	501 to 1000	Low	13	25	32	0	37	74	97	0
4.	502 to 1000	High	22	9	1	33	63	26	3	100
5.	1001 to 1500	Low	9	18	23	0	39	78	100	0
6.	1002 to 1500	High	14	5	0	22	61	22	0	100
7.	1501 to 2500	Low	7	12	14	0	54	86	100	0
8.	1502 to 2500	High	6	2	0	15	46	14	0	100
9.	Above 2500	Low	3	9	11	0	30	90	100	0
10.	Above 2501	High	7	1	0	11	70	10	0	100
11.	Total	Low	38	81	97	1	38	81	97	1
12.	Total	High	62	19	3	99	62	19	3	99
B.	Parameter No 2 -Type of Technology of Water Supply									
13.	Single Village Schemes (SVS)	Low	10	19	25	1	40	76	100	4
14.	Single Village Schemes (SVS)	High	15	6	0	24	60	24	0	96
15.	Multi Village Schemes (MVS)	Low	5	12	12	0	42	100	100	0
16.	Multi Village Schemes (MVS)	High	7	0	0	12	58	0	0	100

Contd...

Sl. No.	Parameters Sub Parameter	Service Levels	Adequacy/ Quantity	Predictability	Quality	Barrier free Access	Adequacy/ Quantity	Predictability	Quality	Barrier free Access
			As % of Total Sample (Vertical Total)				As % within the Sub Parameter (Horizontal Total)			
17.	Only Handpumps	Low	2	8	10	0	18	73	91	0
18.	Only Handpumps	High	9	3	1	11	82	27	9	100
19.	Mini Piped Water Supply Scheme (MPWS)	Low	2	8	9	0	20	80	90	0
20.	Mini Piped Water Supply Scheme (MPWS)	High	8	2	1	10	80	20	10	100
21.	MPWS + SVS	Low	11	14	19	0	58	74	100	0
22.	MPWS + SVS	High	8	5	0	19	42	26	0	100
23.	MPWS + MVS	Low	1	5	6	0	17	83	100	0
24.	MPWS + MVS	High	5	1	0	6	83	17	0	100
25.	SVS + MVS	Low	4	11	11	0	33	92	92	0
26.	SVS + MVS	High	8	1	1	12	67	8	8	100
27.	MPWS + SVS + MVS	Low	3	4	5	0	60	80	100	0
28.	MPWS + SVS + MVS	High	2	1	0	5	40	20	0	100
29.	Total	Low	38	81	97	1	38	81	97	1
30.	Total	High	62	19	3	99	62	19	3	99
C.	Parameter - Agro Climatic Zones in Andhra Pradesh									
31.	Central Telangana	Low	7	9	10	0	70	90	100	0
32.	Central Telangana	High	3	1	0	10	30	10	0	100
33.	Godavari Zone	Low	6	6	8	0	67	67	89	0
34.	Godavari Zone	High	3	3	1	9	33	33	11	100

Contd...

Sl. No.	Parameters Sub Parameter	Service Levels	Adequacy/ Quantity	Predictability	Quality	Barrier free Access	Adequacy/ Quantity	Predictability	Quality	Barrier free Access
			As % of Total Sample (Vertical Total)				As % within the Sub Parameter (Horizontal Total)			
35.	High Altitude Tribal Area	Low	2	10	9	0	18	91	82	0
36.	High Altitude Tribal Area	High	9	1	2	10	82	9	18	100
37.	Krishna Zone	Low	3	10	12	1	23	83	100	8
38.	Krishna Zone	High	10	2	0	11	77	17	0	92
39.	North Coastal Zone	Low	10	13	16	0	59	81	100	0
40.	North Coastal Zone	High	7	3	0	16	41	19	0	100
41.	North Telangana	Low	4	10	10	0	36	91	100	0
42.	North Telangana	High	7	1	0	10	64	9	0	100
43.	Scarce Rainfall	Low	2	9	10	0	20	90	100	0
44.	Scarce Rainfall	High	8	1	0	10	80	10	0	100
45.	South Telangana	Low	5	5	10	0	50	50	100	0
46.	South Telangana	High	5	5	0	10	50	50	0	100
47.	Southern Zone	Low	1	9	12	0	7	82	100	0
48.	Southern Zone	High	12	2	0	13	93	18	0	100
49.	Total	Low	38	81	97	1	38	81	97	1
50.	Total	High	62	19	3	99	62	19	3	99
D.	Parameter No 4 - NGP Status									
51.	NGP	Low	5	3	22	0	22	14	100	0
52.	NGP	High	17	18	0	22	78	86	0	100
53.	Non NGP	Low	33	78	75	1	43	99	96	1
54.	Non NGP	High	45	1	3	77	57	1	4	99
55.	Total	Low	38	81	97	1	38	81	97	1
56.	Total	High	62	19	3	99	62	19	3	99

Current CESS Working Papers

Working Paper **Paper No.**

Costs and Service per Technology in Rural Water Supply How Efficient are Multi Village Schemes?
V. Ratna Reddy, M. Snehalatha, M. Venkataswamy
February, 2012 (WASHCost Working Paper No. 18) 112

Looking Beyond Capital Costs - Life Cycle Costing for Sustainable Service Delivery - A Study from Andhra Pradesh, India
Snehalatha.M, Venkataswamy.M, Sirisha.D, Anitha.V, Busenna.P
February, 2012 (WASHCost Working Paper No. 17) 111

Urban Water Supply and Sanitation in Andhra Pradesh
M. Mohan Rao, M. Venkataswamy, C. Ramachnadraiah and G. alivelu
January, 2012 (WASHCost Working Paper No. 16) 110

Gender Mainstreaming in Mining: Experience across Countries
Prajna Paramita Mishra, M. Gopinath Reddy
January, 2012 (RULNR Working Paper No. 14) *109*

Disputes, (de) Politicization and Democracy: Interestate Water Disputes in India
Srinivas Chokkakula January, 2012 (RULNR Working Paper No. 13) *108*

Cost of Provision: How Good are Unconditional Allocations?
A Study of Water service Delivery in Rural andhra Pradesh
V. Ratna Reddy, N. Jaya Kumar, M. Venkataswamy and M. Snehalatha
December, 2011 (WASHCost Working Paper No. 15) 107

Understanding Governance in WASH Sector in Andhra Pradesh, India
M.V. Rama Chandrudu, Safa Fanaian and R. Subramanyam Naidu
December, 2011 (WASHCost Working Paper No. 14) 106

Rural Drinking Water Service Levels: A Study of Andhra Pradesh, South India
Snehalatha M., Busenna P., Ratna Reddy V., Anitha V.
December, 2011 (WASHCost Working Paper No. 13) 105

Formulation and Implementation of Tribal Sub-Plan (TSP) in Kerala
Jos Chathukulam, Kottayam, M. Gopinath Reddy and Palla Trinadh Rao
September, 2011 (RULNR Working Paper No. 12) *104*

Pushed to the Brink: Livestock Dependent Livelihoods at the Forest Interface
The Case of Andhra Pradesh
Sagari R Ramdas, Anthra, September, 2011 (RULNR Working Paper No. 11) *103*