

Cluster Level Workshop
Taroda Village, Morshi Block, Amravati District, Maharashtra
(June 10th to 12th, 2013)

Background

Cluster Level Workshop (CLW) for bringing together Gram Panchayat's (GP's) that are part of the same neighbourhood, located within a single drainage system, experience similar socio-economic and environmental concerns was organised in Morshi Block, Amravati district, Maharashtra as part of the Rural Drinking Water Security Pilot initiated by the Ministry of Drinking Water & Sanitation.

CLW was taken up after the initiation of the following activities in the respective GP's

- Interaction with GP members
- strengthening of VWSC
- PRA and baseline survey
- conduct of Water Budget Estimation (WBE) workshop
- follow-up of WBE (plugging all leaks, improving drinking water use efficiency)
- engaging community in options for reducing irrigation water demand

Based on the positive response it was seen as the appropriate moment to engage GP's in cluster level action. Domak & Raipur, Taroda, Ashtoli, Kolwihir GP's were brought together as a cluster for collective action, sharing of information and critical examination on the drinking water situation across the GP's. The Venue of the Cluster level workshop was the Primary School at Taroda Village & GP from 10th to 12th June 2013.



Location and Drainage Map of GP's forming part of Kolwihir Cluster

Methodology

The workshop adopted informal group activities, discussions, combined with field visits, interviews, games and brainteasers. The participants worked in groups that brought together youth, women, elders from the different GP's. As the groups got to understand each other and shared information on different GP's it animated them for clear reasoning that helped them to distinguish unmistakably between

- current drinking water crisis and other competing water demands
- agriculture water demands vs. supply
- health and social costs due to poor sanitation

This helped them identify number of redressable solutions on their own. New norms and priorities emerged through discussions and thus emerged the importance of collective action, improved local governance related to community behaviour dealing with drinking water leakage, wastage, in-efficiency and Institutional strengthening.



Initial discussions and interactions were quite pessimistic to start with which transformed to constructive optimism following the group activities, after which the participants began to look for all potential opportunities for setting high trajectory goals. The participants aspiration levels dramatically improved exponentially and wanted assured drinking water of potable quality both for humans and animals, total sanitation which over time should emerge as 24X7 supply, which should be made sustainable by enforcing discipline in tariff generation.

The participants went on field visits shared their views with communities as well as enquired on the nature of demand at the household level and ward level. The interaction was focussed on women and youth. Based on detailed scrutiny of the problem (from the perspective of demand and supply) it emerged that lack of indisputable real time data is major hurdle in the design and lack of data can be on the serious impediment in realising this dream. Data should be gathered under the supervision of the GP/VWSC on the current demand, supply and wastages. A vigilant ward level committee, VWSC, GP members and the drinking water system operator is a necessity but most importantly individual water user has to become more supportive. 24X7 drinking water supply in all the GP's as part of socio-economic development was obvious, the question was how early this could be achieved so as to help improve overall community health and nutrition.

Groundwater is seen as the only reliable irrigation water source; however the current declining groundwater level is a warning on the deteriorating health of the neighbourhood aquifer system. The opportunity to shift from the current groundwater based drinking water supply to Upper Wardha Project was an opportunity for the four GP's. Non use of surface water was because of misunderstanding between GP and the ZP with respect to the tariff for

the water supplied . This needs to be sorted out at the earliest through the initiative of the EE. In order to ensure that the water supplied is used efficiently meters need to be fixed for all household connection as well as on distributaries so as to implement volumetric tariffs at the household and distributary level.

Bottom Up Community Managed drinking water and sanitation system

The participants were of the unanimous view that the existing drinking water supply and sanitation infrastructure and their management is a sad reflection of the prevailing attitude and priorities of the society in general combined with neglect by the politicians and government. The change has to come from within beginning with the households, wards, GP and the cluster so that a participatory model, anchored at the grass roots comes into operation. It was agreed that any delay in implementing safe and secure drinking water policy will do more injustice to the children, women and all the future generations. The solutions will simply have to be found for each GP. New design should be based on the total population (human, animal), socio-economic status and sanitation requirements. The consequences of any delay or poor functioning of the drinking water and sanitation system should be made known to all.

Poor/Non functioning of the water supply systems are due to poor governance which is currently is only devoted to meet the needs of the rich and powerful while bypassing the poor majority. GP, VWSC along with local youth should emerge as “Foot Soldiers” become more accountable and ensure the drinking water and sanitation needs of the most vulnerable sections are taken care of.

The current approach of improving the drinking water availability through technical intervention such as additional borewells, more storage reservoirs, supplementary pipelines/connections have been a failure instead the focus should be on the assessment of demands vs. supply, wastages (household/distribution), leakages, contamination, technical failures, illegal pumping, tariff collection etc. These changes can happen only when the GP, VWSC, community gets involved in ground-level action. The necessary technical training and exposure visits need to be provided to the committees by the SO and the department.

Detailed group work, serious calculations, field visits combined with discussions revealed that it would be foolish to assume that volume of drinking water supply for households can be cut, in-fact it has to only increase with time and attain 24X7 model. However the current drinking water supply is flawed, with vast in-efficiencies. Improving these in-efficiencies not only offers the opportunities for improved water availability but can achieve also this and more with reduced quantity of water. The participants were of the unanimous view that storage in containers at household level is highly inefficient, because most stored water is thrown away whenever there is fresh supply and the water wasted is far more than the total water consumed at the family level. Such wastages can be plugged only through 24X7 supply. 24X7 supplies will be most helpful to poor / marginal as it will saves waiting time, allows more time for wage earning work, reduces contamination from household level storage. Therefore the dream should be to attain 24X7 supply although in a phased manner of 2-3 years.

Surface water supply based on Upper Wardha Project has its own problems related to supplies, tariffs and distribution. This has forced GP's to opt for Borewells dependent schemes that are huge power guzzlers, limited discharge during summer and water quality issues. The preference is for surface water provided the problems are sorted out at the earliest. Once the surface water is delivered the community will manage it on their own.

Groundwater over-pumping for agriculture water needs is a serious issue and needs to be addressed. This can be addressed only through involvement of farmers at the individual farm level by shifting from high water demanding crops to less demanding. Integrating base crop

with horticulture can also help in reduced water demand. Drip irrigation, sprinkler, mulching, vermi-compost are less water demanding options.

Formation of Cluster Level Institution

All the four GP's form part of a single drainage unit and get the supplies from the same Multi Village Water Supply Scheme (MVWSS), designed for taking drinking water to 70 villages from Upper Wardha Dam or borewells tapping the same aquifer system. The MVWSS main distribution line for the 4 GP's get branched to various GP's at the mouth of the cluster in Kolwihir and to that extent are dependent upon each other. Given these association and interdependence it was thought that it would be most appropriate to form cluster level Institution that will protect the overall interest of all the four GP's.

The reasons listed for forming a federation of the four GP's was

- Four GP's form part of the same drainage unit so any form of shortages or excess affects all the GP's.
- Four GP's have serious drinking water shortages during the summer periods and all are dependent upon the MVWSS during the lean periods.
- Water budget Assessment data shows all the four GP's have resorted to over-pumping as a result all the GP's are affected although in different order of severity.
- Groundwater /Surface water mismanagement/pollution/over-pumping in higher level villages affects the downstream.
- Groundwater quality from borewells is hard across all the four GP's.
- The community in all the four GP's have respect for each other and see the need for common approach to managing all their problems.

The membership of the Cluster level Institutions will comprise of

- Total members limited to 21
- Representatives from each GP (2-3)
- Representatives from each VWSC (2-3)
- Representatives of Women, Youth (3-5)
- Representatives from the participants in Water budget Estimation Workshop
- Invitees will include ASHA worker, Drinking Water supply employee, and other specialists from time to time need based
- There will be President, Vice President, Secretary, Treasurer by rotation
- The Institution will initially be an informal body, will be registered under the Societies Act in the future
- Ideally it will be useful to have a Block level federation bringing together all the cluster level institutions so as to emerge as a strong pressure group.

Roles and Responsibilities of Cluster Level Institution

- Ensure sustainable 24x7 drinking water schemes in all the four GP's in the coming 3 years
- Act as Knowledge Centre for sharing information, data and on-going government schemes
- Platform for common thinking and group action
- Use it as a forum for problem solving related to one/many GP's
- Act as a Pressure Group to lobby for sustainable drinking water and irrigation schemes
- Use as a forum for new learning's, exposure visits and training programmes
- Meet regularly to solve common issues
- Share the concerns of GP's and forecast risks

- Use it as a platform for procurement of water saving devices, seeds, organic inputs etc
- Bargain for good prices for agriculture produce

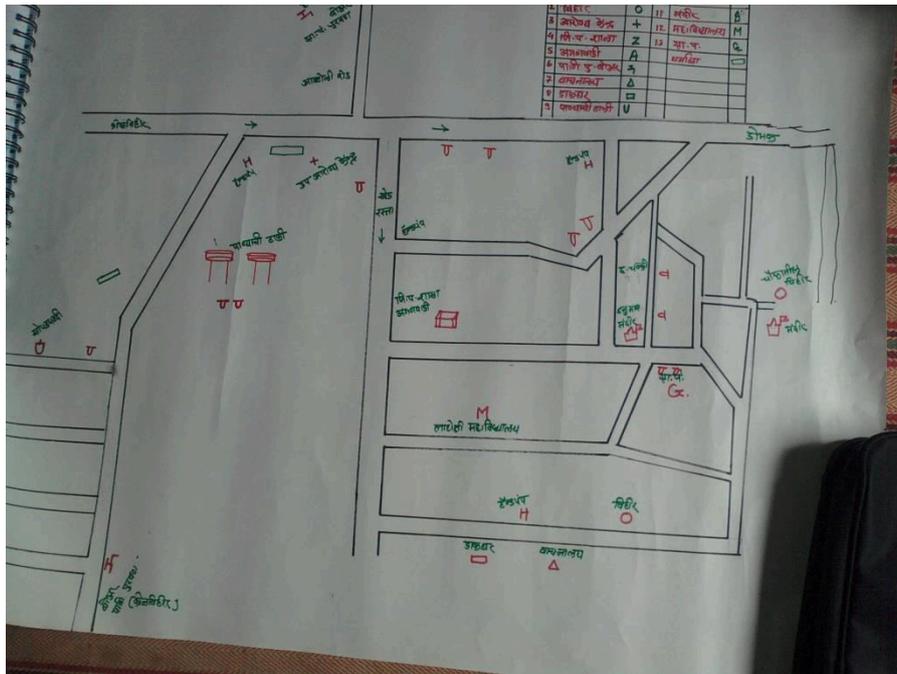
Volumetric Accounting of Drinking Water Supplied

Sustainable drinking water schemes can be successful only when there is clarity on demand and supply. The participants in the workshops did calculations of the drinking water supplied for each of the GP and were surprised to find that for most GP's the supply was equivalent of 50-60LPCP while the actual requirement was only 40LPCD. Assuming the animal water demand (cow, buffaloes, bull and sheep/goat) averaged to 30LPCD still the current shortfall was shocking. Such levels of inefficiencies have never been discussed and the GP's continue to insist on more and more storage reservoirs and borewells. It was unanimously agreed that the new system proposed should be based on facts, measurements and after which only the program design approved. In-order to ensure that wastages are detected metering is essential at household level as well as at the distributary level. The participants identified number of areas of mishandling of drinking water

- illegal tapping through pumping from the distributary/ house connection,
- absence of taps,
- leakages from the storage reservoir,
- leakages and contamination from the distributaries
- head losses due to elevation differences.

The proposed changes suggested included

- Meters to be located in all household connections
- Meters to be fixed at all the existing distributary valves
- Water tariffs should be based on the water consumed (human, animal) and the tariff need to be worked out in such a way that for the minimum supply the rates are on par with existing rates
- Water should be delivered on volumetric basis for each distributary.
- The distributary committee shall be responsible for collecting the tariffs for the volume supplied as recorded in the meter.
- The distributary committee shall be responsible for fixing all the leaks in the respective areas
- VWSC shall be responsible for the upkeep of the reservoir, main lines, payment of salaries to staff and payment of water charge to ZP.
- Water quality shall be examined by the Department mainly for bacteria, chemicals and pesticide residue (where the usage is very high)
- Water Quality data shall be made available to VWSC and the same discussed in the committees and appropriate corrective actions implemented



Performance of domestic water meters was accepted as a matter of great concern and the success of volumetric supply will be fully dependent on the reliability these meters. The current deficiencies in the meters are



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| <ul style="list-style-type: none"> • Overestimation when there is entrapped air in the pipeline |
| <ul style="list-style-type: none"> • Under performance when there is considerable drop in flow in the pipes |
| <ul style="list-style-type: none"> • Calibrations are not fool proof |

Department should ensure high quality meters are identified. Specific recommendation from the Ministry on the type of meters to be procured if any should be informed to all GP's.

Animal Water Requirement

Animals are integral part of the village and family and their total water demands (quantity and quality) need to be met from the drinking water supply setup. The animal population is almost equivalent to the total population in most villages and their water requirements in almost on par with human water requirements. In the summer months the demand is quite substantial.

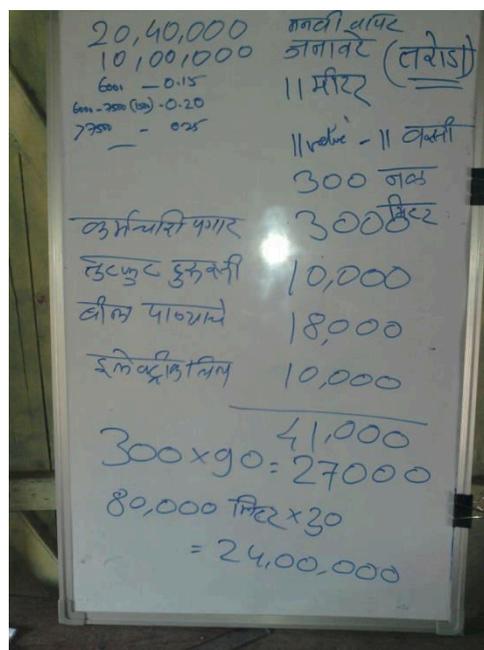
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1068	आखे, सी	32.40	195	3.41	26.00	34.36	-1.81
996	सिमरु (रायपुर)	59.27	0.38	2.26	52.83	58.17	-0.55
1206	कोकविहीर	66.34	0.27	3.21	75	78.43	-12.1
376.57	1693 तरोडा	30.57	0.38	3.61	68.8	69.79	-33.1

The participants agreed to pay the same tariff for the animal water needs and even slightly more during the critical seasons.

The metering system will ensure correct monitoring of the water used for meeting the animal water needs. The proposed tariffs are

- Upto 6000 l/per months Rs 0.15 per litre (existing tariff of Rs 90/month)
- 6001 to 7500 l/per month Rs 0.20 per litre
- 7501 to 10,000 l/month Rs 0.25 per litre (maximum cap of 10,000 l/per family.
- >10,000 l/month very high rates to discourage wastage

The tariff was arrived at based on the current drinking water management systems performance and expenditure



Reduced Agriculture Water Demand

Agriculture water was a major source of water used in all the GP's. WBE showed that agriculture water uses 93-95% of the total water used. The water supply needs to be substantially reduced without loosing on the economic returns. Number of steps need to be adopted including

- Area under oranges need to be substantially reduced in the next 15 years. To begin with crops >20 years old should not be provided with any irrigation and instead some base crops developed as intercrop after sufficient pruning. Over time the density of Oranges reduced by more than 75% so that the water demand is reduced and higher yields obtained. Intercrop should be raised.
- High water demanding sugarcane, wheat need to be marginalised
- Rainfed cropping should include coarse cereals apart from cotton, groundnut, soya.
- Local tree cover should be improved
- Sprinkler, drip, conveyance of water through pipelined should be adopted
- Over a period of time agriculture water demand reduced by 50% without sacrificing on profits.

- Organic inputs should be adopted so as to reduce the investments substantially while accommodating moderate reduction in the returns.

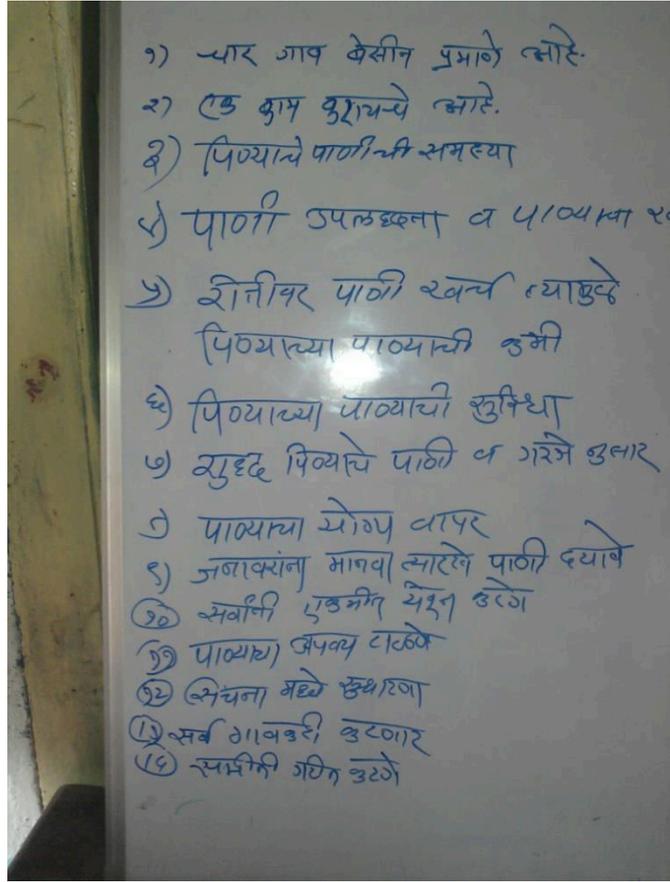
Total Sanitation

Sanitation is an issue that has not been taken seriously in the area although there has been substantial changes in the lifestyle, education levels, agriculture production levels and considerable increase in income levels. While there is no clear cut reasons shortage of water availability is cited as one reason apart from other social and household level reasons. Correlation between gastro-intestinal problem and sanitation levels is understood by most participants however the ability to transform new understanding into actions at the household level is a challenge that needs to be addressed by the VWSC in the area. Trainings on sanitation and scope for introducing less water demanding designs need to be explored. Women and children should be used as the messengers of this information and hand holding is required. Solid and liquid waste management need to be integrated with total sanitation program. Complete prevention of Open defecation should be linked to the 24x7 water supply program.

Follow up Action points

The participants adopted number of resolutions for action in the respective GP's

- All the participants will present to the respective GP's VWSC the new learning's from the three days cluster level workshop
- Initiate discussions at the distributary level for fixing meters and taps
- Assess the type of changes that need to be incorporated in the distribution lines so as to ensure supply of water to elevated areas
- Work out the nature of changes that will have to be adopted for moving away from bore well based water supply to MVWSS.
- Disseminate the concept of reduced water use in agriculture
- SO will arrange for exposure visits on the participants in the Madanapalli to understand Participatory drinking water management.
- Household level meters will be fitted in all GP's beginning with sarpanch, GP members and VWSC members houses in the next one month.
- EE will discuss with the concerned authorities in the government for initiating 24X7 supplies under MVWSS.
- Representatives of various GP's to the Cluster level committee will be nominated and the first meeting held before 15 Aug 2013.



Using brain teasers as learning tools

Task: Fill a ball (of tennis ball size) with 300 litres of water or there about.



One orange of the size of a tennis ball consumes almost 300 litres equivalent of water by the time it comes to bearing.

Subject: What will happen when a kettle's spout is cut to half its height?



The height of the spout determines, to what level water will rise in the storage chamber. Any excess water will overflow from the spout. This example was used to understand the connection between various GP's in the cluster. The upstream villages are like the main storage chamber and the downstream GP's are part of the spout. Any reduction in the storage in the upstream will have cascading effect to lower level villages. Thus there is a need to work unitedly to address water issues.

Using Games as learning tool

Task: transfer water from one location to the next without spilling

The participants from each GP were asked to assemble as separate groups in the order of upstream to downstream so as to recreate their geographical locations. The task assigned was to carry two glasses of water sequentially from upper most villages to the lower most without spilling. The game was repeated for different speeds. Initially the time given for transfer was 10 seconds and the amount of water spilled by each team was recorded. The speed of transfer was gradually limited to 2 seconds and the amount water spilled by each group was recorded.



The glasses defined the limits of water availability, the transfer of water was what is handed down to lower level villages/future generations and the speed was the challenge to maximise the availability without wastage. The game brought out the relationships and dependence on one another clearly.