

SUMMMER *INTERNSHIP* REPORT - 2012



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Roll no : RPM 1611

Introduction of the organisation:

SaciWATERS, ***South Asia Consortium for Interdisciplinary Water Resources Studies***, was formed as a project on the theme "water for food and rural development" after the 2000 World Water Forum at Hague, was established with the aim of bringing a paradigm perspective. Based in Hyderabad, India, the consortium comprises accomplished scholars and activists from Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka. SaciWATERS produces new knowledge to address the pressing problems in the water sector in south Asia through education, research and advocacy. It has created a new group of professionals and experts through its Crossing Boundaries Project which aims to contribute to the paradigm shift in water resources management in South Asia by means of various partnership-based programmes for capacity building of water professionals through higher education, innovative and social learning focused research ("research with an impact"), knowledge based development and networking.

SaciWATERS is committed to bring structural change in the dominant water resources management paradigm in South Asia. Within that, we focus on transforming water resources knowledge systems. Key ideas are an interdisciplinary approach to understanding water resources issues from a pro-poor human development perspective with an emphasis on exchange, interaction and collaboration at South Asia level. The longer term aim is to establish a South Asian "virtual water university". Our Resources aim to broaden the South Asian water resources knowledge base by critically analyzing the water issues that play out at South Asian level; undertake comparative research on water resources issues in different parts of the sub-continent and study the localized water resources management process. Our e-journal SAWAS aims to provide space for creative and free thinking on water, fostering debate, eliciting innovative alternatives, promoting original analyses and constructive critiques. SaciWATERS is active in three domains : education, research and advocacy, by implementing projects.

Education

In its education focused activities SaciWATERS seeks to transform professional water education programmes and incorporate developmental concerns like ecology, poverty and democracy. The goal being human capacity building, we focus on longer duration education input deriving from the fact that shaping attitudes and perceptions, and teaching the skills of interdisciplinary and more comprehensive analysis and intervention requires time. At present very few such programmes for

water resources education reform exist in South Asia. Hence, our projects are targeted at getting in touch with the training institutions and collaborating with them in order to materialize the differentiated approach. Water being central to economic growth and poverty reduction in South Asia our aim is to generate a critical mass of expertise and to increase the number of water professionals to form a substantial network in government and civil society organization.

Research

Research is central to SaciWATERs mission to raise the capabilities of individuals and organizations for integrated water resources management and our aim is to be a centre of research excellence in the field of IWRM in South Asia. Research is not viewed as a 'stand alone' activity, but as a means for reducing the knowledge gaps that act as a key to the dissemination of research findings, and to working with local partners in ways that strengthen their knowledge-creation capacities. In its research focused activities SaciWATERs aims to broaden the South Asian water resources knowledge base by; critically analyzing water issues at South Asia level; undertaking comparative research on water resources issues in different parts of the sub-continent; studying localized water resources management process of general, conceptual, or policy relevance and conducting 'problem solution oriented' research preferably in close interaction with societal interest groups.

Advocacy

SaciWATERs has identified advocacy and social mobilization as important elements for improved water and environmental management. In advocacy, SaciWATERs aims to make knowledge on actual water management processes 'work' in the public and policy domain, around South Asia level issues and we intend to provide a platform for exchange, discussion and collaboration at the South Asia level through networking, Resources and workshops / conferences.

Governance structure: SaciWATERs is a research consortium comprising senior scholars based in academic institutions and NGOs in different South Asian countries (Bangladesh, Bhutan, India, Nepal & Sri Lanka). The Consortium was formed to work on institutionalizing interdisciplinary teaching, training, research, and advocacy in the South Asian region using an Integrated Water Resources Management (IWRM) approach. SaciWATERs is managed by a secretariat, based in Hyderabad, headed by an Executive Director, consisting of members of staff from the Research, Training, Communications, Finance, Human Resources and Administration departments.

Introduction to the project:

Water security in Peri-Urban South Asia

Adapting to urbanisation and climate change

Water Security in Peri-Urban South Asia is a three year project that works across for locations in South Asia. This action research project is primarily concerned in addressing the interests of the poor, marginalised and other vulnerable communities. It will build capacities to cope with climate change induced water in-security.

As urbanisation brings about sweeping changes across peri-urban landscapes in South Asia, there are alarming impacts on land and water use. This is further accentuated by climate change that is expected to alter water availability for the future. As more agricultural lands are acquired from peripheral areas to cater to the increasing demand for housing in large cities, the lives and livelihoods of the poor, marginalised and other vulnerable communities undergo grave stress. These diverse impacts of urbanisation, and its implications for peri-urban water uses and the conflicts envisaged therein for the different users, needs in depth understanding and analysis and in turn should translate into effective policy actions.

As the project hopes to bring the researched issues to the fore, thereby creating a dialogue-based platform where policy-makers and other stakeholders in the project could be involved in order to provide feasible and practical interventions through capacity building at the local level. The dialogues with stakeholders to discuss and deliberate upon the nuances of uneven development common in this region, will also serve as a medium for change at the policy levels. The project will also throw light on how people respond/adapt to these changes in their immediate environment, through sustained research and studies.

Working primarily on water security issues in Peri-Urban South Asia, across India, Bangladesh and Nepal, the project's main concerns are the rapidly changing peri-urban landscapes due to urbanisation and implications for water security in specific locations in the larger context of climate change. As an action research project, it will serve as a basis for capacity-building at the grass roots level to address concerns of the poor, marginalised and other vulnerable communities to water security and seek to understand



the dynamics of adaptation in the specific locations, for action and policy agenda at the regional level.

Hyderabad, India

Hyderabad has experienced growth of new residential colonies, sprawling out in the direction of newly developing industrial, educational and research centres, and along high value lands and lines of highest accessibility. However, this development has proved to be quite unsustainable and has turned out to be a serious threat to the city and its environs. The urban heat island effect has been thus, aggravated and in turn affected basic amenities especially water supply for the increasing population in the newly developing areas. Being located in an area with hard-rock aquifer, Hyderabad has very limited percolation while water drawn from the aquifer far exceeds the amount that is actually recharged. The present rate of access to water varies over socio-economic and physical terrain in the localities chosen for the study. With privatization of water and tariffs being same for commercial and domestic use and differential water access to large residential complexes and residences of the lower socio-economic classes, a conflict is anticipated in the core and newly developing peripheries of Hyderabad.

Co ordinating institutions:

The project is being coordinated by SaciWATERS, Hyderabad, India. SaciWATERS focuses on transforming water resources knowledge systems, key ideas being an interdisciplinary approach to understanding water resources issues, from a pro-poor, human development perspective, with an emphasis on exchange, interaction and collaboration at South Asia level. The other institutions involved are Bangladesh University of Engineering and Technology (BUET) and Nepal Engineering College (NEC).

Project support:

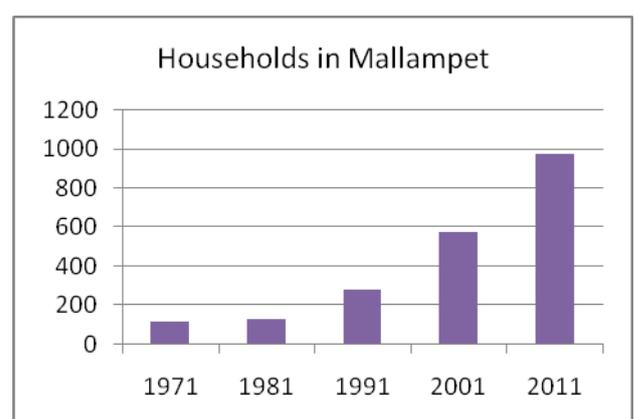
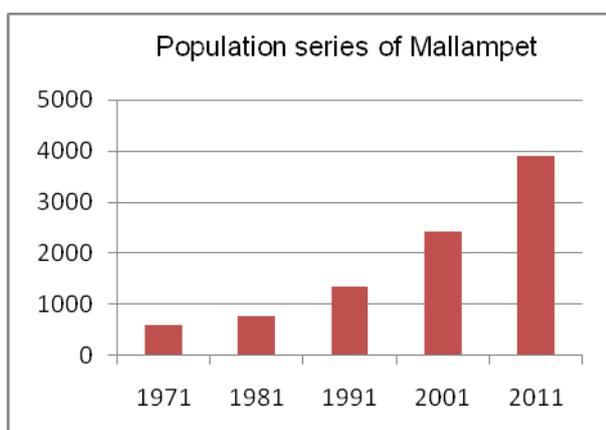
This project is supported by Canada's International Development Research Centre (IDRC). IDRC is one of the world's leading institutions in the generation and application of new knowledge to meet the challenges of international development. For nearly 40 years, IDRC has worked in close collaboration with researchers from the developing world in their search for the means to build healthier, more equitable, and more prosperous societies.

Introduction to the micro study:

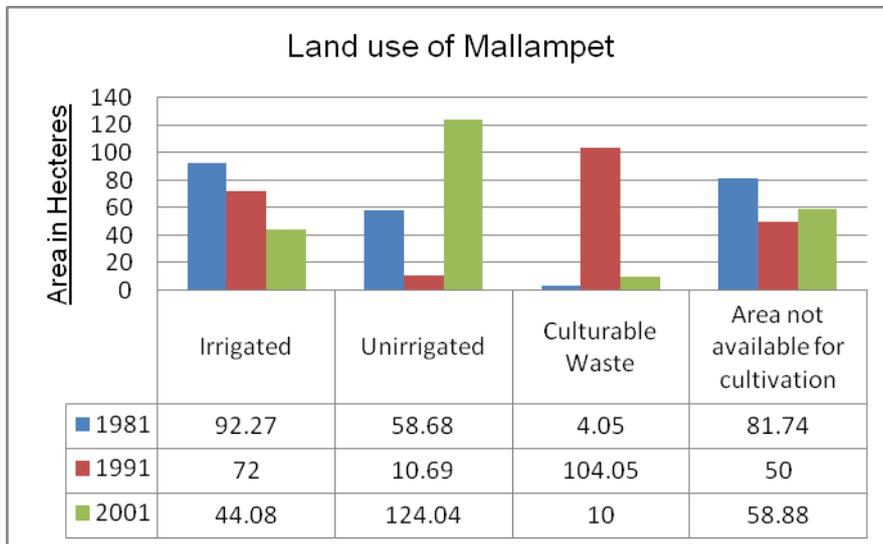
"Water security in peri-urban South Asia adapting to climate change and urbanization" project headed by SasiWATERS as one of the partner is to understand the urbanisation impacts on water accessibility across peri-urban landscapes in South Asia. Any city increasing in size, geographically engulfs the land from the villages located at the periphery of the city. As land is acquired to cater to the increasing demand for housing in large cities, the lives and livelihoods of the poor and vulnerable communities are affected. These diverse impacts of urbanisation, and its implications for peri-urban water uses and the conflicts envisaged therein for the different users, needs in depth understanding. In India the sites are at Hyderabad and Gurgaon. At Hyderabad out of the four peri-urban villages selected for the project, I have chosen to study the water inequity issues in Mallampet village.

Mallampet:

Mallampet is a village situated in Qutubullapur Mandal of Rangareddy district. Mallampet has an area of 237 hectares is a village with a huge spread and with recent additions of residential colonies around it. The 159-kilometer Outer Ring Road of Hyderabad passes through Mallampet. This has led to growth in real estate activity with many residential and commercial ventures coming up in the vicinity. The other factors for the development in this area are its close proximity to the Bollaram industrial area which is 3.2kms away. Mallampet has witnessed increase in migration, both intra and inter-state (from the surrounding villages, in the district and from Bihar & Uttar Pradesh). The reasons for migration and settling of people are the employment opportunities available in the industries located in the area, construction companies and affordable rents as compared to the main city. The present population of Mallampet as recorded in 2011 census is 3900 (approx). Referring to the population of Mallampet from the census over the last 5 decades tells us that there has been a steep increase over time. People moving into the village means a increase in the number



of households too. At present there are 971 households in Mallampet. The changing patterns of land use in Mallampet can be partially studied through the time series data available from the census of India. Forest cover is shown zero in area from 1971 - 2001 which implies that forest never existed in Mallampet. From the graph below it is evident that the constant decrease in irrigated



area shows that people are shifting from agriculture to other occupations mostly because the land is being sold for development. Crops are grown only during the monsoons in the remaining cultivable land because of availability of water dictates

the output produced. The remaining farmers in a plight for income have leased the bores to private tankers. These tanker companies

extract water from the bores and sell water in the nearby educational institutions, high end gated communities and industries. From the literature review and background study, the following research questions have been derived.

Main Research Question:

What is the inequity in water availability within the households of peri-urban village of Mallampet?

Sub Questions:

- Which institutions are responsible for providing water in the village?
- How is the water distributed spatially within the households of the village?
- Where are the inequities in the distribution and what is the reason and nature (social/technical/economic inequalities/terrain/anything else) of this inequity?
- How does the community cope with this situation and is there some opportunity cost? If yes, what is the opportunity cost?
- What is the amount of water distributed through the panchayat system and what is the amount extracted through tankers per day during summer and post monsoon?
- What is the current gap in water supply identified by the panchayat distribution system?

Methodology:

I have done a review of literature pertaining to the project to develop an understanding. An initial field visit to Mallampet along with the researchers of the organisation helped to develop picture basic idea about how access to water varies from colony to colony. Based on these initial perspectives my research questions were developed. Multiple methods have been used, in order to increase the validity and reliability of the results. This was done through *triangulation*: the approach in which different methods or sources of data are used in research, in order to make findings more credible.

1. Participatory Observation:

Participatory observation is a method with which insight in the field of research can be obtained. This helps to observe the relations, arrangements and interactions that take place. This involves observing communities in their daily routines for fetching water, e.g. through transect walk through the village and observing the activities at a well or pump. This provides insight, and can also help in identifying topics to discuss with the people. These observations continued for several weeks that I visited the field. From my observations I will take clear and thorough notes. I have taken the different phases of observation into account: description, interpretation and explanation.

2. Semi- structured interviews:

During the field visits, I will identify individual water users and groups based on their location and economic condition to interview. I tried to include as much different water users as possible, in terms of age, occupation, gender. I have specifically taken the individual level into account, allowing for differences in experience and perception between different household members.

Institutions

As a part of the interviews even the existing institutions like the Panchayat, school will be surveyed pertaining to water access and its availability.

3. Key person interviews:

As part of the field visit some important key persons were interviewed like the water man, pump operator, bill collector, panchayat and ex-panchayat members to get an understanding of how water in the village is distributed, whether and how the access has changed with the process of urbanisation. These interviews will be conducted to mainly focus on the water issues colony by colony across the village.

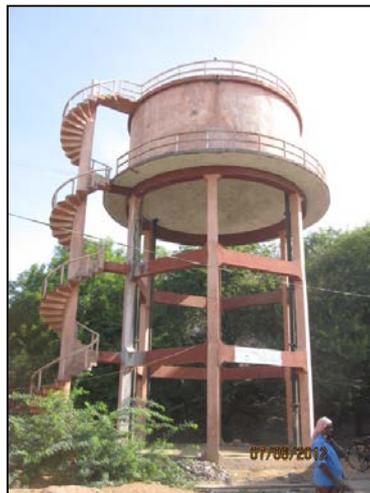
Analysis:

On the first day of the field work a water supply map was prepared which formed the basis of further investigation. The map was drawn with the help of the waterman of the village, Gopal who gave an idea of how water is supplied in Mallampet. Based on the map Mallampet has three colonies namely 1.Village, 2.Indramma colony and 3.Hi-rise colony(refer map-1). The panchayat supplies water to the above mentioned colonies except for hi-rise colony which is a large gated community development along the periphery of the village. Mallampet panchayat supplies water to about 800 households which broadly fall under the two colonies. The old settlement of the village is supplied through piped connections which serves approximately 450 households with direct pipe connections. Weaker section colony and Indramma colony which have about 250 households collect water from street taps laid by the panchayat(refer map-2). The number of households in the village with personal pumpsets are approximately 125. Panchayat allotted lands on a hillock for weaker section through the Indra Awas Yojna. Constructions of houses on the hillock started two years ago but the colony has no pipeline laid until now due to the fact the panchayat feels laying a pipeline through the steep terrain is impossible.

The main source of water for Mallampet is through the bores . There are two large tanks from which the pipelines connect to the different colonies. The ground level storage tank and the overhead tank are of 1,00,000 litre capacity each from where the water is supplied. The ground level storage tank is fed by water from two bores and the water from this tank is supplied to the weaker section and Indramma colonies(refer map-4). The overhead tank is fed by water from four bores and water from this tank is supplied to the old village colony(refer map-3). The overhead tank has attached to it a 80,000litre sump into which the bore water is fed and then pumped into the tank using a motor. During the summer months of this year the sump is only half filled because of low ground water levels but during the monsoon season the same sump is completely filled. There



Pic 1:The sump of 1,00,000lt capacity which serves the weaker section and Indramma colonies.



is also an old tank of 80,000lts capacity which is still functional. The source of water for the colony on the hillock is a bore which was dug

Pic 2: The overhead tank of 1,00,000lt capacity serves the old village colony.

eight months ago.

Water is given every alternate during the monsoon and winter seasons whereas during the summer season(especially this year) there has been a erratic supply of water. The old village colony receives water once in 3-4 days approximately. The households in the old village colony have piped connections where one inch blue coloured pipes have been pulled from the main underground pipeline. As seen in pic-3 connections like this are visible outside each house in the old village colony. But households on the other side of the road at the end get less water as the pressure is reduced because of the distance the water travels. The weaker section and Indramma colonies are served water through street taps as shown in pic-5. The panchayat has laid one street tap for every 10-15 houses approximately. Every by lane in new weaker section colony has 1-2 street taps. Since water is given on alternate days the empty vessels are already kept next to the tap to avoid conflicts.



Pic 3: Water connections in the old village colony.



Pic 4 :Empty cans in queue for filling water the next day.



Pic 5:Street taps

In the month of May one of the bores had dried up and the motor was not functional. This affected the water availability of the Indramma colony and had left them in adverse conditions. They received water after 12 days once the motor was repaired. In such conditions people got water from the bore next to the temple. The houses located on the way to the Khatua cheruvu used to get drums filled from the tankers by paying money. On



Pic 6:The day water is given, for that one hour there is so much human activity and full of colourful empty cans waiting to be filled.

some occasions, the tankers refused to give water to them.

A bore was drilled eight months ago on the hillock which serves as the main source of water for the residents on the hillock. The bore is 500ft deep from where people fill water. Water from the bore can be taken when there is electricity and by all the residents on the hillock. Three months ago, a group of 30-40 households have collected money and got a pipeline laid from the bore directly for themselves. Each household contributed Rs.100-150 approximately for getting the pipeline laid. There are four street taps laid by the panchayat from the pipeline. Even though the street taps are less than hundred metres away from the houses, it is difficult to collect water because of the steep natural terrain.



Pic 7: Series of pictures showing the efforts of the residents on the hillock put in to collect water.

The residents have been demanding for the pipelines to be laid but the panchayat has not reacted until now. The residents are promised everytime they go to the panchayat to complain. On speaking to the panchayat regarding this issue it was revealed that laying pipelines through the slope of the hillock is not possible. As a result of this the bore was drilled sometime ago. On one of the days of field work I witnessed a quarrel between the residents as one of them opposed others from taking water last street tap



Pic 8: Street taps from the pipeline which gets water from the bore on the hillock.



Pic 9:The main source of water is the bore for the residents on the hillock.

as he claimed that he got the pipeline laid. The residents of the hillock feel they are deprived of water connections as compared to the rest of the village. During the peak summer months people from the other part of the village walked all the way upto the bore on the hillock to atleast collect two buckets of water. The people never thought before constructing the house as to how they would access water and also in some cases compelled by their economic status to build their houses on the land allotted free of cost. Talking of the institutions role in allotting land they should not have provided land on the hillock where the water connections cannot be provided because water is one of the basic necessities. Panchayat even built a small tank like a common standpost but hasn't yet given a water connection to it. This points towards the faulty government policies and programmes (that are suppose to reduce the vulnerabilities of people), along with lack of coordination within departments, that actually increases their vulnerabilities.



Pic 10: The view of the hillock showing various residences at different heights because of the natural terrain.

A part of the SC colony has water connections but does not receive water because the pipeline is chocked because of continuous bleaching. Laying of the new pipeline of two and a half inch thickness has started but is left unfinished. The residents of this SC colony say the panchayat has not been very pro-active in laying the pipeline. At present they take water from the neighbours or from the bore on the hillock. They also stated that "*all the matters regarding water supply are in the hands of the pump operator*" which clearly indicates how an individual plays a pivotal role in providing basic services, but owing to biasness towards a community or pressure from within the system, may force him to act in favour of a particular community, and probably in lieu of some added monetary gains, which is otherwise probably unknown.

"Land is Mallampet is falling short to accommodate the increasing people. This year the supply of water is somehow being managed for the summer months but really difficult to gauge how it is going to be in the coming years. People have been moving to Mallampet because of nice water supply and even Bollaram industrial area nearby is an added attraction. " by P.Anjaiya (ex panchayat member).



Pic 11: Series of pictures showing the layout of 50yards plots on and the present households on the hillock.



Mallampet has three 'cheruvus' in its periphery of which one dries up during summer. The Chanan cheruvu which is more of garbage dumping site, making it unsuitable for any use. The Khatua cheruvu is a very big water body, located at the boundary of the village largely is a part of Bowrampet, the neighbouring village. This cheruvu over the years is being polluted by the industries located around the lake where the untreated effluents are disposed making the groundwater of Mallampet unfit for drinking and agriculture. The quality of the water is also reflected through the amount of water being extracted by the limited number of private tankers in Mallampet while it is very high in the neighbouring village of Bowrampet, as reported by a resident



Pic 12: The Chanan cheruvu acts like a garbage dumping site.



Pic 13:The Khatua cheruvu is dried up to a large extent during this summer.

ofMallampet village. A villager working in nearby industries stated that "*water being extracted by the private tankers is sold in the industries who first check the water quality before paying for the water*". Water is usually diverted to the city for meeting its domestic requirements. According to him Bowrampet water is preferred by industries over Mallampet water because of the quality parameters. Pollution of this lake also affected the agricultural practices in the village which is left with only an option to cultivate during the monsoons. The outer ring road of Hyderabad is laid across the huge lake encroaching on the catchment area of the lake. This immense plundering of

natural resources by the industries and then polluting the same shows the process of exploitation, destruction and further exploitation at the cost of livelihoods of people, which suffer because of the polluted water. Moreover, industries are able to bring water from greater distances, but a farmer does not have any other option, but to quit agriculture as a profession, because the groundwater has been polluted. Mallampet has already been completely robbed off its water, both in terms of quality and quantity and now Bowrampet bears the brunt of the activities of the industries. This calls for further inequities in the village.

On doing the water quality tests of the ground water from Mallampet, the results showed high fluoride content which makes the water unfit for drinking. Mallampet over the years has completely become dependent on filtered water. On this pretext, the panchayat wanted to provide the villagers with clean drinking water and has therefore set up a treatment plant next to one of the overhead tanks. The panchayat built the shed on its land bearing the expenses and gave it on lease to a private party. An agreement was signed upon where the water and electricity will be provided by the panchayat and the filtered water has to be sold to the villagers at a price of Rs.4 for a 20litre can. This treatment plant draws almost 10,000litres from the water tank which is further filtered and sold. During the summer months, the waste water from the filter plant was also taken by the villagers in order to meet the daily household requirements. The waste water was mostly used for washing purposes. This seems to be a good conservation cum coping strategy on part of the villagers during the period of extreme stress.



Pic 14:The filter plant set up by the panchayat to provide villagers with clean drinking water.



Pic 15: Villagers collecting waste water from the filter plant and using the water for washing purposes.

There are two more private filter plants in Mallampet which mostly sell water outside the village. These plants almost draw 15,000Litres in a day to filter through their personal bores. The waste water contains high salt contents and is again returned to the soil.



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Pic 17 : The private filter plants have their own bore from which they draw water to filter.

Mallampet as already mentioned witnesses illegal extraction of ground water by private tankers operating from places unknown, supplying either to the industries or residential colonies in the city. The villagers who still own land but are not cultivating have found a source of income by leasing out the bores to private tanker companies. These tankers operate through a very close network. In Mallampet private tankers draw water largely from 4 bores. In a day approximately 15 -20 tankers of 5500 litre capacity go out of Mallampet. On calculating the total amount of water drawn through illegal extraction totals upto 1,00,000 litre. Tankers from a noted engineering institution draws almost 4-5 tankers only during the summer months(as reported by a worker).



Pic 18 : Tankers extracting water from Mallampet have their highest activity from 12pm to the wee hours in the night. This is pertaining to the availability

Conclusion (Learnings):

With the increasing number of water based activities in Mallampet, the issue of water inequity turns out to be a glaring one, whose drivers are mainly the people themselves, who instead of thinking in a sustainable way have chopped off the branches on which they were perched. Moreover long term thinking by the government due to several hidden agendas left the people to suffer even more. The role of panchayat is planning for water supply during the next summer season water supply is a huge task and will require systematic planning.



Peerancheru

The initial visit to Peerancheru reveals that the village has high rise apartments as the backdrop, the development happening since last three years (as seen in pic-21). The village many years ago was surrounded by dense forests which is completely vanished now. The major social groups living in the village are Muslims, scheduled castes and yadavs, of which Muslims are the dominant group. 50 household surveys were conducted in Peerancheru and going by the survey observations this place is largely dependent on bottled water for drinking purposes. People from lower economic strata buy filtered water for Rs.5 per pot of 20lts, otherwise the plastic container costs around Rs.10 - 15(approx). Almost all the households have direct pipe connection

inside the house but particularly in summer months since the pressure of the water is less (compared to other seasons), water is released at common standposts (as seen in pic-20). But walking colony by colony makes us realise that water supply varies across the village. A group of 30 households have a bore



Pic 19 : The bore is itself used as a common standpost and kids being sent to fill water as part of their summer vacations.



Pic 20 : Common standpost.

which was laid by and MLA to solve their water problems. So they are using water mostly from the bore itself. Though this village does not come under Greater Hyderabad Municipal Corporation it



Pic 21: The village is surrounded by high rise apartments which otherwise was surrounded by trees and agricultural land.

has manjeera water supply largely based on how the panchayat pays the bills. During the summer months manjeera water was given only once in 8 --10 days(approx). Families which have sold land have built houses and also have personal pumpsets. There is no trace of agriculture left in the village. The peri - urban character is strongly reflected

through the infrastructure development happening in the village and the usage of bottled water.