WASSAN

ANNUAL REPORT 2016-17

CONTENTS

FOREWORD

2016-17 is an eventful year for WASSAN. WASSAN was able to improve basic facilities in several villages. Apart from this, WASSAN was able to improve cooperation among the farmers in Andhra Pradesh, Telangana and Orissa.

Basic facilities included – provision of drinking water, sanitation (toilets; drainage; water re-use plants); arrangements for solid waste management and improving health (disease prevention). During the summer and initial drought period of the year (May to June 2016), WASSAN organized water supply to parched villages in Karimnagar district, Telangana. Cooperation among farmers included – formation of cooperatives of farmers; supporting the farmer's cooperatives to develop action plans for agricultural development; linking the cooperatives with formal financial institutions; promoting local seed supply and diversified cropping systems; establishing systems for providing critical irrigation and so on. WASSAN also supported large number of women in tribal regions to improve alternative incomes and nutritional intake by promoting backyard poultry.

Watershed projects are revived in the project villages of Parigi and Doma mandals during the fag end of the financial year. However, significant improvements are achieved in revisiting the earlier action plans in the project villages and submitting the revised action plans to the concerned departments.

WASSAN is engaged in organizing large campaigns on water & sanitation; prevention of diseases; groundwater management; diversified agriculture; seed supply systems and so on. These campaigns are supportive to the initiatives of Government of India/ State governments – mainly Swatch Bharat Abhiyan; Groundwater Management in watershed projects; health programs (prevention of Japanese Encephalitis (JE) in tribal areas of Malkangiri district, Odisha and so on.

WASSAN actively supported Veernalpally in Karimnagar district, which is selected as role model village under "Prime Minister Samsad Aadarsh Gram Yojana (PMSAGY). Based on the action plans/ strategies developed by WASSAN in collaboration with the villagers, Veernalpally stands in 9th position in the country as a model village in PMSAGY.

WASSAN initiated a survey of single women (women headed families) in Karminagar district and Vikarabad district. Based on this survey, WASSAN started with women headed families in the villages for improving their livelihoods and social status. As part of this, WASSAN organized training programs for these women and supported them in establishing enterprises in rural areas.

WASSAN received recognition as "Best NGO" in Vikarabad district. WASSAN and its network members received award for innovative approaches in "Public Health Sector" in Malkangiri for promoting Japanese Encephalitis Coordination Committee. District Governments in Vikarabad, Malkangiri and Anantapur districts have supported WASSAN'e efforts and encouraged at every step. WASSAN's partnership with other civil society partners and community based organizations has been strengthened with several collaborative efforts in these states.

This report presents the efforts and results achieved by WASSAN during 2016-17.

MV Rama Chandrudu
Executive Secretary
WASSAN

BASIC NEEDS

DEVELOPING NATURAL RESOURCE BASE TO SUSTAIN THE LIVELIHOODS THROUGH INTEGRATED WATERSHED MANAGEMENT PROGRAMME (IWMP)

IWMP is centrally sponsored scheme aimed to secure livelihoods through sustaining natural resource base. WASSAN implemented Integrated Watershed Management Project in 26 villages of Parigi and Doma Mandals, Telangana. This programme is implemented for a period of 7 years covering 5000 households. Majority of these households are small and marginal farmers, landless and single women. The resources are largely unproductive, barren and poor. The objective is to develop these resources and convert them into productive livelihood resources. It has benefited 3185 families directly till 31st Mar 2017 in project villages.

Integrated watershed management programme (IWMP) is a centrally sponsored programme. Now it is part of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY). The programme is executed under Common Guidelines for Watershed Development Projects (2008) developed by the DoLR for rolling out the programme all over the country. The programme is being executed in many states of India including Telangana. State Government identified Watershed Support Services and Activities Network (WASSAN) as Project Implementing Agency (PIA) for implementing Narayanpur project in Parigi mandal and Mothkur project in Doma mandal of Vikarabad district (earlier RR district of Andhra Pradesh). These projects are sanctioned during 2010-11 batch projects and implemented in 14180 ha of area treating 9607 ha. About 3185 families are benefited from this project till 31st Mar 2017. This programme is taken up in 26 revenue villages covering 17 gram panchayats in two mandals (blocks). The total cost of the project is Rs 11.54 Crore.

❑ OBJECTIVES:

The purpose of the watershed projects is to bring the unproductive natural resources into meaningful and sustainable production to strengthen livelihoods of the dependent families. IWMP programme takes up several activities to enhance the productivity of the resources. Thus enhanced resources strengthen agriculture, horticulture, livestock and other production systems including micro enterprises, handicrafts and other livelihoods in the watershed villages. Hence the following are the end results of the programme.

1. All the works/activities that are planned for the treatment and development of the drainage lines, arable and non-arable lands in the watershed area are completed with the active participation and contribution of the user groups and the community at large.
2. The user groups/panchayats have willingly taken over the operation and maintenance of the assets created and made suitable administrative and financial arrangements for their maintenance and further development.
3. All the members of the Watershed Committee and staff such as Watershed Secretary and Volunteers have been given orientation and training to improve their knowledge and upgrade technical/management and community organisational skills to a level that is appropriate for the successful discharge of their responsibilities on withdrawal of the Watershed Development Team from the Project.

4. The village community would have been organised into several, homogeneous self-help groups for savings and other income generation activities which would have achieved sufficient commitment from their members and built up financial resources to be self sustaining.
5. The increase in cropping intensity and agricultural productivity reflecting in overall increase in agriculture production.
6. Increase in income of farmers/ landless labourers in the project area.
7. Increase in groundwater table due to enhanced recharge by watershed interventions

❑ STRATEGIES:

The common guidelines for Watershed development projects are platforms for experimenting several options that bring in people's participation, transfer decision making choice, take appropriate activities that influence their livelihoods and resources. The following are guiding principles of watershed projects.

1. **Equity and Gender Sensitivity:** Watershed Development Projects are considered as levers of inclusiveness. WASSAN facilitated the equity processes.

    a. WASSAN facilitated enhanced livelihood opportunities for the poor through investment in their assets (land, drainage lines, etc) and improvements in agriculture, horticulture and livestock productivity and thereby income
    b. Taken up activities for improving access of the poor, especially women to the benefits such as creating special fund for poor and single women to support their livelihood options. Sheep, goat, dairy, vegetable cultivation, etc are promoted to make use of improved assets.
    c. WASSAN formed committees with the true representation from women. This helped women to take part in decision-making processes. WASSAN also facilitated left out women into selfhelp groups so as to help them to get benefit from the watershed fund available in the village.

2. **Decentralization**: WASSAN formed user groups covering the contiguous farmers to one group. WASSAN helped such user groups to appraise the resources, prepare plans, decide, implement, supervise the works. The payments are made based on the satisfactory feedback from these user groups only. Watershed Committees at each Panchayat are formed with the representatives of these user groups and Gram Panchayat. These watershed committees decide the investment of funds based on the broad guidelines set by Government of India. WASSAN helped the committee to take decisions with informed choices.

3. **Centrality of Community Participation:** As explained above, farmers are formed into user groups. Similarly labour are formed into labour groups and women are formed into self-help groups (SHGs). The SHGs are involved in implementing livelihood options. Thus all stakeholders in the villages are involved. Involvement of primary stakeholders is at the centre of planning, budgeting, implementation, and management of watershed projects. All the decisions are informed to Gram Sabha and approved in the meetings.

4. **Capacity Building and Technology Inputs:** WASSAN is one of the national level resource support organizations on watershed projects in India. WASSAN has expertise on promoting and strengthening innovations in capacity building. WASSAN provided continuous training and handholding support to the committee, user groups, SHGs and farmers to improve their livelihood resources. This helped the project beneficiaries and functionaries to enhance their understanding on the resources, judicious use in a sustainable manner. The committees are also

able to enhance their knowledge and skills and develop the correct orientation and perspectives thereby becoming more effective in performing their roles and responsibilities. All the resources are geotagged with GPS instruments and GIS is widely used in planning, implementation of monitoring.

❑ FARMERS' COOPERATIVES

The user groups are federated into Mutually Aided Cooperative Societies. These MACS groups are able to mobilise agriculture inputs from the market and sell their product in a competitive market. The collectivization of inputs/output produce helped them to bargain for better price.

❑ PARTICIPATORY GROUNDWATER MANAGEMENT

WASSAN learnt from the experiences that the watershed projects invest public funds to augment the groundwater. The farmers also invest more private funds (even by borrowing from formal and informal credit sources) to extract the groundwater to secure their crops. During this process, farmers lose lot of money as the failure rate of the borewells is also high. Therefore, WASSAN established Ground Water Resource Centre in watershed villages and helped the farmers to understand the groundwater behavior and its resources beneath the ground. WASSAN facilitated the farmers to network the borewells, pool their water and use the water equally for the crops. This strategy secured their crops from weather aberrations. This network of borewells also provided critical irrigation support to the non-borewell farmers in or nearby the groundwater grid during the kharif- season. This is a win-win situation for all the farmers to secure their crops, investments and livelihoods.

❑ ACTIVITIES:

The watershed activities are divided into 4 categories. Under each category, variety of locally relevant works is taken up. The following tables explain the summary of activities taken up. Government of India has sanctioned.

- **Entry Point Activities:** Entry point activities are implemented to bring the watershed communities into common platform and solve the top pending and important work in the village. By this the village people get confidence on the watershed programme and start participating actively and meaningfully in the programme. In these watershed villages, climate information centres are established under this entry point activity. These climate information centres are providing weather and crop information to the farmers to take appropriate decisions related to agriculture, livestock and other production systems. These climate resource centers are also serving as knowledge centres to the farmers on matters related to agriculture, horticulture, vegetable cultivation, millets, ground water management, fisheries, back yard poultry, sheep and goats, marketing, prices, latest innovations and technologies in agriculture, Government schemes, etc. These centres are also providing agriculture equipment on hire basis to ease the implement constraints to the rural poor farmers. 4% of the total available budget is spent for this category of works.

Sl No	Category	Activity	Phy	Fin (Rs In Lakh)	Number of Households Covered
1	Entry Point Activity	Climate Information Centre (C.I.S)	12	16.188	12
2	Entry Point Activity	Solar Street Lamp	57	17.649	57
	Total			**33.837**	**69**

- **Natural Resource Management (NRM) Development Works:** NRM works to strengthen the water, land and vegetation resources are taken up. The lands in the watershed area are sloppy, unproductive and less fertile. The velocity of the run off is very high due to undulated terrain and uncontrolled drainage lines. Hence, soil erosion is very high and the percolation to the ground was also very low. The structures constructed are able to reduce the velocity of run off, control soil erosion, retain the moisture in the fields, harvest more water, percolate it down and improve the vegetative cover in the watershed area. Total budget earmarked for this category of the works is 56% of the total budget.

Sl No	Category	Activity	Phy	Fin (Rs In Lakh)	Number of Households Covered
1	NRM	Avenue Plantation	14	5.05	14
2	NRM	Boulder removal using Machine and stone bunding	1345	103.78	1345
3	NRM	Boulder removal with machinery(30% contribution)	1028	111.76	1028
4	NRM	Bund Plantation	35	1.57	35
5	NRM	Check Dam	33	69.60	33
6	NRM	Check Wall	5	4.39	5
7	NRM	Construction of silopits of 3 MTs capacity	1	0.08	1
8	NRM	Dryland Horticulture Plantation I Year	5	1.02	5
9	NRM	Dugout Pond	5	2.01	5
10	NRM	Earthen Bunding With Seed Dibbling	7	0.48	7
11	NRM	Farm Pond	29	6.53	29
12	NRM	Farm Pond for other Farmer	22	7.42	22
13	NRM	Loose Boulder Structure	33	3.44	33
14	NRM	Mini Percolation Tank	1	0.19	1
15	NRM	Percolation Tank	4	5.99	4
16	NRM	Raising Farmer Nursery in 6 * 12 bags during 2013-14	2	2.36	2
17	NRM	Raising of Horticulture Plantation Mango(Dry Land) 2014-15	4	3.37	4
18	NRM	Raising of Horticulture Plantation Mango(Dry Land) first	17	4.63	17

Sl No	Category	Activity	Phy	Fin (Rs In Lakh)	Number of Households Covered
		year			
19	NRM	Raising of Horticulture Plantation Mango(MIP)2014-15	13	8.67	13
20	NRM	Repairs to Existing Check Dam	16	8.31	16
21	NRM	Repairs to Existing Percolation Tank	2	1.17	2
22	NRM	Rock Fill Dam	52	15.19	52
23	NRM	Sunken Pit	4	0.05	4
24	NRM	Water Absorption Trench at Foot Hills	4	1.34	4
	Total			**368.4**	**2681**

- **Production Systems Improvement and Micro Enterprises:** NRM works help in improving the condition of natural resources. But, certain interventions required to help the farmers and poor to access to the benefits and results achieved through watershed projects. Agriculture, horticulture and livestock are important production systems in watershed villages. This category of works help in accessing the results achieved through NRM development works. These interventions also strengthen the livelihoods of watershed communities. 10% of the total budget is earmarked for this category of works.

- **Livelihoods for Assetless Poor:** Not all the households in the watershed villages would have land so that they get benefit under the watershed projects. Poor and assetless households are more vulnerable and deserve the benefit under watershed projects. Hence, 10% of the total budget is allocated to this category of interventions. The interventions include livelihoods depending upon the natural resources, agriculture, livestock, fisheries and other production systems and also micro enterprises. These interventions are implemented through the SHGs.

❑ RESULTS AND IMPACTS ACHIEVED:

1) The watershed projects are able to create new generation institutional platforms in the villages. The user groups are federated into cooperatives and the cooperatives are able to collectively purchase the inputs required and also sell the produce.

2) 104 structures for water harvesting such as check dam, check wall, farm ponds, Mini percolation tanks are created. These harvesting structures are able to gather more water, reduce the run off and help in percolation and critical irrigation to the crops

3) 2373 farmers are covered under boulder removal. The lands were filled with big size boulders. Some of them are removed using the machines also. These interventions brought 2373 acr of unproductive and problematic land into cultivation and thereby into production.

4) 88 ha of the land is brought into new plantation. Majority of this area is also brought under horticulture. The maintenance is supported for a period of 3 years from the plantation.

5) Farmers are able to grow vegetable organically.

❑ SUMMARY:

WASSAN implemented watershed development programme in 26 revenue villages covering 17 gram panchayats in two mandals (blocks). The total cost of the project is Rs 11.54 Crore. These projects are sanctioned during 2010-11 batch projects and implemented in 14180 ha of area treating 9607 ha. About 3185 families are benefited from this project till 31st Mar 2017. The institutions are created and strengthened to take the impacts created to next level. WASSAN is providing continuous handholding support to these poor families despite the closure of the project period. Beyond watershed project objectives, it is also providing knowledge support on groundwater management, low carbon farming, integrating drinking water, and sanitation and hygiene facilities, etc. Thus all the households in the villages are covered.

PROVISION OF BASIC SERVICES - CRYSTAL DROPS

❑ EXPERIENCES OF 16 VILLAGES FROM PARIGI/ DOMA MANDALS, VIKARABAD DISTRICT, TELANGANA RATIONALE FOR TAKING UP CRYSTAL DROPS:

While watershed development projects make significant investments for reviving natural resources and improve the economic basis of the rural areas, the basic facilities (drinking water/ sanitation) are not necessarily part of its mandate. So even after having economic prosperity, villagers (where watershed development project are implemented) tend to lead a poor quality of life without access to safe drinking water and sanitation. Drinking water and sanitation demand a special attention and considerable efforts have to be made to change behavior of individuals. These interventions also require considerable investments. Considering the role of safe and sustainable water supply, basic sanitation and good hygiene in quality of life in villages, WASSAN took up "Crystal Drops" project that aims at provision of basic facilities in those villages, where WASSAN implemented Integrated Watershed Management Projects in Parigi/ Doma mandals, Vikarabad district, Telangana state, India. This initiative is a collaborative project between HSBC Electronic Data Processing India Pvt. Ltd and WASSAN. This project was formally initiated during Aug 2013. The duration of the project was proposed to be three years (2013 to 2016) but the project was continued until April 2017. The total contribution from HSBC is 450000 US $. Funds were also accessed from relevant government schemes and communities contributed to the project costs.

WASSAN believes that watershed management projects have to be supplemented with a variety of other interventions and make it truly integrated approach for rural development. These villages could demonstrate that facilitating such convergence is possible, when organizations like WASSAN believe on comprehensive approach to rural development. This section of the report presents the stories of 16 villages of this project.

❑ OBJECTIVES OF THE CRYSTAL DROP PROJECT:

- To secure safe drinking water and total sanitation in selected villages
- To provide institutional base for sustainable and equitable WASH (Water, Sanitation and Hygiene) services in the selected villages
- To demonstrate community centric and innovative approaches for providing WASH services at scale

❑ MAIN COMPONENTS OF THE PROJECT:

As part of this project, WASSAN took up the following project components. Each of these project components is explained in the project proposal.

- WASH Visions - Planning for Sustainable and Equitable WASH Services
- Provision of WASH Facilities for Safe Water and Total Sanitation
- Ensuring sustainability of drinking water sources
- Community based Systems for Sustainable WASH Services
- Water School

VILLAGE PROFILE STORY OF CHENCHU COLONY

Chenchu Colony village is located in Doma Mandal of Ranga Reddy district, Telangana. It comes under Mothkur Gram panchayat and it is at a distance of 4 Kms from its Mandal head quarters and 94 Kms from the district head quarters. There are a total of 28 households in the village with a population of 99. All the Households in the village are Hindus Belonging to ST caste Almost all the Houses are of Pucca Type and the remaining 1 is of semi Pucca.

Summary Table of Village Data	
Population	99
No. of HH's	28
Religion	Hindu
Caste	ST Caste
Occupations	Agriculture

After the initial door to door surveys, WASSAN began to engage with the community through various meetings and workshops. This was aimed to motivate and gain support from the community to improve the WASH facilities in Chenchu Colony, it was important to involve the children of the village in this process as it is they who shall feel the benefits. WASSAN arranged a meeting with the village to map out the WASH problems the village is facing.

Details of the problems identified from Surveys and Village Meetings

Water Scarcity	Toilet Facility Unavailable (ODF)	Lack of Hygienic Practices
• Main water source located at 3 kilometers away from village. • Everyday 1-3 hours spent to fetch water only for villagers drinking purposes. • Water not available throughout the day. • Other important livelihood activities suffered due to time spent in fetching water. • No water sharing by neighbouring villages.	• Open Defecation • Difficult for women and old-age people to go out always especially during daytime • Spoilt social relations • Girls skipped school due to unavailability of toilet	• People did not take bath daily • Did not wash hands with soap • Household premises not kept clean

❑ WASH INFRASTRUCTURE TO ADDRESS THE PROBLEMS

- Drinking Water facility – 3 cisterns connected by 150m pipe.
- Lack of Toilet Facilities – 21 IHHL's and 2 Bio-toilets.
- Lack of Hygiene Practices – Installation of 3 dustbins

❑ OTHER INITIATIVES

- Motivational programs with villagers to use the toilets properly.
- Functions with villagers regarding the importance of hygienic practices.
- A "Toilet Festival" was organized for the cleanest toilet.
- Toilet Kits were distributed i.e. phenyl, bleach and brush.
- Filling of Soak pit by WASH volunteers.

The Google Earth images show the before and after of Chenchu Colony Crystal Drops Project.

Chenchu Colony before Crystal Drops - 2013

Chenchu Colony after Crystal Drops - 2017

❑ WATER SUPPLY:

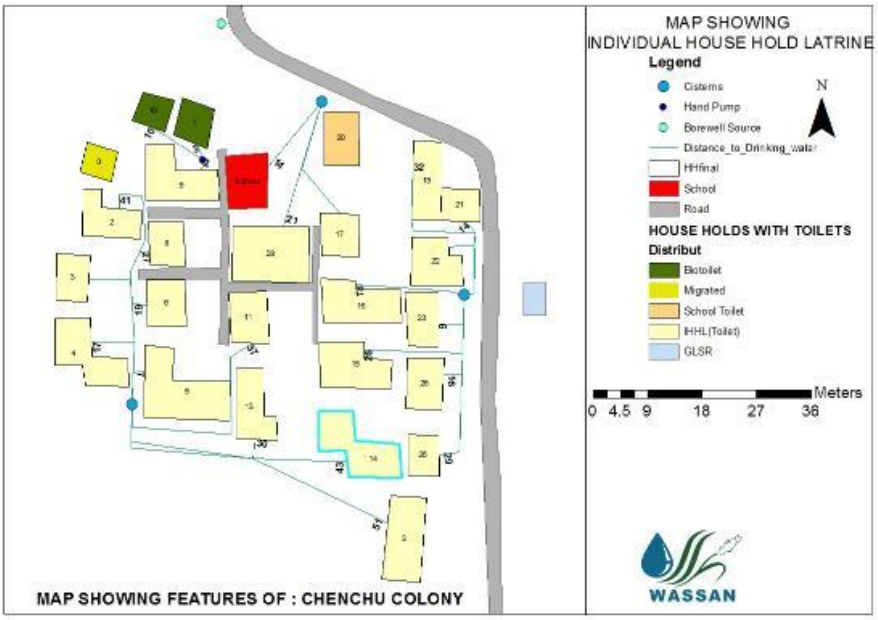
Previously the main source of water supply in the village was a bore well which had fallen into disrepair several months ago. A GLSR (Ground level service reservoir) was also a potential water supply in the village, but also had not been used in years due to poor maintenance. Out of the two hand pumps in the village only one was functioning and all residents were using this as their primary water source. No households were fitted with tap connections. Some residents had bore wells in their farms and were walking up to 3km to fetch for drinking water. Out of the Total Households, 50% were depending on the Hand pump and the remaining 50% were collecting water from the bore well in their farms for drinking water. In the majority of the households (17), females were fetching the water from the source and in the remaining (11) HH's, males were fetching the water. None of the households used any form of water treatment methods (e.g. Filter, Boiling etc) before consumption.

Taking all this situation analysis on board and carrying out surveys WASSAN constructed the following WASH infrastructure in the village. Three cisterns were installed in strategic positions in the village which were connected by a 150m pipeline. This significantly reduced the distance required for each household to access a drinking water supply. Each household also constructed a concrete water tank with a capacity of 50L. This allowed the household to store water after retrieving form the Cisterns. Water filtration was also an objective of the crystal drops project in the village. WASSAN provided each household with a water filter for their drinking water.

Fully constructed Cistern.

Top Right: Water Pipe Construction
Bottom Right: Villager with a water filtration system

Below two maps can be seen showing the before and after crystal drops intervention water source distances calculated. Before some households had to walk around 100m for drinking water from the borehole. Now even the furthest households have to only walk around 50m. See Annex for detailed list of beneficiaries.



Crystal Drops on completion - water source distance map - 2017

❑ Sanitation:

Prior to the crystal drops program there were 16 toilets in Chenchu colony. These were built in 2002 under a government scheme, but none were being used as toilets due to poor maintenance and upkeep. Those with toilets were using them for the purposes of bathing, cleaning utensils and storage. 12 of the households had no toilet facilities at all. Open defecation was prevalent near agricultural fields and near the road side. ODF was effecting health and environmental sanitation in the village.

WASSAN helped 23 households construct a new toilet. 21 of the toilets constructed were the standard two pit toilet system while 2 were bio toilets. The remaining 5 HH's were joint families, therefore they wished for only 1 toilet per family. WASSAN provided with the materials and the labour/masonry costs were paid for by beneficiary, this helped build engagement from the villagers to be involved with the process. Each of the toilets came with a soak pit for waste water.

Left: Previous Gov. Scheme Toilets. – 2013

Right: Installed Standard Toilet with added bathroom block 2017

❑ Drainage and Solid Waste:

Initially before the Crystal Drops project commenced Chenchu colony did not have a drainage system. All the waste water from the houses was directly flowing onto the roads of the village - this has obvious health implications. WASSAN advised in the construction of soak pits for the waste water, this was done in all 23 HH's.

No solid waste collection system was in place and no garbage disposal bins in the village. Solid waste was disposed of at the road side and dumbed around village. Dumping of waste can cause leaching which can end up in the ground water. Burning of waste also releases toxins into the air which again has health implications. WASSAN provided 3 dustbins located in the village.

❑ Achievements of Project:

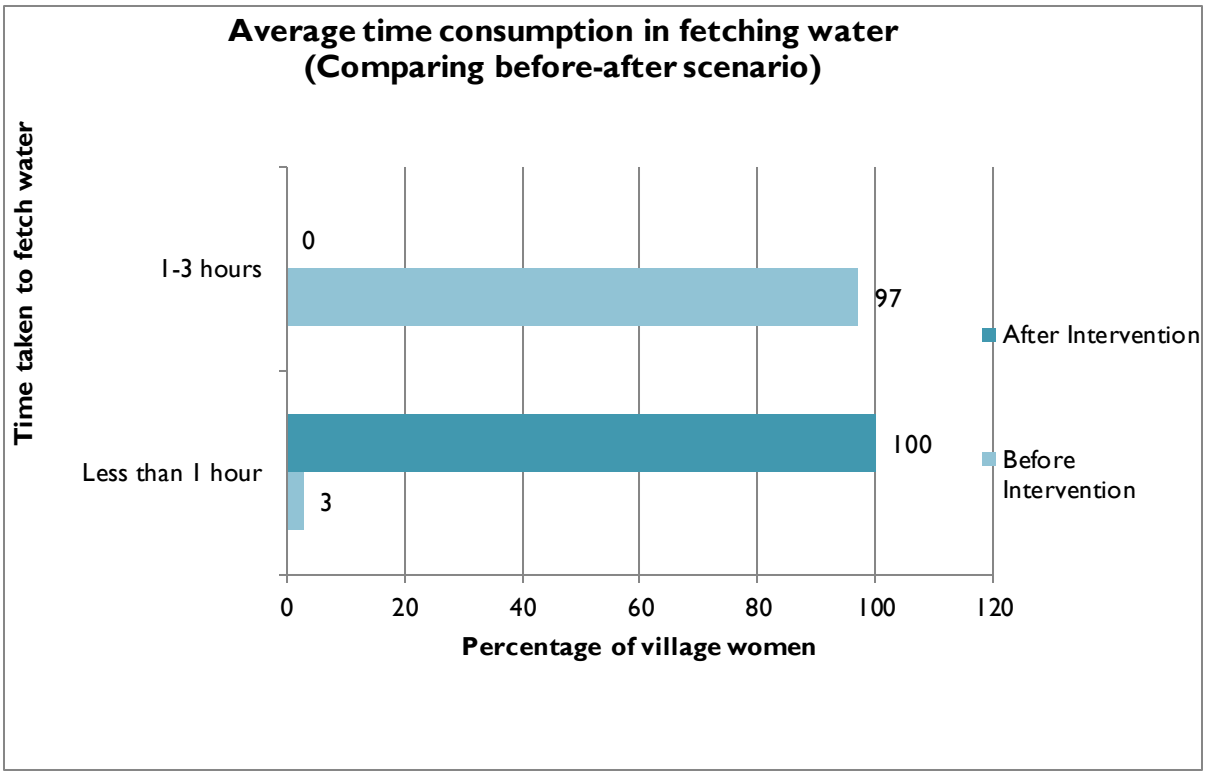
- 23 houses in Chenchu colony now have a working toilet. 2 of which are fitted with bio toilets.
- All household's have a soak pit for waste water
- All houses have access to drinking water within a radius of 50m of their household.
- 23 households have a water filter and 50L water storage tank in their households.
- 3 dustbins have been located in the village for solid waste.

❑ Impacts to the community:

- Before Crystal Drops intervention 100% of population reported having a lack of water availability throughout the day. Now 100% of the population report having water availability 100% through out the day.

Water availability throughout the day						
All round availability	Male percentage		Female percentage		Total percentage	
	Before	After	Before	After	Before	After
Always available	0%	100%	0%	100%	0%	100%
Not Available	100%	0%	100%	0%	100%	0%

- Before Crystal Drops intervention 97% of women spent 1-3 hrs fetching water, now 100% of women spend less than 1 hr fetching water. This allows women to concentrate other livelihood activities. Also noted was that the decrease in time taken to fetch water showed an increase in no. of males fetching water.



- Before Crystal Drops 0% of the population washed their hands after going to the toilet or after eating. Now 100% of the population across all age groups wash their hands after the toilet or eating.

	Washing hands after toilet and eating					
	Male Percentage		Female Percentage		Total percentage	
	Yes	No	Yes	No	Yes	No
Before	0%	100%	0%	100%	0%	100%
After	100%	0%	100%	0%	100%	0%
Percentage change	Improved by 100%		Improved by 100%		Improved by 100%	

Villager receiving an award for the cleanest toilet at the "Crystal Drops Toilet Festival" - 2017

❑ EXPENDITURE REPORT FOR CHENCHU COLONY:

S. No.	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Cisterns for storing water	Cistern	22867	3	68600	61100	7500
2	New pipe line	Rmt	399	150	59804	53504	6300
3	Water Bins (50L)	No	407	21	8550	8550	0
4	Water Filters	No.	3095	21	65000	65000	0
5	Plumbing Charges	-	-	-	8000	8000	0
6	**Total**				209954	196154	13800
Environmental Sanitation							
7	Individual Sanitary Latrines	Twin Pit Latrines	10181	21	213810	161860	51950
8	Bio-Toilets	Bio Toilet	15290	2	30580	23980	6600
9	School Toilet	School Toilet	37682	1	37682	37682	0
10	Soak pits	Soak Pits	1476	21	31000	16000	15000
11	Individual dust bins	No	600	3	1800	1600	200
12	**Total**				314872	241122	73750
Waste Management, Capacity Buiding & Governance Arrangements							
13	Painting (Logos)	(Paint/Painter)/HH	74	27	2000	2000	0
14	**Total**				2000	2000	0
15	**Complete Vill. Total**				526826	439276	87550
16	%				**100**	**83**	**17**

VILLAGE PROFILESTORY OF LINGANPALLY:

Linganpally village is located in Doma Mandal of Ranga Reddy district, Telangana. It comes under Rakonda Gram panchayat and it is at a distance of 2 Kms from the Mandal head quarters and 92 Kms from the district head quarters. There are a total of 69 households in the village with a population of 325. There is no bus facility to the village and it lacks civic amenities like sanitation, water, health facilities and poor road network. Most of the people are involved in agricultural activities. 70% of the population are Hindi and 30% are Muslim.

Summary Table of Village Data	
Mandal	Doma
Total HH's	69
Muslim	21
Hindu	48
BC	48
OC	21
Total Population	358 (2011)

After the initial door to door surveys, WASSAN began to engage with the community through various meetings and workshops. This was aimed to motivate and gain support from the community to improve the WASH facilities in Linganpally. It was apparent from the failed implementation of previous government schemes that social issues would occur around religion and case. Crystal drops objectives are for 'equitable WASH' services in all villages so community engagement and cooperation was of paramount importance.

❑ WATER SUPPLY:

Initially in the village in Linganpally the main source of water supply to the village was a bore well pump which is heavily dependent on the fluctuating power supply. Around 3 hrs of water supply was available to the village each day. A shift in water timings alternated weekly (one week 7-11am and the other week 11am – 2pm). This by no means met the basic access to water needs that every individual in the village should have. Water was supplied through a motor pump to all existing Public Stand Posts (PSP's) and to those houses lucky enough to have a tap connection. Please see map below for the water supply line in the village.13 PSP's are located in the village and only 12 are functioning. Out of the 4 hand pumps in the village only 1 hand pump is functioning.

Type of Water Facility	No. of HH's	%
Individual Tap Connections	9	13
RO Plant	3	4
Neighbouring House	3	4
Public Stand Post	54	79
Total	69	100

Access to water was limited for the villagers, only 9 houses out of 69 had access to individual tap connections. All of which are illegal connections as they do not pay charges to the GP (around 20Rs a month). The remaining households did not have tap connections and are dependent on other sources like PSP, Hand Pump, RO Plant etc.

Distance to the water source was also an issue for the villagers. Out of the 69 HH's, 48 HH's have their water source within 100m and the remaining 22 HH's have a water source out with 100m distance. In more than 90% of the HH's women and girls were fetching the water from the different sources. This reduces the time villagers, especially women, have on other livelihood activities e.g. Time a girl has to do her homework. This is example of access to water is a social issue. Availability of water can be said to be all year round, with the main issues arising in the summer time due to shortage of power supply. During surveys the villagers mentioned they were satisfied with the quality of the water.

In summary the water supply system was un-predictable and undependable. All the platforms of the public stand post are damaged and are not connected to drainage due to lack of drainage system The public taps/ stand posts do not have regulatory systems (ON/OFF systems and tap heads). Plenty of water is wasted as there are no regulators (on and off systems/ taps heads) for the public stand posts.

Taking into consideration all the survey data as well as consultation with the villagers WASSAN took the following actions:

- Construction of 400m water pipeline to improve access to water.
- Construction of 4 Cisterns to improve water storage.

The reason behind WASSAN's decision to install these WASH facilities was to vastly improve the short time of 3 hours, in which villagers can collect water throughout the day. By installing a water pipeline for 400m between the borehole water pump and the newly installed 4 Cisterns each of 4000L, providing 16000L of water storage.

As can be seen in the existing water supply line map (page 8), there is already a fairly sufficient network between PSP's.

❑ WATER SUPPLY LINE IN LINGANPALLY – BEFORE AND AFTER CRYSTAL DROPS:



❑ DRAINAGE:

Initially in the village the open drainage system covered very few houses, the rest of the village lacked any drainage system at all. As a result, the waste water from houses is directly flowing on to the roads. This poor drainage system was leading to waste water stagnating near the public stand posts and for most of the PSP's the platform is damaged. As the platforms of the PSP's are low lying the waste water is entering the pipelines. This made improved drainage a key aim of the Crystal Drops project in Linganpally.

Work began on the new drainage systems in the village - 2014

After completion, the work was signed off by the villagers and WASSAN – 2017

In total 194.66m of side drain was installed in 3 sections which after surveying were viewed to be high risk errors in need of drainage urgently. The longest section on the west side of the village leads into a river in the fields.

❑ SOLID WASTE:

Initially in Linganpally there was no solid waste collection system run by the Grama Panchayati in the village and there are no garbage disposal bins provided in the village. Due to lack of solid waste facilities people were discarding their waste in open places and backyard. Some of the households were separating their waste as wet and dry and using it as manure in their fields after decomposition.

Dumping of waste around the village was a common occurrence - 2013

Clean drive in Linganpally - 2015

Analyzing the survey data as well as organizing meetings with the villagers, WASSAN decided the best way forward would be the installation of 5 dustbins in the village in order to motivate the GP to set up a solid waste management system. The dustbins were strategically placed in order to maximize usage from each HH.

As part of the sanitation objectives in the village a clean and green drive was orchestrated in which the villagers took full participation and pride in making their village clean again.

❑ ACHIEVEMENTS OF PROJECT:

- Crystal Drops Project has increased the water storage capacity in Linganpally by 16000L. This means the villagers are in a much stronger position during the summer months of having the basic need of access to water most of the day.
- Laying of new drainage systems in the village will greatly improve the sanitation of the village. Not only reducing the waste water running on the roads, but ensuring that no waste leaks into drinking water pipes at blocked sections of the old drainage systems.

❑ EXPENDITURE REPORT FOR LINGANPALLY:

S. No.	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Cisterns for storing water	Cistern	31813	4	127250	127250	0
2	New pipe line	Rmt	116	400	46323	36300	9923
3	**Total**				**173573**	**163550**	**9923**
Environmental Sanitation							
1	Open Drainage	Rmt	1583	195	308236	245589	62647
2	Individual dust bins	No	500	5	2500	2200	300
3	**Total**				**310736**	**247789**	**62947**
	Complete Vill. Total				484309	411339	72870
	%				**100**	**85**	**15**

VILLAGE PROFILE STORY OF SHIVAREDDY PALLE:

Shivareddy Palle is located in Shivareddypally Grama Panchayati of Doma Mandal in Vikarabad district. It is covered in Survey of India toposheet number 56G/16. It is at a distance of 7.5 Kms from its mandal head quarters and 97.5 Kms from the district head quarters. There are total 232 Households in the village with a population of 1044.

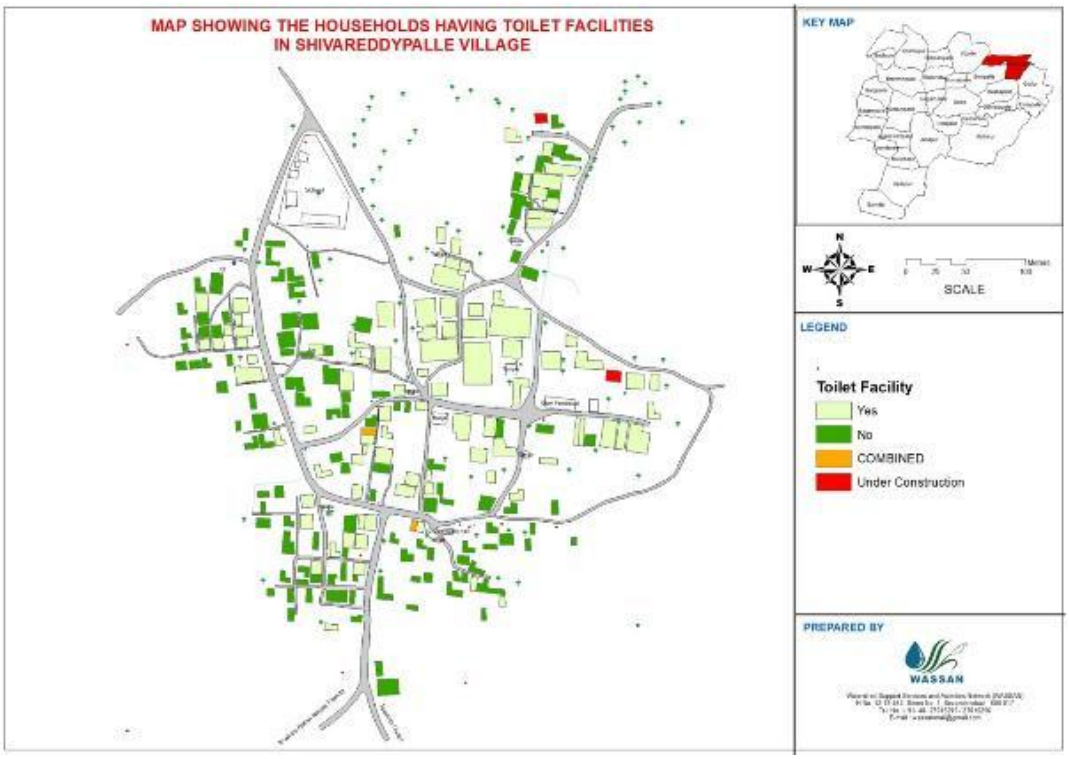
Table of Summary Village Data	
Total HHs	232
BC HH's	113
OC HH's	54
SC/ST HH's	65
Population	1044

❑ VILLAGE DETAILS:

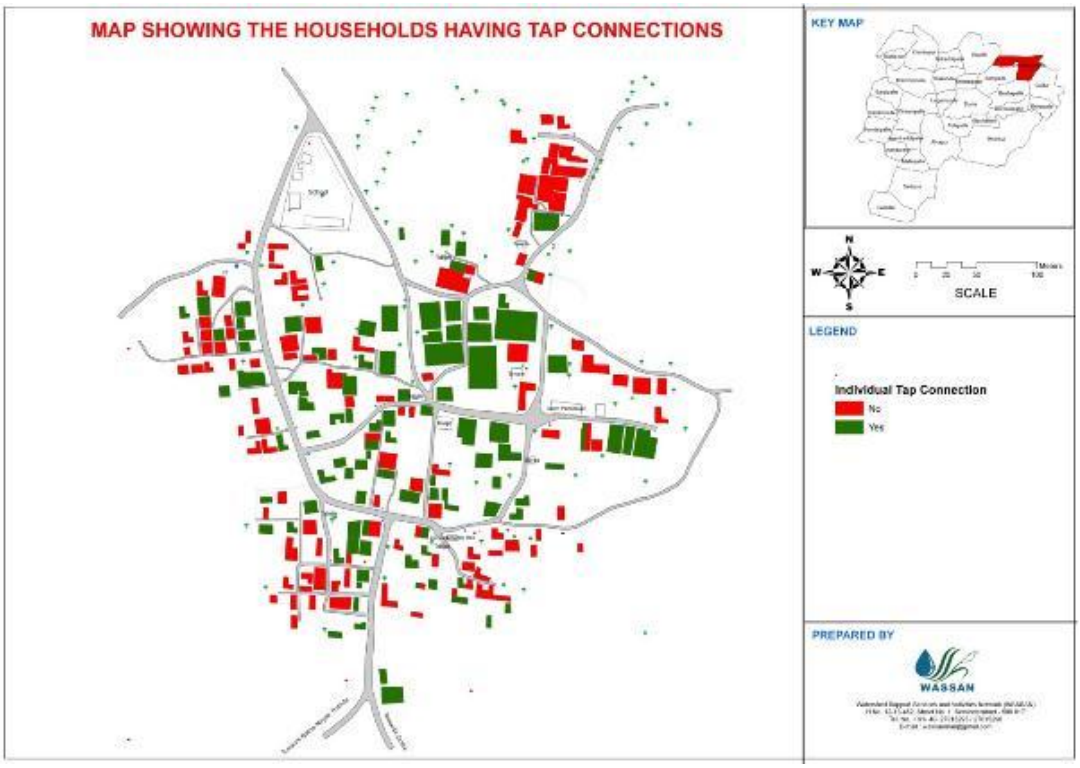
- Out of total population, 51% is male population and the rest 49% is females.
- Among the total population 11% is below 5 years, 16% of the population is between 6-14, 31% is falling under 15-30 age group, 24% is in between 31-50, 17% is in 51-70 and the remaining 1% is above 70 years of age.
- Out of the total population 49% percent belongs to backward class, 28% is SC/ST population, 10% belong to OC and remaining 13% belong to Minorities.

- 59% of the houses in the village are of Semi Pucca type and the remaining 41% are pucca structures.

IHHL's initially installed in Shivareddy Pally Village - 2013



Tap connections initially installed in Shivareddypally Village - 2013



❑ WATER SUPPLY:

Distance to Water Source	% of Village
Under 100m	82
100-200m	14
More than 200m	4

Initially before the crystal drops program began in 2013, the main source of drinking water supply came from a borewell located 1km from the village. The water from the borewell was stored in an Over Head Service Reservoir (OHSR) which is located in the village with a capacity of 40,000L. The OHSR then serves the 5 Public Stand Posts (PSP's) in the village, some of the houses are fitted with individual household tap connections from the OHSR. A gate valve distributed the water to the four localities in the village each day, this is problematic as the village can have as little as 3hrs a day power, such a low level of power each day and no regular timing creates great problems to the livelihoods of the villagers. The water supply situation was simply not sufficient. Two further borewells existed in the village had been identified as undrinkable, they were connected to 5 PSP's and 9 cisterns for domestic purposes.

Source of Drinking Water	No of Households
Individual Tap Connection	83
Buying	22
Neighboring House	17
Public Stand Post	106
Community Well	3
Cistern	1
Total HH's	232

Those families whom are not dependent on individual tap connections rely on PSP, Cisterns and hand pumps. This requires a fetching distance to collect the water. Increased time fetching water can be an unnecessary burden on the livelihoods of families. In the majority of the HH's it is the women who are fetching the water. Very few HH's were currently using a water filter for their drinking water.

❑ Water Security Plan:

Based on the above survey data and meetings with the villagers the following plan for the water supply of Shivareddypally was made. The construction of an 850m pipeline in two separate sections in the village and a w motor pump installation. The main large section of pipeline is connecting a borehole located south of the village to an overhead tank in Shivareddypally. The aforementioned borehole also received a new motor pump set. Further to this a smaller section of pipeline 2 was connected east of the OHT, the purpose of this was to connect already existing pipeline from the OHT to maximize the number of HH's access to clean drinking water. Thus reducing the time spent collecting water which brings huge benefits to the livelihoods of the beneficiaries.

❑ DRAINAGE:

Drainage	No. of HH's
No Drainage	158
Yes	74
Total	232

Initially the village has an open drainage system which covered only around a 32% of the houses. Due to improper maintenance the drainage would become blocked in areas, this presents a health and hygiene hazard. All the wastewater from the drainage system is flowing into the nearby kunta at one part of the village and agricultural fields at the other end. Those houses whom do not have drainage systems have waste water flowing directly on to the roads.

After assessment conducted by WASSAN regarding water sanitation and consultation with the community, it was decided due to the poor drainage infrastructure in the village to construct drainage in the village to enable more HH's access to drainage. The drainage was designed to maximize the number of HH's reached within the geography of the village. With a combined total

length of 461 running metres the drainage was designed in 6 sections around the village as shown in map below.

❑ PHOTO STORY OF DRAINAGE CONSTRUCTION:

People were called for meetings in the village to discuss the proposals and listen to the needs of the villagers. Once approved construction could begin. Mr Ram Mohan Reddy, the Local MLA commenced the work on Ghandi Javanthi. A very apt day to start the work, because the Father of the Nation has always advocated a clean India. Then the digging began with the contribution of labour from the villagers. After digging, the bed was laid for the foundations of the drains. Then the walls of the drains were set and the grey water from the houses could begin to travel down the drains to the STP. The benefits to the village were immediately obvious.

Before and after photos show the improvement of the village drainage – 2013/17

❑ SEWAGE TREATMENT PLANT:

A STP (Sewage Treatment Plat) was constructed in Shivareddypally. This was a solution to the new drainage system installed as well as the high number of soak pit toilets leading into the drain. Approximately 50 households are contributing to the grey water for the plant. Gravity brings the grey water from the HH's along the drainage and into the STP located in the fields. The treatment plant was constructed underground. The three pits which would make the STP would be positioned in a 1m descent from each other. This allowed the water to travel easily from pit to pit using gravity. Each tank has a capacity of 2.5 cubic liters. Once the grey water reaches the bottom of drainage it is collected in a collecting pit. Then onto the first tank where the sedimentation process begins and the floating and solid particles will be separated. The waste water is transported from each tank through pipes. The water at the top carries the floating particles and the bottom the solid particles. The second tank is comprised of four layers, bottom filled with boulders, gravel, coal and then sand at the top. An opening is provided in the third tank from the second tank through a pipe in such a way

that the middle water will be transported. Water is then extracted from the third tank for agricultural purposes. By using this system the beneficiary is getting around 3 to 4 cubic litres of water daily for watering his 140 mango tress in 2 acres of Land.

The sewage treatment plant was a superb village effort and achievement - 2017

❑ SANITATION:

Initially in the village of Shivareddypally a majority of HH's 59% did not have toilet facilities and ODF occurred in the farms and near roads. 39% of the households had constructed a toilet. Out of those with houses with toilets 85% (91 households) had single pit latrine, 13% had a septic latrine tank and 2% had a double pit latrine.

Out of those 91 HH's only 76 were admitted to actual use of the toilets, 10 HH's did not use the toilets at all and the 5 remaining HH's only a few family members (mainly women) are using the toilet. Open defecation was prevalent near agricultural fields and near the road side. ODF was effecting health and environmental sanitation in the village.

Photos of existing IHHL's in Shivareddypally (Single Pit) - 2013

After the survey data was collected and village meetings conducted it was decided that the majority of IHHL's to be constructed would be done so through the Government Scheme, and WASSAN would help facilitate the construction of 5 bio toilets and the primary school toilets. The government scheme option can be seen as a sustainable alternative, often not known, can provide financial assistance once awareness and empowerment achieved by the villagers when used correctly.

Photos of a Bio toilet and the resultant waste water for agricultural use - 2017

❑ PHOTO STORY - CONSTRUCTION OF BIO TOILET IN SHIVAREDDYPALLY:

WASSAN's Vema met with Priya and her family to discuss their toilet situation. They did have a toilet but not he resources to build a pit.

WASSAN proposed a bio-toilet and Priya accepted. The liquid Waste expelled was to be used for a kitchen garden. Before the family would relieve themselves by ODF in the fields.

The outlet for the toilet was towards a kitchen garden. The garden had rose, tomatoes, chilli and pomegranate plants. Priya was pleased to have the toilet at her place now and feels her personal space and modesty is not at stake now. Her grandmother is also feeling content as her major concern regarding the privacy of her daughter in law and grand daughter has been put to rest.

❑ SCHOOL SANITATION:

At the Mandal Parishad, Upper primary school in Shivareddypally, sanitation was not a very familiar term. When WASSAN approached the school, girl students and teachers were more than glad to let off their despair. The toilets were there but not in a usable state, their construction was not completed. The school did not have the resources to complete the project, thus the project was taken as a school sanitation initiative. School Sanitation is an important component of a sanitation drive. The toilets were left half constructed not fit for usage, before the intervention. First a water pipeline was constructed for the school toilets. Then the foundation for the toilet walls was built, this secures an individuals privacy.

A committee was formed by the students for the maintenance of the toilets, they came up with ideas like collecting funds from fellow students and teachers; they could sell their old books to the stores where old books are collected and money from that would be used in maintaining the toilets. As part of the clean and green drive in the village the water committee in the school encouraged

students to clean the school. Afterwards WASSAN planted trees in the school to create a garden for the children.

❑ SOLID WASTE:

The Gram Panchayat did not previously have any solid waste collection system or garbage bins in place in Shivareddypally. Due to the lack of solid waste facilities in the village people were disregarding their waste in open spaces and backyards. Although some of the HH's were separating the waste and using it as manure on their fields after decomposition.

After the survey data was collected the decision was made to place 10 dustbins around the village, this would dictate where waste is dumped in the village and also make it easier for the GP to set up a solid waste collections system in the village.

In conjunction with the 10 dustbins placed in the village WASSAN engaged with the community to for a clean drive. This even involved the participation of the villagers to clean the village as well as raising awareness on the importance of keeping the village clean.

❑ PHOTO STORY - CLEAN DRIVE BY SHIVAREDDYPALLY VILLAGERS:

A municipal tricycle was used to collect the waste - 2014

Villagers came together to sweep the roads and paths clean – 2014

❑ ACHIEVEMENTS OF PROJECT:

- 5 Bio toilets built in the village ensuring better waste water treatment of fecal matter.
- School toilets installed in the local primary school ensuring children have the safety and sanitary practice to use the toilets.
- Planting and the success of the school garden, empowering children to take care of nature and live a happier and cleaner life.
- Construction of 461 running meter of drainage for grey water throughout the village. This has increased the number of HH's with access to drainage.
- Construction of 850m water pipeline connecting a borehole to the OHT will greatly improve the access to water in the village.

❑ EXPENDITURE REPORT FOR SHIVAREDDYPALLY

S. No.	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Extension of exisitng pipeline	Rmt	196	850	166517	138403	28114
2	Motor pump set	per unit	111300	1	111300	77800	33500
3	Plumbing Charges	-	-	-	2500	2500	0
4	**Total**				**280317**	**218703**	**61614**
Environmental Sanitation							
5	Biotoilets	No	9679	5	48395	43397	5000
6	School Toilets	School Toilet	135208	1	135208	135208	
7	Open Drainage	Rmt	1611	441	710248	634595	75653
8	Individual dust bins	No	715	10	7150	6050	1100
9	Water treatment plant	-	24620	1	24620	21420	3200
10	**Total**				**925621**	**840670**	**84953**
11	Complete Village Total				1205938	1059373	146567
12	Percentage %				**100**	**88**	**12**

VILLAGE PROFILE STORY OF SONDEPUR:

Sondepur Village is located in the Rangampally Grama Panchayat of Parigi Mandal. It is at a distance of 6.2 km from its mandal head quarters and 86.2 km from the district head quarters in Vikarabad. There area a total of 73 households in the village wn ith a population of 326 and all the Households in the village are Hindus belonging to ST caste.

Table of Village Data Summary	
No. of HH's	73
Total Population	326
Caste	ST (Scheduled Tribe)

Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions (FGD), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

Young villagers of Sondepur collecting water – 2013

❑ SANITATION:

Initially in Sondepur the majority, over 90%, of the HH's did not have individual household latrines. A few of the HH's had constructed toilet under a government scheme more than 10 years back, but at the initiation of Crystal Drops they were not in use and had fallen under bad maintenance. Open defecation on road side and agriculture field are affecting health and environmental sanitation. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their livelihoods. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them. The primary school located in the village has a toilet facility but water was not available and had not been properly maintained.

Crystal Drops projects helped facilitate the construction of an IHHL in 20 village HH's. Cost of the materials were bought by Crystal Drops and the masonry and labour charges were provided by the beneficiary. Please see annex for details of IHHL beneficiary families and material costs. Furthermore, the Crystal Drops Project shall facilitate the restoration and construction of a new school toilet facility.

*School Toilets **before** Crystal Drops – 2013* *School Toilets **after** Crystal Drops - 2017*

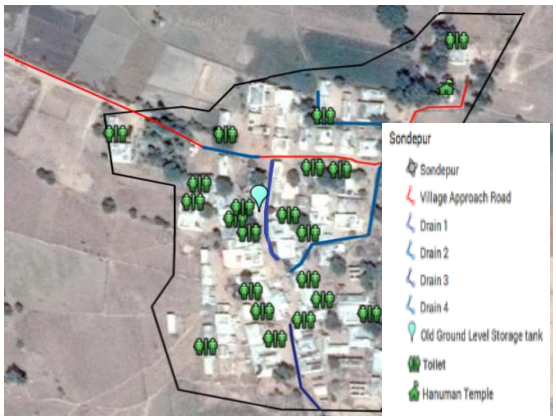
❑ DRAINAGE:

Initially in Sondepur there was an open drainage system which covered very few houses, the rest of the village lacked any drainage system at all. As a result, the waste water from the houses was flowing directly onto the roads.

The existing drainage was frequently blocked due to poor maintenance and the dumping of solid waste, this also lead to waste water flowing onto the roads. This presents a very real health risk of drinking water contamination to the village.

After conducting focus group meetings, the formation of a WASH committee and village surveys the following improvement were decided for the drainage system under Crystal Drops Project. The construction of a 463m side drain around the village to maximize the number of HH's reached.

Inspection of the new side drains installed in Sondepur - 2017



Map of the drainage system extension constructed under Crystal Drops - 2017

❑ SOLID WASTE:

Initially in Sondepur there was no Solid Waste disposal system in place, and villagers would dump their wastes in open places and backyards. Overtime this can lead to the leaching of chemicals/toxins into the ground water supply. A planned solid waste disposal system is fundamental to improving the environmental sanitation of Sondepur. After focus group discussions, WASH committee meetings and surveys - a decision was made to install 5 dustbins strategically placed around the village to maximize the number of HH's reached. WASSAN decided the best way forward would be the installation of dustbins in the village in order to motivate the GP to set up a solid waste management system.

❑ ACHIEVEMENTS OF PROJECT:

- Facilitation of 20 IHHL's to be constructed in the village.
- Construction of 461m of side drain around the village to maximize the number of HH's reached.
- Restoration of the school toilets, providing the children a clean and healthy environment to learn.
- 5 Dustbins located around the village to improve the solid waste management in the village to then be taken forward by the Gran Panchayat.

❑ EXPENDITURE REPORT FOR SONDEPUR:

S. No.	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Environmental Sanitation							
1	Individual Sanitary Latrines	Twin Pit Toilets	12806	20	256110	204310	51800
2	School Toilet	School Toilets	46328	1	46328	46328	0
3	School Toilet Plumbing Items	No. of Plumbing Items	-	4	2640	2640	0
4	Side Drain	Rmt	833	363	302373	235352	67021
5	Individual dust bins	No	430	5	2150	2150	0
6	Total				609601	490780	118821
7	Complete Vill. Total				609601	490780	118821
8	Percentage %				**100**	**81**	**19**

VILLAGE PROFILESTORY OF UDDANRAOPALLI:

Uddanraopalli Village comes under the Doma Gram panchayat located in Doma Mandal. Located at a distance of 1 Km from the Mandal head quarters and 27 Km from District Head quarters in Vikarabad. There are total 95 Households in the village with a population of 370. The majority of the houses (90%) are Semi Pucca structures and the remaining are Pucca houses. Almost all the households are Hindus in the villages, with 5 muslim HH's. A majority of which 59% belong to BC and remaining 41% belong to SC caste.

Summary table of village Data	
No. of HH's	95
Total Population	370
Religion	Majority Hindu
BC Caste	59%
SC Caste	41%

Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions FGDand developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

Water Supply Facility	Quantity
Borehole	1
OHSR	1
Public Stand Points	10
Hand Pumps	3
Household Taps	8

❑ WATER SUPPLY:

Initially in the village of Uddanraopalli the main source of water supply to the village was from a borehole located in the village. The water from the borehole supplied the existing OHSR which then distributed the water between all of the existing 10 public stand points (PSP's), 3 hand pumps as well as those HH's whom have individual tap connections. In total 8 HH's had an individual tap connection and they were paying a service charge of 20Rs per month to the GP. Out of the total 95 HH's, a majority of 83 HH's were dependent on the 10 PSP's.

Overhead Service Reservoir located in the village – 2013

79% of HH's were identified to have the women or girls fetching the water. This reduces the time villagers, especially women, have on other livelihood activities e.g. Time a girl has to do her homework. This is an example of how access to water is a social issue. None of the households use any water treatment methods (Filter, Boiling etc), which prevent the contraction of water borne diseases from consumption of dirty water.

After analysing the survey data and holding village meetings to gain the cooperation and consent of the villagers. WASSAN decided the following WASH facilities would maximize the number of household's access to water in close proximity: the construction of a 200m water pipeline towards the eastern side of the village at 4 points along the section of pipeline PSP's were constructed.

❑ DRAINAGE:

Initially in the village of Uddanaraopalli there was an open drainage system only covering a few HH's, the rest of the village lacked any drainage system at all. The existing drainage would get blocked due to poor maintenance, and this led to the waste water spilling onto roads. Households with no drainage also contribute to waste water flowing onto the roads. This is an immediate health risk as the waste water may contaminate drinking water sources if not contained.

Poor maintenance of existing drainage systems led to seepage onto roads – 2013

Map of new drainage system installation in 3 sections and a total of 131m - 2017

After analysis of the survey data, geography of the village and organisation of village meetings. A decision was reached in the process which best met the objectives of crystal drops and the needs of the villagers. A new drainage system was constructed with the labour of the villagers, the materials would be bought by Crystal Drops project with a contribution from villagers, see expenditure

details. The new drainage system would be in three sections, to maximize the no. of HH's reached, linking up existing drainage systems and ensuring an economically efficient design.

❑ SANITATION:

Initially in the village of Uddanraopalli over 95% of the HH's did not have an individual household latrine. The practice of open defecation was common in the proximity of agricultural fields and by the road side. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their livelihoods. Villagers are facing difficulties during night time going to the toilet, especially women and female children, as there are no toilets at home – this can be an unsafe practice and lack privacy for them.

Location of the 200 IHHL's constructed in Udanaraopall - 2017

Inspired by the lack of any toilets, the safety concerns and need for privacy. WASSAN sanctioned the construction of 20 IHHL's in the village. The materials would be supplied by Crystal Drops Project with a contribution from the beneficiaries, see annex for list of beneficiaries' contributions. The remaining HH's were motivated and encouraged to apply for the Gov Scheme to construct a toilet. Toilets constructed were a basic twin pit design with red brick walls.

❑ ACHIEVEMENTS OF PROJECT:

- 200m construction of a water pipe to the eastern side of Uddannaraopalli maximizes the number of HH's with access to water in close proximity to their HH, as well as the construction of 4 PSP's along the new section.
- Construction of 131m new drainage system in 3 sections along the village links old drainage systems and reduces the over flow of waste water onto roads and water supplies.
- 20 HH's now have a toilet in their HH's. This will significantly improve the health and sanitation of both themselves and their communities.

❑ EXPENDITURE REPORT FOR UDDANDRAOPALLI:

S. No.	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	New pipe line	Rmt	285	200	57015	50400	6615
2	Public Stand Post	No.	163.75	4	655	655	0
3	Total				57670	51055	6615
Environmental Sanitation							
4	Individual Sanitary Latrines	Twin Pit Toilets	12356	20	247110	195310	51800
5	Side Drain	Rmt	2758	131	361361	289082	72279
6	Individual dust bins	No	460	4	1840	1840	0
7	Total				610311	486232	124079
8	Complete Vill. Total				667981	537287	130694
9	%				**100**	**80**	**20**

VILLAGE PROFILE STORY OF GOVINDAPUR THANDA:

Govindapur Thanda comes under the Govindapur Gram Panchayat which is located in Pargi Mandal, Vikarabad district, Telangana. It is at a distance of 6 KM from Mandal Head quarters in Pargi. Govindapur Thanda consists of 33 Households (HH's) and has a population of 198. A Majority of 28 Households belong to ST community and the remaining 5 HH's are BC. Nearly 90% of the houses are of Semi-Pucca type and the remaining 10% is Pucca structures.

Summary of Village Data	
No of HH's	33
Total Population	198
Religion	Hindu
Caste ST HH's	28
Caste BC HH's	5

Before any proposals for the crystal drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions FGD), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created water and sanitation committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

PRA supports the direct participation of communities, with rural people themselves becoming the main investigators and analysts, they set priorities; determine needs; analyse data; plan and implement solutions based on their findings.

Villagers were asked to create a ground map- locate all the existing houses, roads, water tanks, pipeline, Hand pumps, school etc. and then identified the problems and solutions for each feature on the map.

FGD's and PRA session conducted throughout the village by WASSAN staff – 2013

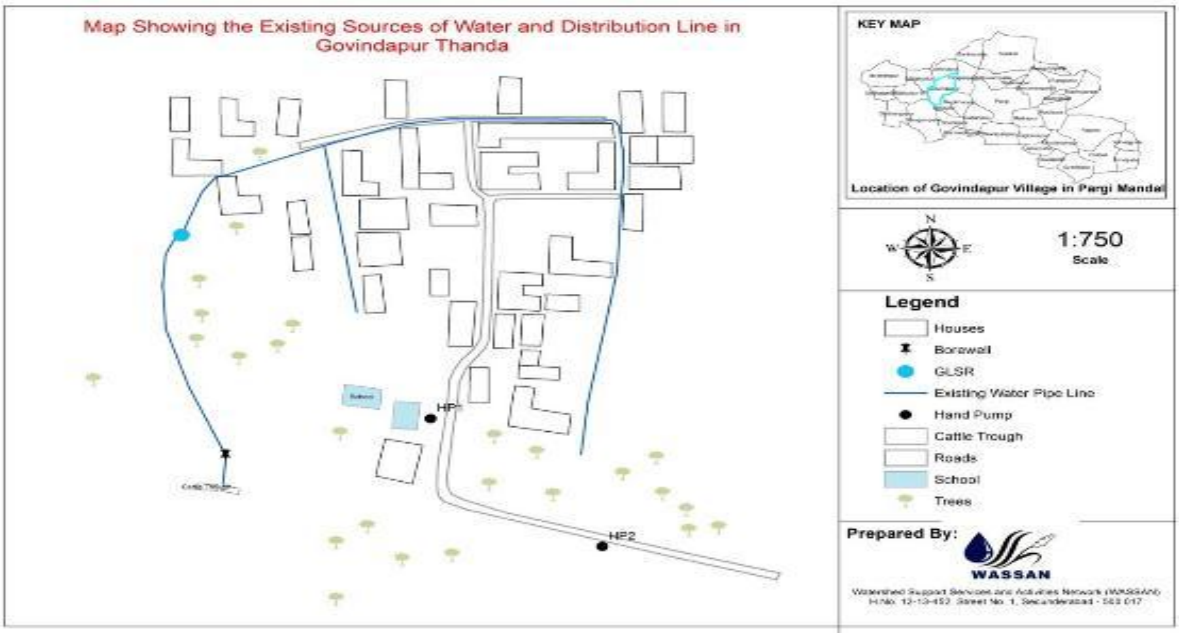
❑ WATER SUPPLY:

Initially in Govindapur Thanda the main source of water was a borehole located within the village. In 2009 a Ground Level Service Reservoir (GLSR) was constructed with a capacity of 20000L for drinking water, a distribution pipe was also connected. The water was successfully stored in the GLSR, but it was not properly connected to the distribution system and an absence of an ON/OFF valve fitted to the GLSR – this led to a lot of water being wasted. A previous government programme in 2009, Integrated Watershed Management Programme (IWMP), constructed cattle troughs in the village which are also connected to the existing bore well in the village. Unfortunately, this has led to villagers using the water from the cattle troughs for drinking water, this presents a water contamination health risk.

Photographs of the existing Drinking Water Sources in Govindapur Thanda - 2013.

Two hand pumps were located in the village with only one fully functioning, due to the previously mentioned missing ON/OFF valve for the GLSR. During the hours of power supply the villagers can collect from the storage tank and cattle troughs, the remaining hours the villages must use the hand pump. Even when collecting directly from the tank this is a distance of over 50m away for 60% of the HH's. None of the HH's have individual tap connections.

Photographs of the women in the village fetching water - 2013



Existing water sources and distribution line in Govindapur Thanda - 2013

The dysfunctional GLSR in the village can be seen here, evidently the distribution line is broken - 2013

After holding several village meetings and analyzing the survey data a decision was reached between Crystal Drops and the community to repair the existing GLSR tank, the existing water infrastructure for the village has benefitted under the IWMP but the infrastructure required for Govindapur Thanda was - people infrastructure. A water and sanitation committee was formed in the village, and a water person identified. Often the formation and coalition of strong people infrastructure in a village, can be the real sustainable factor in WASH development. This empowers the villagers to take responsibility and demand for better WASH facilities from GP or local government.

Govindapur Thanda faces some tough challenges ahead as the only borewell water supply (200m depth) began to dry up during the Crystal Drops project. This means the initially planned individual tap connections were not a feasible option for the watershed management of the village. During the rainy season the ground water level will rise and then fall round summer. It's crucial the village cooperates and works together on the issue of watershed management. Nature and climate has not been kind to Govindapur Thanda, but a strong community is more resilient to the challenges ahead.

❑ DRAINAGE:

Initially the drainage system in the village only covered a few of the households, and due to poor maintenance the drainage was blocked in sections leading to waste water flowing onto the roads. Furthermore, those households whom did not have drainage systems had waste water flowing out onto the roads.

Current existing drainage system in the village as well as those houses without drainage at all - 2013

Due to the small size of the village, and through the WASH committee it was decided that no new drainage systems would be installed with the crystal drops project and the focus of the project would be on the sanitation of the village through the construction of two put latrines in every HH.

❑ SANITATION:

Initially in the village of Govindapur Thanda none of the HH's had an individual household latrine. The practice of open defecation was common in the proximity of agricultural fields and by the road side. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering the drinking water supply or food will cause illness.

Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their standard of living. Villagers are facing difficulties during night time going to the toilet, especially women and female children, as there are no toilets at home – this can be an unsafe practice and lack privacy for them. A few of the HH's have bathrooms fitted, others with temporary structures to ensure privacy and security when bathing.

Existing bathing facilities in the villager were minimal – 2013.

School sanitation is an important part of the crystal drops project as the right practices taught to children at a young age can improve the village sanitation greatly. The school toilets had fallen into misuse as there was no water supply from the GLSR, they had also come under poor maintenance.

After the village meetings and analysis of survey data a joint decision was made between Crystal Drops project and villagers for the construction of 33 HH's in the village, that's total sanitation of IHHL's in the village of Govindapur Thanda. Crystal Drops approach to the purchase of materials and construction of WASH infrastructure is as follows.

Villagers construct the pits for the IHHL's

All unskilled labour is to be carried out by the villagers themselves and the materials will be purchased by the Crystal Drops project with a small contribution from the beneficiary, please see Annex for list of Beneficiaries and their contributions.

Marking of the super structure of the toilet

Construction of the super structure of the Toilet

❑ ACHIEVEMENTS OF PROJECT:

- Installation of all 33 HH's with twin pit toilet latrines each with red brick walls. This will improve the sanitation of the HH's and the community as whole.
- Setting up of a water and sanitation committee consisting of 8 members, in order to mobilise and organize the community to demand better water and sanitation for the village.

❑ EXPENDITURE REPORT FOR GOVINDAPUR THANDA:

S. No.	Item of Work	Unit	Unit Cost (R)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Tank repair plumbing items	-	9094	1	9094	9094	0
2	Total				9094	9094	0
Environmental Sanitation							
3	Individual Sanitary Latrines	-	12101	33	399345	316845	82500
4	Total				399845	316845	82500
Waste Management, Capacity Buiding & Governance Arrangements							
5	WASH volunteer visit items	-	-	-	4570	4570	0
6	Total				4570	4570	0
7	Complete Village Total				410509	330509	80000
8	Percentage %				**100**	**81**	**19**

VILLAGE PROFILESTORY OF GUDUR:

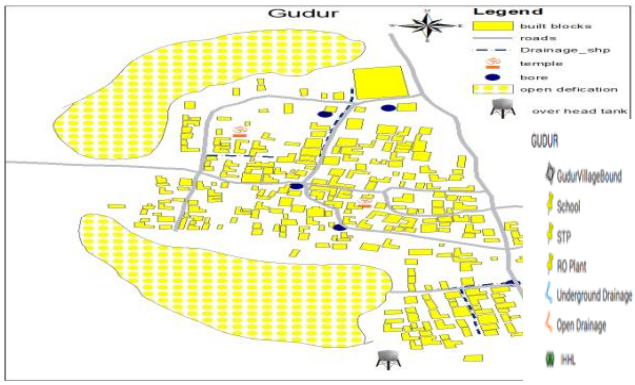
Gudur village is located in Doma Mandal of Vikarabad district Telangana. It comes under the Gudur Gram Panchayat and it is at a distance of 12 Kms from its Mandal head quarters, and approx 110 Kms from the district head quarter. There are a total289 households in the village with a population of 1734.

Summary of Village Data	
No of HH's	289
Total Population	1734

Before any proposals for the crystal drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions FGD), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

PRA supports the direct participation of communities, with rural people themselves becoming the main investigators and analysts, they set priorities; determine needs; analyse data; plan and implement solutions based on their findings. Villagers were asked to create a ground map- locate all the existing houses, roads, water tanks, pipeline, Hand pumps, school etc. and then identified the problems and solutions for each feature on the map.

Village meeting conducting by WASSAN for the formation of WASH committee and to discuss the WASH issues in Gudur, as well as possible solutions – 2016



Map of Gudur before Crystal Drops Project commenced - 2013

❑ WATER SUPPLY:

Initially in Gudur the main sources of drinking water facilities were 5 boreholes and a numerous hand pump round the village. Villagers would collect from either or all water sources. Existing OHSR exists in the village of 40000L. Some of the bores in Gudur have a jet bore operational system on single phase power. This gives the opportunity to fetch water at any time. 119 of the HH's already had tap connections, this reduction of fetching water time is of huge benefit to the women and girls of the community. A reduction in fetching time will increase the time spent on other livelihood activities, for example, girls having more time to their homework. This is an example of how access to water is a social problem and gender issue.

After conducting village meetings with focus groups the conclusion was made that an RO plant was to be piloted in Gudur. As well as 170 individual tap connections and a single cistern fitted with a motor and pump set.

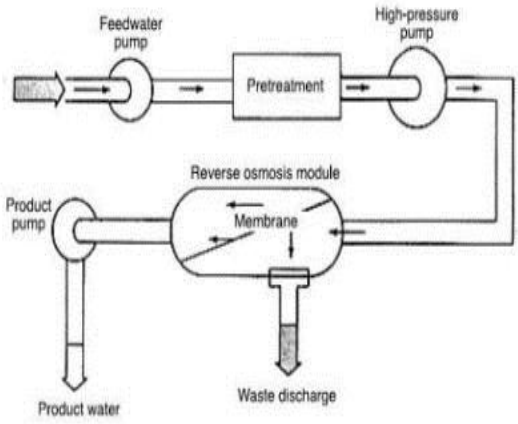
A girl collecting water in Gudur, this can take a lot of time and energy in an already busy day - 2013

The cistern constructed in Gudur being inspected by the HSBC team and volunteers – 2016

❑ REVERSE OSMOSIS PLANT:

As part of the clean drinking water objective of the Crystal Drops programme, an RO plant was constructed in Gudur in December 2014. Gudur was selected for the RO plant as it has one of the larger village populations, and is also surrounded by 3 major villages one of which is adopted by Crystal Drops project – Shivareddypally, Dongeyenkapally and Jaffarpally. The RO also has the potential to generate revenue to the village panchayat. A 20L water can for 5 rupees to villagers and 10 rupees to those from outside the village - this revenue is now established in the village as the crystal drops project closes.

Initially the momentum for the RO plant project was slow, only 23 families in Gudur were drinking the water, although people from outside the village were coming for the clean and cheap water. Thankfully the news spread along with some hard work from the WASSAN team on spreading awareness of safe drinking water practices, along with sanitation and hygiene. An exposure visit was organised on July 2nd of 2015 for the WASH Committee (Water, Sanitation and Hygiene Committee) to Gangadevipalli, where water ATM's are supplying water from RO plants. The committee members have initiated discussions in the village for establishing a water ATM for Gudur RO plant similar to Gangadevipalli. Efforts have to be taken to speed up the implementation of such models in the village, which will bring transparency to the revenue being generated by the RO plant.



Process diagram of an RO plant: Image Source http://www.thewatertreatments.com/water-treatment-filtration/reverse-osmosis-plant-ro-desalination/

Another interconnected issue that arose from the RO place was the replacement of a damaged pipeline connecting the bore well to overhead tank. Furthermore, a post implementation survey showed that the RO plant had dried up and discharged significantly less during the summer months. This lead to the RO plant not operating for a Month between May and June. This had a serious effect

on the revenue as well as the customers from other villagers trust in the RO plant water availability. They couldn't rely on it, and stopped coming to Gudur.
This bottle neck was solved with the construction of brand new 400m length pipeline connected to a higher yielding bore and the OHSR. Thus any abundant water can be pumped into the RO plant, this will ensure water is available all year round.

(Left) WASSAN's Shankaranama opening the new RO plant, this is a monumental step for the village of Gudur and (Right) Crystal Drops team at the opening ceremony (2017)

❑ DRAINAGE:

Initially a small part of the village was covered with drainage, even this suffered from poor maintenance and blockages due to solid waste dumping, often led to flowing of waste water on to road. 44 HH's have waste grey water flowing straight onto the streets of Gudur – this has immediate health consequences.

After facilitating village meetings, surveys and analysis of the data – all under the situational analysis of Crystal Drops project. WASSAN and the villagers decided the following was most appropriate WASH infrastructure for Gudur:

- Construction of 227.26m of new open drainage system around the village.
- Construction of 340m of underground drainage system around the village.

Both were positioned around the village to maximize the number of HH's reached and a study of the flow paths of the waste water previously. Firstly, the UGD (underground drainage) was constructed in a few phases, firstly the main track was built in the village connected to the site of the WTP construction and then the connecting tracks were adjoined (please see map) to the main track UGD. The open (side drainage) was constructed around the village to strategically catch the most HH's, these sections of drainage do not lead to the WTP.

Initial situation in Gudur consisted of waste water flowing onto the roads and paths - 2013

Underground Drainage System


Above the construction of the underground drainage can be seen, this was a new process for the villagers and they took a keen interest


Collection chamber of the underground drainage system

The labour was fully the contribution of the villagers, this ensured they took ownership and pride in the project.

Excavation work was required for the installation of drainage system for the bed of the drain to be laid

❑ CONSTRUCTION OF WTP (WASTE WATER TREATMENT PLANT):

Chamber Dimensions	
Dimensions Details	Dimensions l x b x h (m)
Single Chamber	2.5 x 3 x 3 (Outside walls)
Combined Total Chambers	15 x 3 x 3 (Outside Walls)
Internal Volume of Single Chamber	18,000L
Total Volume of WTP Capacity	108,000L
Filtration Process	
Chamber No.	Process
1st and 2nd Chamber	Collection
3rd and 4th Chamber	Filtration
5th and 6th Chamber	Storage
Costing of Sewage Treatment Plant and 30mm connecting RCC Pipe	
Crystal Drops Contribution (Rs)	252381
Villagers Contribution (Rs)	57870
Total Cost (Rs)	310251

RO plant generates a lot of waste water in the process of purification and round 60 % of the water is discarded. The construction of WTP is process to use the water for secondary purpose like agriculture etc, the completion shall be in May, 2017. Inputs were taken from places where this has successfully implemented. This will be beneficial not only for Gudur but also other villages where RO plants are being planned. The WTP plant is connected to all the open and underground drainage systems in the village for grey water treatment, for a rural village Gudar now has a advanced WASH network of infrastructure and is a model to other villages in the district. This could not have been done without the contribution and hard work of the villagers.

Process Diagram of the Grey WTP Gudur

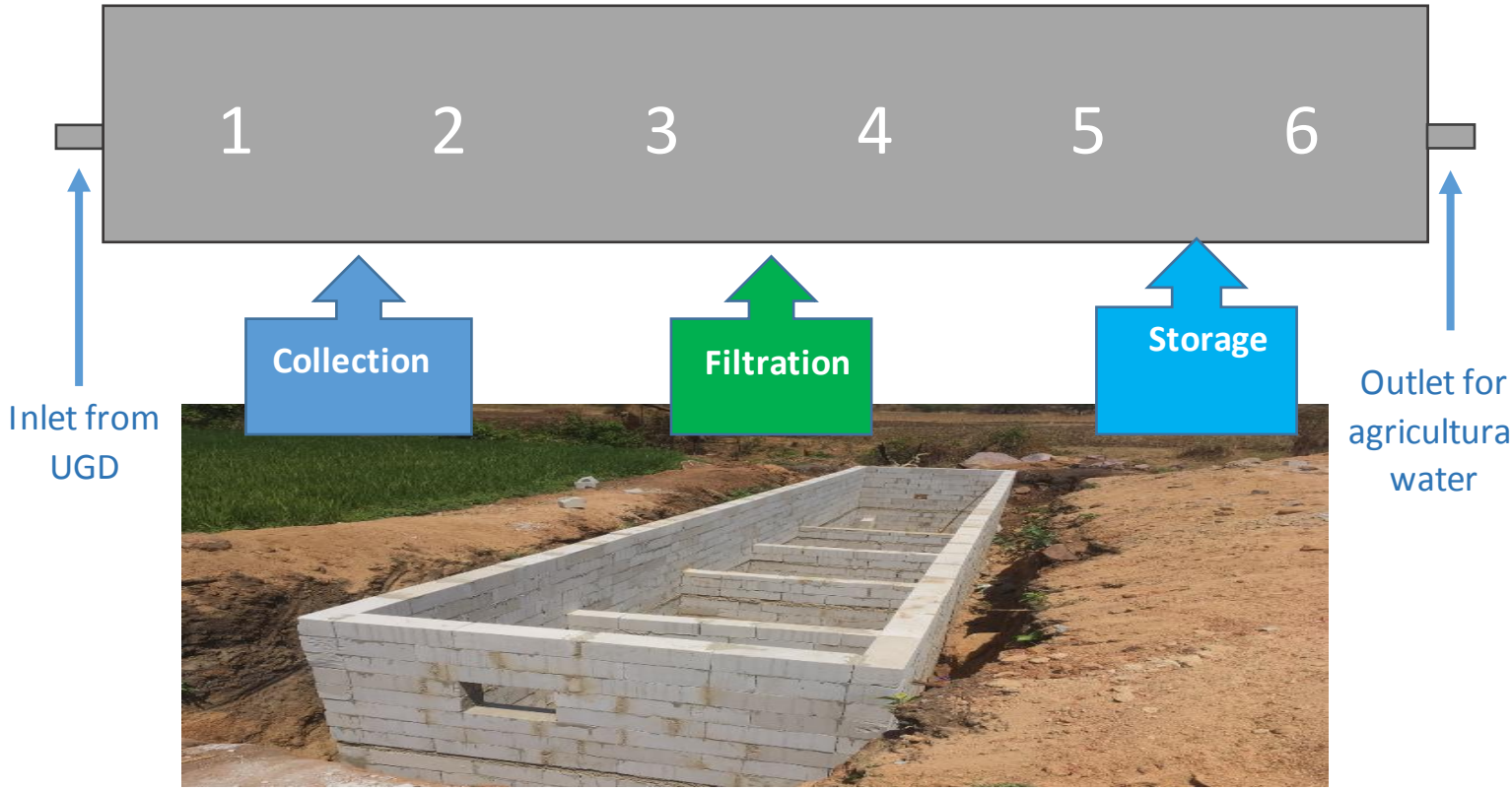
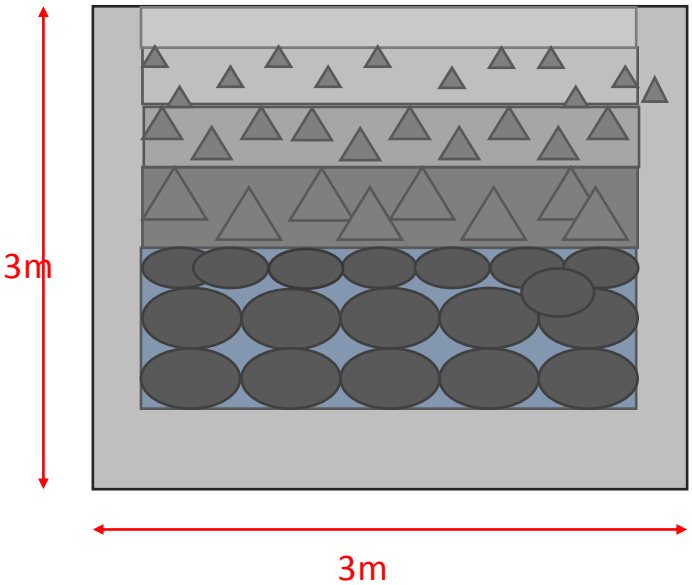


Photo of Gudur Grey Water Treatment Plant under construction, expected completion date 2017

Filtration chamber filtration materials.

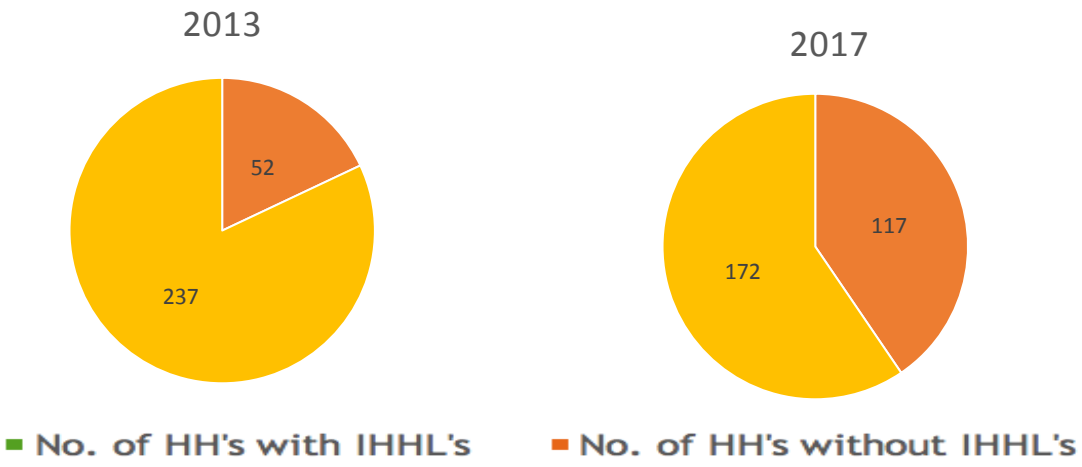


Sand	0.5 x 2 x 2.45 x 2.3 = 2.82m^3
20mm agg.	0.3 x 2 x 2.45 x 2.3 = 3.38m^3
40mm agg.	0.45 x 2 x 2.45 x 2.3 = 5.07m^3
65mm agg.	0.5 x 2 x 2.45 x 2.3 = 5.63m^3
RRS	1.00 x 2 x 2.45 x 2.3 = 1127m^3

All the dimension and quantities given are for a single filtration chamber.

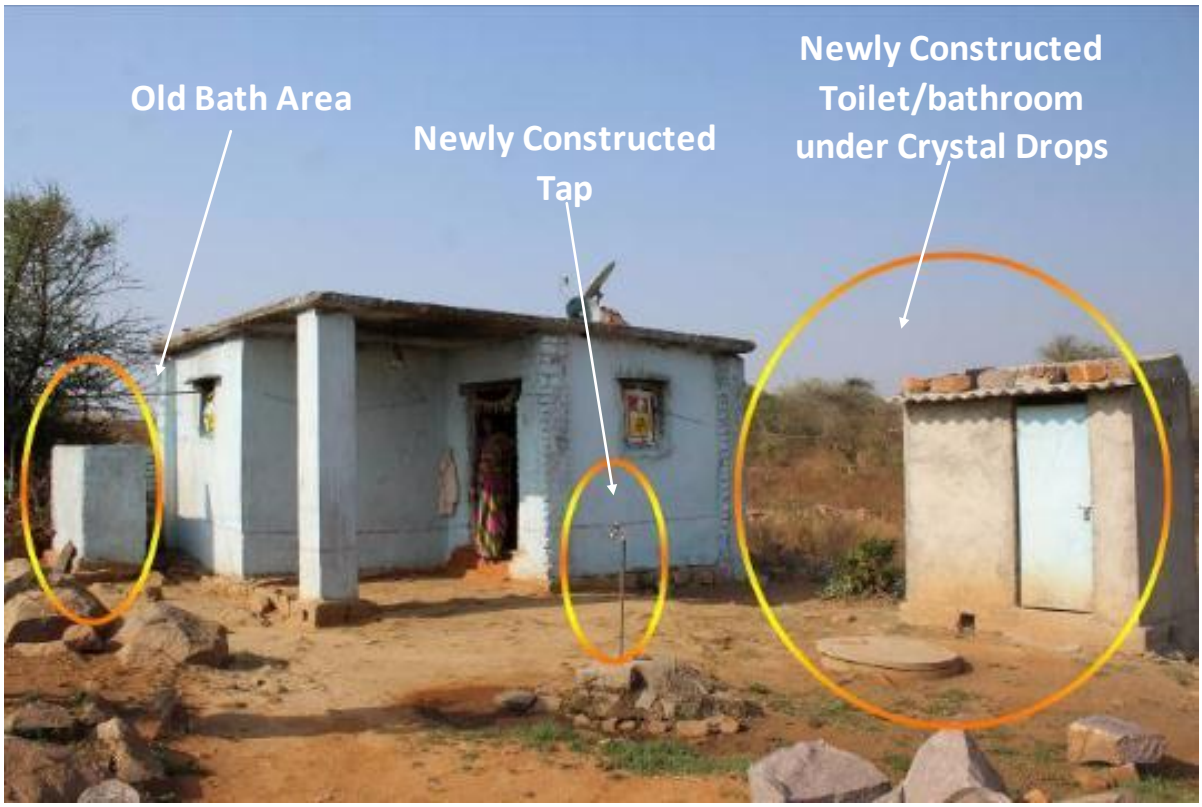
SANITATION:

Initially in Gudur out of the 289 HH's only 52 had IHHL's, those from the remaining 237 HH's practice ODF in the surrounding agricultural fields and roads. ODF is a major sanitary concern for the village, pathogens from fecal matter entering the drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their standard of living. Villagers are facing difficulties during night time going to the toilet, especially women and female children, as there are no toilets at home – this can be an unsafe practice and lack privacy for them. Few of the HH's have bathrooms fitted, others with temporary structures to ensure privacy and security when bathing.



Progress charts on the Progress toward ODF village status for Gudur

After conducting village meetings, it was decided that 65 toilets should be built in the village. The remaining HH's in the village have been a focus of the campaign and awareness raising campaign on ODF and toilet hygiene, an aspect of to offer encouragement to individuals to access Gov. Schemes for the construction of toilets.

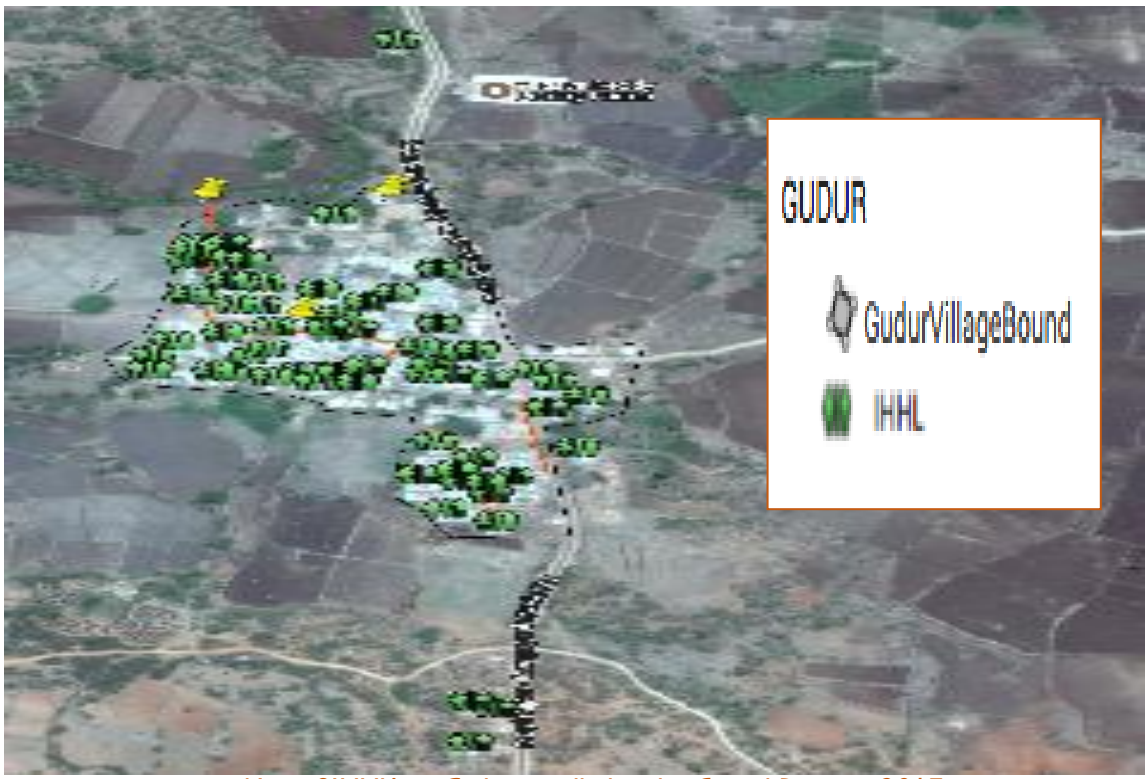


❑ SCHOOL SANITATION:

Gudur consists of a primary school and adjoining Anganwadi up until 7th class. The primary surveys by the WASSAN staff found the following issues with the School sanitation facilities.

1. No Boys Toilet facilities
2. Major problems with poor maintenance of Girls Toilets – unusable. The current structure doesn't provide cover on 3 sides of the roof.
3. Girls did not use the toilets and would either use nearby space or own homes.
   It's of paramount importance that girls can feel safe and have privacy when using the toilet. Crystal Drops project with the consent of the villagers and school to construct a new Girl's toilet. WASSAN designed a structure with walls for privacy and 4 cubicles for toilets.

Newly constructed Girls toilets in the school, the walls were filled with beautiful art work from the school children - 2017



Map of IHHL's in Gudur installed under Crystal Drops – 2017

❑ ACHIEVEMENTS OF PROJECT:

- Installation of RO plant in Gudur providing clean drinking water to the whole of Gu
- Construction underway of grey WTP connected to the UGD system. This will provide farmers with a constant supply of treated grey water for agricultural water.
- Construction of 65 IHHL's in the village
- Newly constructed Girl's School Toilets
- Construction of open drainage systems around the village of sectional length 227.26m dur and surrounding villages at incredibly low prices.
- in total.
- Construction of underground drainage system of length 300m in total and connecting into the WTP on completion.

❑ EXPENDITURE REPORT FOR GUDUR:

S. No.	Item of Work	Unit	Unit Cost	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Cisterns for storing water	Cistern	35590	1	35590	27590	8000
2	Extension of existing Pipeline	Rmt	241	550	132759	112464	20295
4	House Hold level tap connection	Individual HH Taps	713	170	121256	70256	51000
5	RO Plant	per unit	340057	1	340057	242057	98000
6	Motor pump set	per unit	32560	1	32560	32560	0
7	Total				662222	484927	177295
Environmental Sanitation							
8	Individual Sanitary Latrines	Twin Pit Toilets	10864	69	749589	563209	186380
9	School Toilet Repair	Toilet repair	122247	4	122247	122247	0
10	Underground Drainage Facilities for disposal of waste water	Rmt	600	340	575000	550000	25000
11	Open Drainage	Rmt	2427	321	778107	622487	155620
12	RCC	Rmt	1158	155	179418	143635	35783
13	Sewage Treatment plant (STP)	6 Pit Sewage Treatment Plant	-	0	265299	212239	53060
	RCC Pipeline connecting to STP	Rmt		30	44952	40142	4810
14	Total				2714612	2253959	460653
15	Complete Village Total				3376834	2738886	637948
16	Percentage %				**100**	**81**	**19**

VILLAGE PROFILE STORY OF JEEDIGADDA THANDA

Jeedigadda Thanda comes under Rangampally Gram Panchayat which is located in Pargi Mandal, Vikarabad district, Telangana. It is at a Distance of 11 Km from its Mandal Head Quarter Pargi consisting of 23 Households and has a population of 129. All of the houses belong to scheduled tribes.

Summary of Village Data	
No of HH's	23
Total Population	129
Caste	ST

Before any proposals for the crystal drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions FGD), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

PRA supports the direct participation of communities, with rural people themselves becoming the main investigators and analysts, they set priorities; determine needs; analyse data; plan and implement solutions based on their findings.

Women of Jeedigadda Thanda discussing the WASH issues - 2013

❑ WATER SUPPLY:

Initially the main source of drinking and domestic water is located at the entrance to the village. The bore well is operated with a three phase power motor pump, the power supply was limited to 3-4hrs a day due to fluctuations in the power grid. There was no ON/OFF switch for the water pump so when power was available - water was distributed to the PSP's(Public Stand Posts), leading to wastage of waste when available – this was not an efficient water management system. The water is distributed through pipelines to 8 PSP's located around the village. Some of the PSP's did not have platforms, this lead to water stagnating in these, with no proper drainage facility and the excess water flowed onto the road.

There is no proper facility for the storage of water in the village, and villagers had taken it upon themselves to store water in various containers (50-100L) due to the irregular supply of water. This requires a lot of energy to carry and store the water, often with just a bucket, over distances of 100m. This task was found to be predominately done by women and girls. This reduces the time villagers, especially women and girls, have on other livelihood activities e.g. Time a girl has to do her homework. This is an example of how access to water is a social issue. None of the households use any water treatment methods (Filter, Boiling etc), which prevent the contraction of water borne diseases from consumption of dirty water.

❑ PROBLEMS IDENTIFIED:

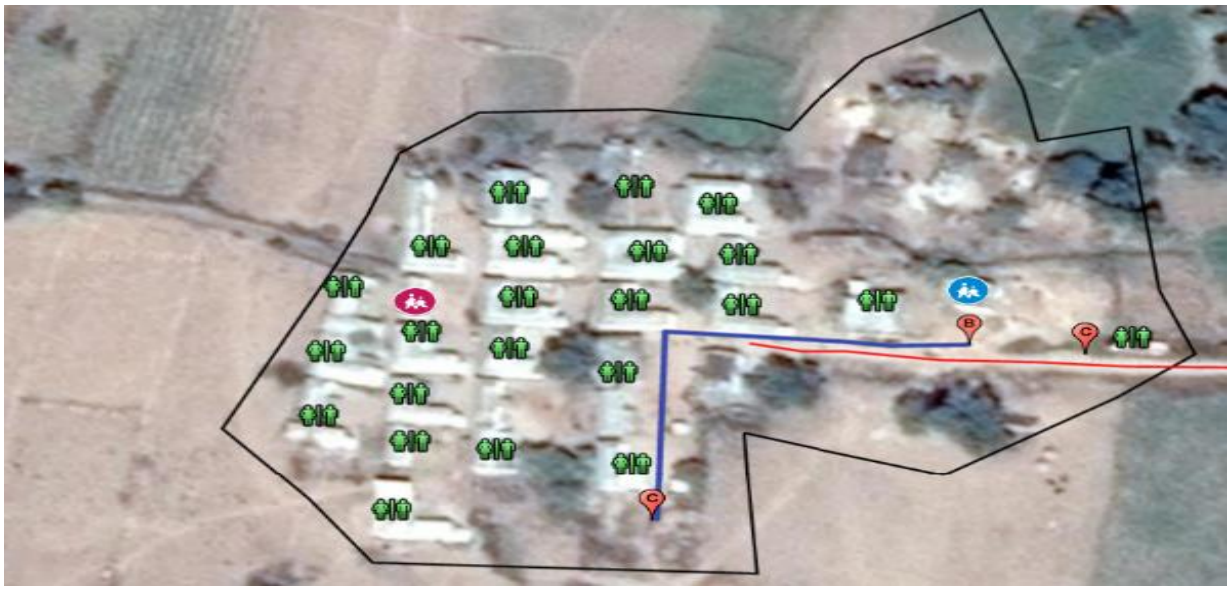
- Irregular water supply by 3 phase pump – around 3-4 hrs per day
- No water storage infrastructure – leading to water wastage

- Increased water fetching time up to distances over 100m – a task done mainly by women and girls
- No filtration methods used
  After conducting village meetings and surveys WASSAN decided with the villagers the following infrastructure for the village:
- Construction of 2 Cisterns
- Individual Tap Connections to 20 HH's
- Increased sections of pipeline of total length 128m.

The 2 new cisterns to be constructed have a combined water storage capacity of 8000L (4000L each). This will ensure that the availability of water throughout the day is increased, regardless of the duration of power supply. The individual tap connections will decrease the fetching water time to 0min for 87% of HH's in the village. The increased section of pipeline will connect the current borehole to the newly installed cistern to the south of the village.

A soft drink has been used creatively to control the flow of water - 2013

Various water storage water can be seen as well as the stagnation of water - 2013



Map of Jeedigadda Crystal Drops works – 2017

❑ SANITATION:

Initially, after the Crystal Drops Survey, there was found to be no HH toilets in Jeedigadda Thanda. Some HH's had bathing structures but were not fitted with toilet pits. The practice of open defecation was common in the proximity of agricultural fields and by the road side. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their livelihoods. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them.

After conducting several meetings and awareness campaigns it was decided with the villagers that all 23 HH's in Jeedigadda Thanda were to have a toilet constructed. The construction of all 23 IHHL's was completed, but due to migration of 3 families, 3 IHHL's have now been dismantled. For details of the financial details of the beneficiaries, please see annex. 16 soak pits were also constructed in the village, they were not constructed for all 23 toilets due to lack of space and the HH not requesting.

Existing bathing structures in the village offered a little privacy and no toilet facility - 2013

❑ SCHOOL SANITATION:

Jeedigadda Thanda has a primary school with a total of 25 students, there is only one teacher to teach all the children. When crystal drops entered the village, the school toilet was completely dysfunctional. School sanitation is of paramount importance, if the children have no IHHL's at home they must learn correct sanitation practice at school. WASSAN, the school and the villagers decided to that restoration and improvement of the school toilets was the best step forward to total sanitation.

The school children of Jeedigada Thanda demand and deserve a cleaner and healthier future for the village - 2013

The beneficiaries of the new school toilets give their approval with thumbs up! – 201

❑ ACHIEVEMENTS OF PROJECT:

- Construction of 2 Cisterns to increase the water storage capacity to 8000L.
- Individual Tap Connections to 20 HH's reducing the fetching water time to 0s in each HH.
- Increased sections of pipeline of section length 128m to connect the borehole to the cistern in the southern side of the village.
- Construction of 23 IHHL's improving the sanitation practices in the village, and reducing the cases of open defecation.
- Construction of 16 Soak pits in the village.
- Construction of new School toilet ensuring the children sanitation practice at home.

❑ EXPENDITURE REPORT FOR JEEDIGADDA THANDA:

S. No.	Item of Work	Unit	Unit Cost	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Cisterns for storing water	Cistern	35845	2	71689	57339	14350
2	New pipeline	Rmt	195	128	24901	20161	4740
3	House level tap connection	Rmt	525	20	10509	4509	6000
4	**Total**				**107099**	**82009**	**25090**
Environmental Sanitation							
5	Individual Sanitary Latrines	Twin Pit Toilets	12041	23	276945	218145	58800
6	Soak Pits	Soak Pits	295	16	4720	2800	1920
7	School sanitation	School Toilets	46800	1	46800	46800	0
8	**Total**				**328465**	**267745**	**60720**
Waste Management, Capacity Buiding & Governance Arrangements							
9	WASH Volunteers visit items	-	0	0	280	280	0
10	**Total**				**280**	**280**	**0**
11	**Complete Village Total**				**435844**	**350034**	**85810**
12	**Percentage**				**100**	**80**	**20**

VILLAGE PROFILE STORY OF LAKHNAPUR:

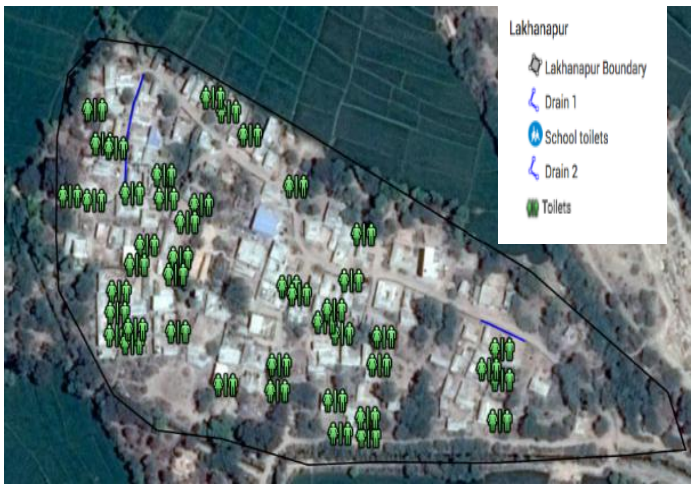
Lakhnapur is a village with a total of 110 households and a population of 480. It comes under Chiguralapally Gram Panchayat which is located in Pargi Mandal, Vikarabad district, Telangana. It is at a Distance of 10 Km from its mandal head quarter Pargi. Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions (FGD's), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

Summary of Village Table Data	
Mandal	Pargi
District	Vikarabad
Total HH's	110
Total Population	480

❑ SANITATION:

After the initial survey was conducted for the crystal drops project, only 4 of the 110 HH's had toilets. The practice of open defecation was common in the proximity of agricultural fields and by the road side. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering the drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their standard of living. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them. A few of the HH's have bathrooms fitted, others with temporary structures to ensure privacy and security when bathing.

After surveys and meetings with focus group, the Crystal Drops project decided, with the village, to facilitate the construction of 44 HH twin pit latrines in Lakhnapur. From just over 3% of the HH's having a IHHL, to now just over 43% of the HH's having a working toilet. This will have a massive impact on the health and sanitation of the village. Due to internal village politics issues it wasn't possible to construct the maximum amount possible.



The School Toilet is located towards the large Lakhnapur Tank – 2017

❑ SCHOOL SANITATION:

When Crystal Drops arrived in Lakhnapur the School toilets were dysfunctional. It's of paramount importance that the school has working clean toilets, if the children learn sound hygiene practices at school, they are more likely to implement at home. As the children are seen as the most important

stakeholders and beneficiaries for the future WASH of the village - it was decided to restore the toilet in the school.

❑ DRAINAGE:

Initially Lakhnapur did have a drainage system but it was far from in working condition. There is no solid waste disposal system in Lakhnapur and waste materials were being thrown into the drain and blocking the drain from functioning. A blocked drain leads to overflowing grey wastewater entering the roads, this was combined with the HH's, with no drainage systems, waste water flowing straight onto the roads.

After surveys, village meetings and the creating of the WASH committee the decisions was made to construct 2 new section of drain strategically placed in the village to maximize the number HH's reached.


Villagers contributed to the labour for the construction of the new drainage system.

❑ ACHIEVEMENTS OF PROJECT:

- Facilitation and construction of 44 new IHHL's, this will improve the lives of those HH's greatly once the toilets become habitual.
- Reconstruction of the school toilets, providing school children with a safe and sanitary toilet.
- Construction of two new section of open drainage of total length 98.9m. This will make the streets of Lakhnapur a much cleaner place for the villagers to go about their daily business.

❑ EXPENDITURE REPORT FOR LAKHNAPUR:

S. No.	Item of Work	Unit	Unit Cost (Rs)	Quanti ty	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Environmental Sanitation							
1	Individual Sanitary Latrines	Twin Pit Toile ts	13335	44	586750	445950	140800
2	Open Drainage	Rmt	0	98.9	233352	186682	46670
3	School Toilets Restoration	Toile ts	0	4	28030	28030	0
4	Total				848132	660662	187470
5	Complete Vill Total				848132	660662	187470
6	%				**100**	**78**	**22**

VILLAGE PROFILE STORY OF RAMIREDDY PALLY:

Ramireddypally village comes under the Narayanpur Gram panchayat which is located in Pargi Mandal, Vikarabad District, Telangana. Ramireddypally is located at a distance of 6 km from the mandal Head quarters Pargi. There are total 39 Households in the village with a population of 234. A majority of 80% of the Houses are of semi pucca type and the remaining 20% are pucca houses. Caste demographic has a majority of the HH's ST, 4 HH's BC, a single SC HH and a single OC HH.

Summary of Village Data	
No. of HH's	39
Total Population	234
ST HH's	33
BC HH's	4
SC HH's	1
OC HH's	1

Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions FGD), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

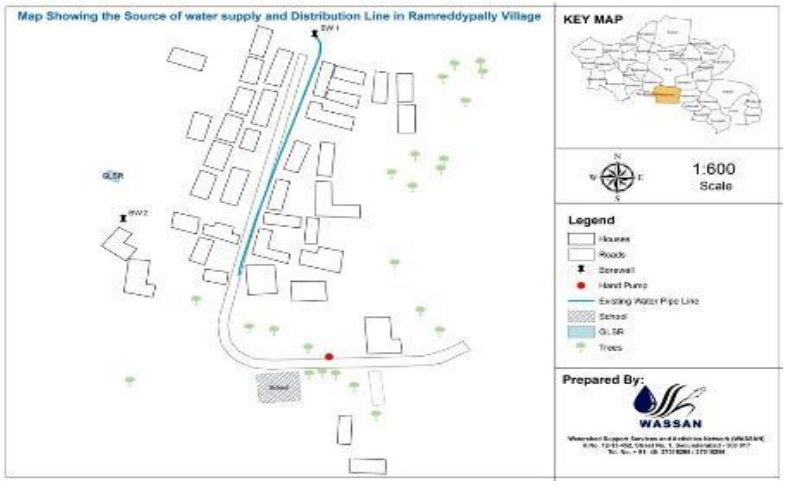
The WASSAN team holding a village meeting with the children of the village – 2013

❑ WATER SUPPLY:

Initially in the village of Ramireddypally there was two sources of water, a borewell connected to a distribution pipe and a separate hand pump provided water when the power is off. A second borehole was located in the village connected to the GLSR (Ground level service reservoir), but has not been in use for several years due to poor maintenance. Villagers use the hand pump when the borewell is not operational due to time limits on the power supply. As the GLSR was not in use - there was no water storage facility. Due to the small size of the village, no HH has to fetch water for further than 100m within the village, although there is a single HH outside of the village whom has to travel over 100m for water.

Left: The borehole and main water source in the village Right: Hand pump used during periods of power outage.

Water was being taken straight from the borehole when power is available, as opposed to a water storage facility, this was leading to wasting of water and the stagnation of water around the borehole. Another discharge pipe was distributing water at the other end of the village. Each HH has around 30-100L storage capacity through various methods, this was to compensate for the dysfunctional GLSR. During village meetings and surveys the villagers had expressed a wish for individual tap connections in their homes, which would significantly reduce wasted water. After village meetings and discussions, the following was decided for the Crystal Drops Project to address water supply issues in Ramireddypally:



Previous water supply line in Ramireddypally, water was distributed at both ends of the pipe with no water storage facility or pump switch – 2013

- Construction of GLSR with a capacity of 20,000L in the village.
- Provision of two temporary tanks until construction of new GLSR is completed
- Tap connections to all 39 HH's and the primary school, 40 in total.
- Construction of a 480m pipeline around the village to connect each HH to an individual tap connection as well as the school. Furthermore, a stretch of the pipeline shall connect the borehole to the new GLSR.

Water supply lines can be seen here distributing water to all HH tap connections and from the the borehole to GLSR – 2017

❑ SANITATION:

Initially in Ramireddypally there were no individual toilets in any of the HH's. The practice of open defecation was common in the proximity of agricultural fields and by the road side. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering the drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their standard of living. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them. A few of the HH's have temporary bathing structures in their HH. The Crystal Drops Project facilitated the construction of a IHHL in every HH in Ramireddypally. Labour costs were provided by the HH, and the materials by Crystal Drops. Please see Annex for list of beneficiaries IHHL's families and material costings.

Some of the temporary bathing structures the villagers had constructed previously - 2013




Each HH in Ramireddypally now has a fully functioning toilet – 2017

❑ ACHIEVEMENTS OF PROJECT:

- Construction of GLSR with capacity of 20,000L in the village.
- Provision of two temporary tanks until construction of new GLSR is completed
- Tap connections to all 39 HH's and the primary school, in total 40.
- Construction of a 480m pipeline around the village to connect each HH to an individual tap connection as well as the school. Furthermore, a stretch of the pipeline shall connect the borehole to the new GLSR.
- Facilitation of the construction of 39 IHHL's, this covers the whole village.
- Formation of a WASH committee in the village.

❑ EXPENDITURE REPORT FOR RAMIREDDY PALLY:

S. No.	Item of Work	Unit	Unit Cost	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	New pipe line	Rmt	184	480	88272	70560	17712
2	House Hold level tap connection	Public Tap(No)	859	40	34370	22370	12000
3	Plumbing Items	No.	9543	1	9543	9543	0
4	GLSR	GLSR Tank	151094	1	151094	120875	30219
5	Temporary Tanks	No.	5673	2	11345	11345	0
6	Total				294624	234693	59931
Environmental Sanitation							
7	Individual Sanitary Latrines	Twin Pit Toilets	13632	39	531655	402955	128700
8	Soak pits for disposal of waste water	Soak Pits	546	15	8190	1845	6345
9	Total				539845	404800	135045
10	Complete Village Total				834469	639493	194976
11	Percentage %				100	77	23

VILLAGE PROFILE STORY OF BABAPUR:

Babapur is located in Roopkhanpet Grama Panchayati of Pargi Mandal in Vikarabad district. It is at a distance of 8km from its mandal head quarters in Pargi and 28 km from the district head quarters in Vikarabad. There are a total 102 Households in the village with a total population of 443. The majority of the housing structures in Babapur are semi pukka structures and only 7 are pukka structures.

Table of Village Data Summary	
No. of HH's	120
Total Population	443
Backward Caste (BC)	88
Scheduled Caste/ Scheduled Tribes (SC/ST)	14
Other Backward Caste (OBC)	18

Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions (FGD's), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

A women's focus group meeting in Babapur – 2013

❑ WATER SUPPLY:

The existing drinking and domestic waster supply depended on a single public stand post and 4 borewells. WASSAN made the decision not to drill more boreholes as the water supply for the village was adequate, the problem lied in the access to the water supply and the connections pipes to individual households. The existing infrastructure provided only 6 households with individual tap connections, each directly connected from the bore wells. The water supply was based on the fluctuating power supply, meaning frequent power cuts and no dedicated timing, the supplied water was found often to be overflowing on roads. Two hand pumps were also already installed in the village. No OHT (Overhead tank) were installed in the village, the adjoined village has two poorly constructed, leaking and now defunct OHTs.

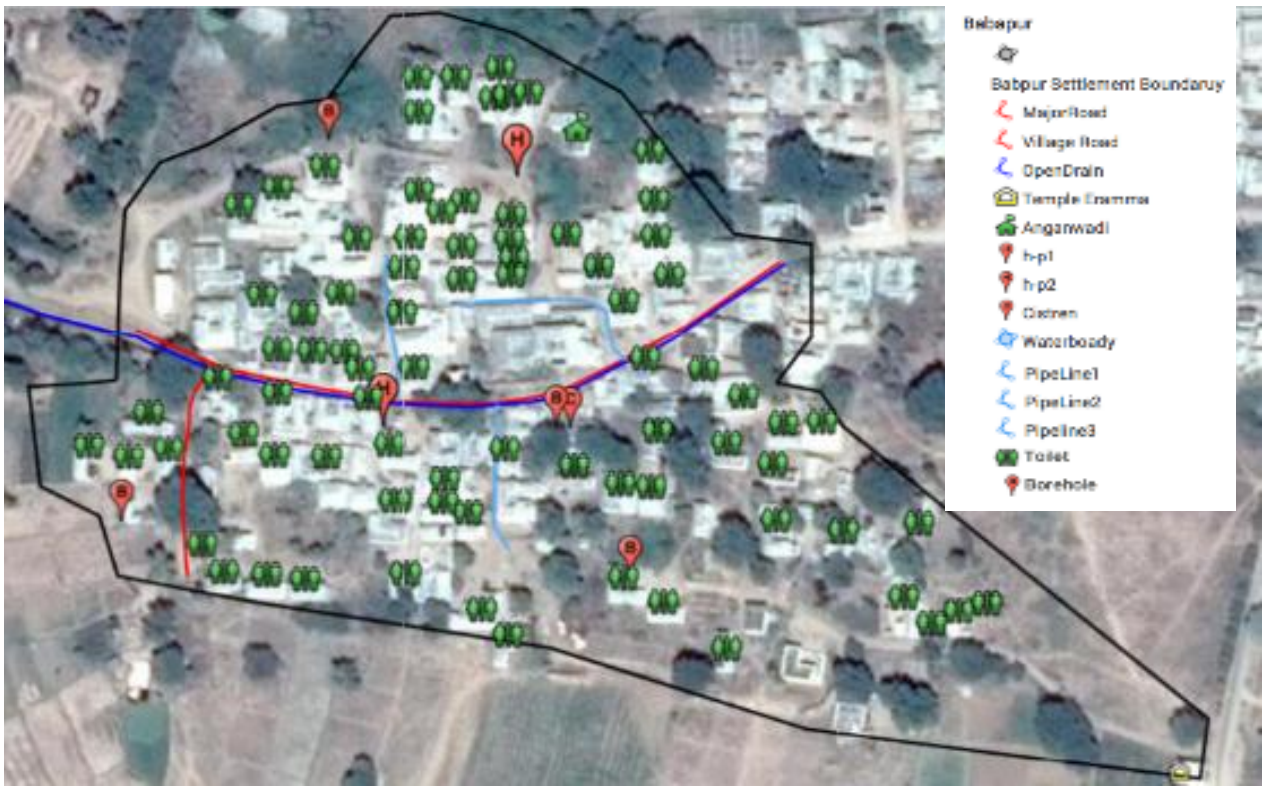
Existing Water Supply Infrastructure	Quantity
Cistern	1
Hand Pumps	2
Bore Wells	4
Individual HH Taps	6

Map of pipeline extension in Babapur – 2017

After focus group discussion, the formation of a WASH committee and surveys the following was decided and constructed. A decision was made for a 200m pipeline extension to be constructed to maximise the number of households reached.

❑ DRAINAGE:

Initially in Babapur there was an open drain system which had collapsed over the years and become blocked in places. After conducting a survey, WASH committee meetings and focus group discussions, the joint decision was made to construct a new drainage system of length 185m and 95m sections, in total 280m. The new drainage system was to be strategically designed in the village to maximize the amount of waste water catchment area and HH's reached. The new 280m long concrete open drain was constructed through the centre of the village. The open drain is connected to waste water pipes from each of the HH's. The open drain leads into two natural tanks at the bottom of Babapur village. These large natural tanks provide the farmers with a large quantity of agricultural water. Filtration of the water is done through natural filtration using plants at the b ottom section of the



New Drainage system in Babapur - 2017

❑ SANITATION:

Initially in Babapur 94% of the households did not have an individual latrine. Open defecation on road side and agriculture fields are affecting the health and environmental sanitation. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their livelihoods. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them.

The Crystal Drops Project helped facilitate the construction of an IHHL in 82 village HH's. This means that 68% of HH's now have a fitted IHHL – a huge benefit to the environmental sanitation of the village. The cost of the materials was bought by Crystal Drops and the masonry and labour charges were provided by the beneficiary. Please see annex for details of IHHL beneficiary families and material costs.

Newly installed IHHL's under Crystal Drops – 2017

❑ ACHIEVEMENTS OF PROJECT:

- No of IHHL's has increased from 6% to 68% of households - this is a massive improvement all though still further to go for Babapur. The environmental practice and sanitation of the villagers shall reap the benefits exponentially.
- Extension of existing water pipeline by 200m in three sections, this will maximise the number of HH's availability to tap connections or other water supply features.
- Construction of a 280m open drainage system through the middle of the village, leading into natural tanks at the bottom of the village.

❑ EXPENDITURE REPORT OF BABAPUR:

S. No.	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Pipeline Extension	Rmt	203	200	40500	32000	8500
2	Total				40500	32000	8500
Environmental Sanitation							
3	Individual Sanitary Latrines	Twin Pit Latrine	12101	82	1071554	741554	330000
4	Open Drainage 1	Rmt	1669	185	307940	246352	61588
5	Open Drainage 2	Rmt	1639	95	154890	123912	30978
6	Total				1455133	1039567	415566
7	Complete Village Total				1495633	1071567	424066
8	%				100	72	28

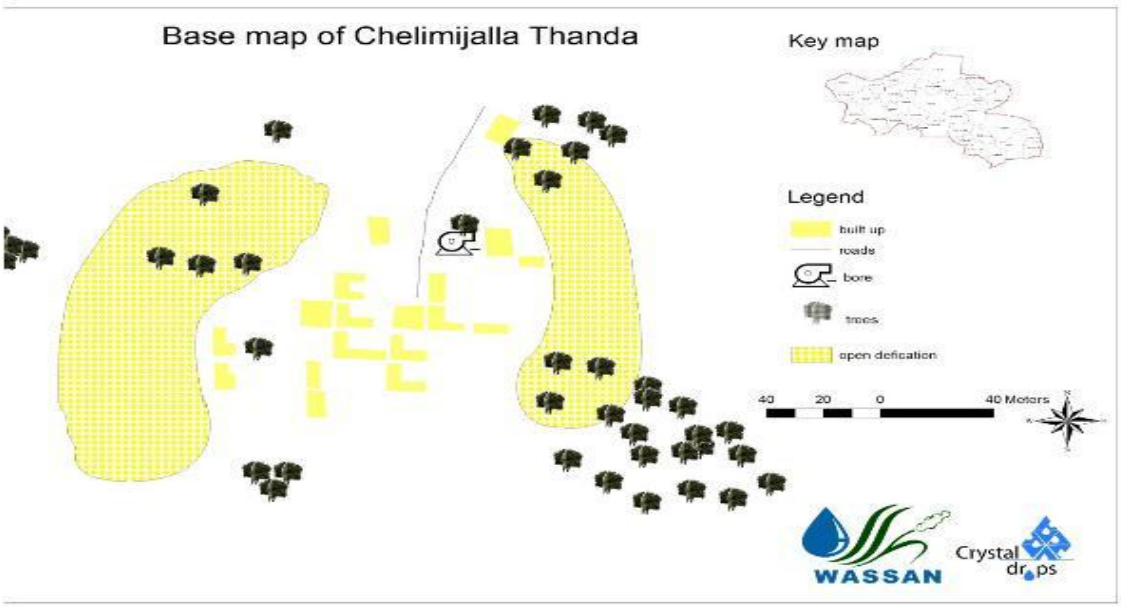
VILLAGE PROFILE STORY OF CHELIMIJALLA THANDA:

Chelimijalla Thanda is a small tribal habitation located in the Rangampally Grama Panchayati of Pargi Mandal, Vikarabad district. It is at a distance of 10 km from its mandal head quarters in Pargi and 30 km from the district head quarters in Vikarabad. There are a total 13 Households in the village with a total population of 57.

Table of Village Data Summary	
No. of HH's	13
Total Population	57
Caste	ST
Housing Structure	Semi Pucca

Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions (FGD's), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

One of the many village meetings held by Crystal Drops in Chelimajalla Thanda – 2016



Base Map of Chalimajalla Thanda prior to Crystal Drops Project – 2016

❑ WATER SUPPLY:

Initially in Chelimajalla Thanda the main source of drinking and domestic water was a bore well located in the village. The water supply was based on the power supply, with no dedicated timing and power cuts there was frequent over flowing onto the roads. Among the total HH's all were within a distance of 100m of the borehole. Surveys revealed in the majority of HH's women and girls fetched the water. This reduces the time villagers, especially women and girls, have on other livelihood activities e.g. The time a girl has to do her homework. This is an example of how access to water is a social issue. None of the households use any water treatment methods (Filter, Boiling etc), which prevent the contraction of water borne diseases from consumption of dirty water.

After focus group discussion, the formation of a WASH committee and surveys the following was decided and constructed.

- A second borehole was installed from the panchayat upon request from WASSAN, after a struggle this was completed. The original bore hole has no water due to the installation of the second borehole and consequential convergence of the wells water supply.
- Two cisterns were installed in the village to hold the water from the bore hole.
- 180m total length of 2" pipeline was laid to connect borehole, cisterns and HH's.
- 80m total length of 1" HDPE pipeline was installed to connect water pipes to individual HH tap connections.
- 13 individual taps were fitted to the outsides of the newly constructed toilets (See section: Sanitation)


Villagers hard at work with the construction of the new pipeline - 2016

❑ SANITATION:

Initially none of the households had toilet facilities and open defecation occurs near agricultural fields and roadside. People are facing difficulties during night time especially women and female children. Open defecation on road side and agriculture was affecting the Health and Environment of the village. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering the drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their standard of living. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them. A few of the HH's have bathrooms fitted, others with temporary structures to ensure privacy and security when bathing.

IHHL for the HH of Shanti W/O Chandar – 2017

After surveys, WASH committee and focus group meetings, the Crystal Drops project decided, with the village, to facilitate the construction of 13 IHHL's in Chelimajalla Thanda. Each would be fitted with an external tap connection. Labour costs were provided by the beneficiary and and material costs by Crystal Drops, please see Annex for list of beneficiaries and financial costs.

❑ ACHIEVEMENTS OF PROJECT:

- Two cisterns were installed in the village to hold the water from the bore hole.
- 180m total length of 2" pipeline was laid to connect borehole, cisterns and HH's.
- 80m total length of 1" HDPE pipeline was installed to connect water pipes to individual HH tap connections.
- All 13 HH's in the village constructed a new IHHL.
- 13 individual taps were fitted to the outsides of the newly constructed IHHL's.
- Formation of WASH committee in the village.

❑ EXPENDITURE REPORT OF CHELIMAJALLA:

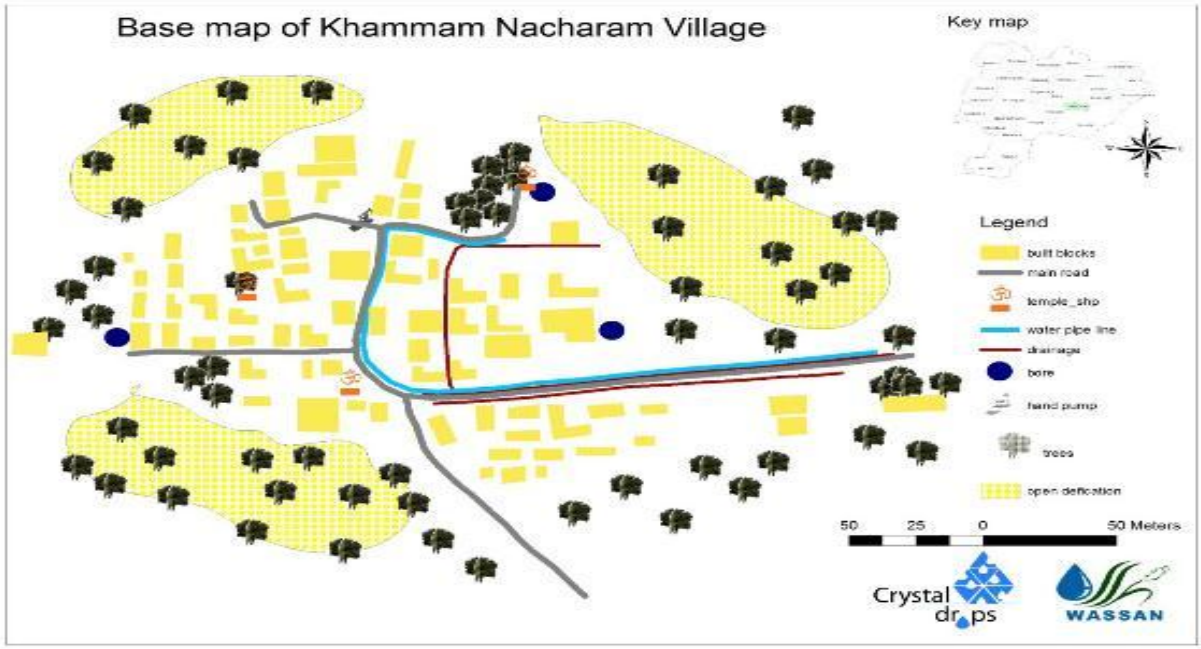
S. No.	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Pipe Line	Rmt	179	180	32300	28800	3500
2	1" HDPE Pipeline	Rmt	16.00	80	1280	1280	0
3	Individual Tap Connections + 1/2" Pipe	No.	1029.31	13	13381	9481	3900
4	Cisterns + Plumber Costs	No.	32349.00	2	64698	58651	6047
5	Total				33580	30080	3500
Environmental Sanitation							
6	Individual Sanitary Latrines	Twin Pit Toilets	12225	13	168105	129105	39000
7	Total				158925	119925	39000
8	Complete Village Total				192505	150005	42500
9	%				**100**	**78**	**22**

VILLAGE PROFILE STORY OF KHAMMAM NACHARAM:

Khammam Nacharam is located in Khammam Nacharam Grama Panchayati of Doma Mandal in Vikarabad district. It is at a distance of 8 Kms from its mandal head quarters and 98 Kms from the district head quarters. There are total 118 Households in the village with a population of 498. 80% of the houses in the village are of semi pucca and the remaining 20% are pucca structures.

Table of village data summary	
No. of HH's	118
Total Population	498
BC Caste	70%
SC/ST	26%
OC	4%

Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions (FGD's), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.



Map of Khammam Nacharam Village – 2013

❑ WATER SUPPLY:

Initially in Kamman Nacharam before the Crystal Drops programme started the main source of water was from three borewells in the village. The water was then distributed to public stand posts around the village as well as a single hand pump – this frequently ran out of water. The water supply was based on the power supply with no ON/OFF switch or timings, this led to large quantities of water being wasted. When the power was down the only option was the hand pump. Water storage facilities were identified to be lacking in the village as well. Out of the total HH's 18 had individual tap connections. Distance to water source was also an issue raised although all HH's are within 100m of a water supply, this can still take up considerable time and energy. The majority of water fetching was done by women and girls. This reduces the time villagers, especially women and girls, have on other livelihood activities e.g. Time a girl has to do her homework. This is an example of how access to water is a social issue. None of the households use any water treatment methods

(Filter, Boiling etc), which prevent the contraction of water borne diseases from consumption of dirty water.

Taking into consideration the survey data, facilitating village focus groups and formation of a WASH committee the following was decided for Kamman Nacharam.

- Construction of 5 Cisterns around the village, in 3 locations, to increase the water storage capacity of the village. A total capacity of 20 000L.
- Construction of a 300m HDPE pipe to connect more HH's to water storage and supply facilities.

❑ DRAINAGE:

Initially in Kamman Nacharam there was an open drainage system for only a few HH's in the SC colony in the village, due to improper maintenance the drainage system had become blocked in a few places. All the wastewater from the drainage system was flowing into a nearby kunta in two parts of the village and into an agricultural field in another area of the village. Those HH's without drainage systems had their waste water flowing directly onto the roads.
After conducting a survey and from the discussion generated in the WASH committee meetings and focus group discussion, the joint decision was made to construct two sections of drainage in the village, of length 95m and 128.5 m, a total of 223.5m. The new drainage system was to be strategically designed in the village to maximize the amount of waste water catchment and HH's reached.

❑ SANITATION:

Initially in Kamman Nacharam 80% of the HH's did not have a toilet facility. The practice of open defecation was common in the proximity of agricultural fields and by the road side. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering the drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their standard of living. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them. A few of the HH's have bathrooms fitted, others with temporary structures to ensure privacy and security when bathing.

After surveys, WASH committee and focus group meetings, the Crystal Drops project decided, with the village, to facilitate the construction of 39 IHHL's in Kamman Nacharam. Now 43% of the HH's in Kamman Nacharam have an IHHL.

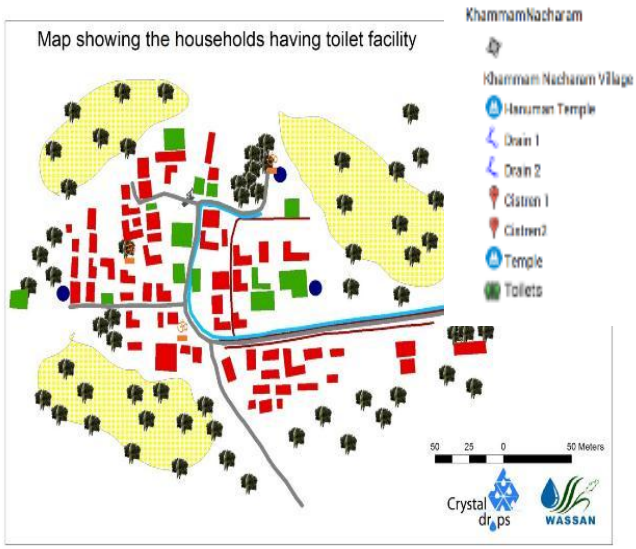
Prior to Crystal Drops there was no school sanitation facilities, Crystal Drops facilitated the construction of school toilets. It's of paramount importance that the school has working clean toilets, if the children learn sound hygiene practices at school, they are more likely to implement at home. As the children are seen as the most important stakeholders and beneficiaries for the future WASH of the village - it was decided to restore the toilet in the school

.

The school children of Kamman Nacharam demanded and deserved better School Sanitation! Thankfully to Crystal Drops and the hard work of the villagers they got what they deserved... new toilets and a cleaner, happier learning environment. Smiles all round.

An example of the existing temporary structures used for bathing – 2013

A happy
beneficiary after receiving a Crystal Drops IHHL, now a more dignified and sanitary bathroom – 2017



Initial Map of HH's with an IHHL – 2013Map of the 39 IHHL's constructed under Crystal Drops Project - 2017

❑ ACHIEVEMENTS OF PROJECT:

- Construction of 5 cisterns in the village, one of which is located at the school. Each with a capacity of 4000L, that's 20 000L water storage capacity for the village.
- Facilitating the construction of 39 IHHL's.
- Construction of a total of 223.5m of new drainage system.
- Laying of 300m of HDPE water supply line pipe, increasing the accessibility of water around the village.
- Construction of school toilets.
- Formation of WASH committee in the village.

❑ EXPENDITURE REPORT FOR KAMMAM NACHARAM:

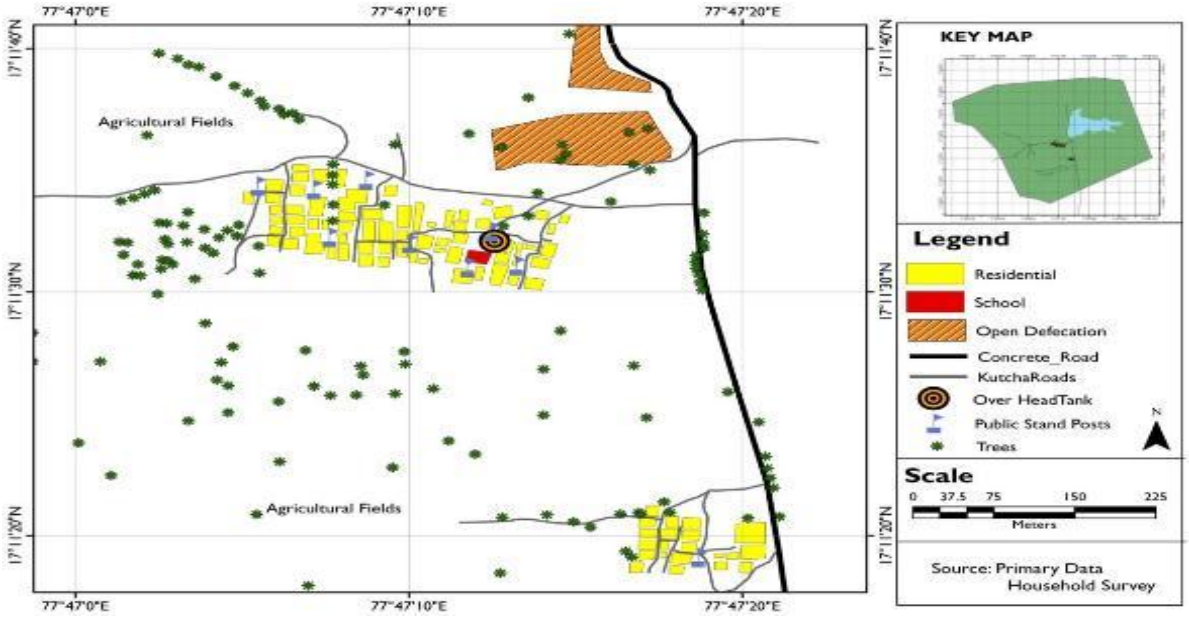
S. No	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Cisterns - School	No.	28911	1	28911	23129	5782
2	Cisterns - Srisailam House	No.	38752	2	77503	62002	15501
3	Cisterns - Venakatesh House	No.	29465	2	58929	50743	8186
4	HDPE Pipe	Rmt	28	300	8300	4500	3800
5	Plumber Costs	-	-	-	4580	0	4580
6	Plumbing Material Costs	-	-	-	25442	0	25442
7	Total				203665	140374	63291
Environmental Sanitation							
8	IHHL	Twin Pit Toilets	12467	39	486200	364400	121800
9	School Toilets	No.	129917	1	129917	129917	0
10	Open Drainage 1	Rmt	1905	95	180962	145770	35192
11	Open Drainage 2	Rmt	2434	128.5	312821	250257	62564
12	Total				1109900	890344	219556
13	Complete Village Total				1313565	1030718	282847
14	Percentage %				**100**	**78**	**22**

VILLAGE PROFILE STORY OF MALKAIPET THANDA:

Malkaipet thanda is a tribal hamlet, within the Lambadi community. Agriculture is the main source of livelihood in the hamlet. Malkaipet Thanda has a total population of 475 with 105 households. 88 out of the 105 households belong to small and marginal farmers. Malkaipet is located in Ibrahimpur Gran Panchayat, Pargi Mandal, Vikarabad district, Telangana. It is at a distance of 20 km from the Pargi Mandal Headquarters. Malkaipet has a total geographical area of 692.7 acres, this hamlet is mostly covered by grass, scrub and forest lands. All the households here belong to the same caste, Scheduled Tribe. Nearly 81% of the houses are of Semi-Pucca type and the remaining 19% is Pucca structures.

Table Of Summary Village Data	
No of HH's	105
Total Population	475
Main Occupation	Agriculture
Caste	Scheduled Tribe (ST)

Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions (FGD), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.



Base map of Malkaipet Thanda – 2013

❑ DRAINAGE:

Initially in Malkaipet Thanda there was no drainage system. Drainage is a vital part of environmental sanitation in a village, grey water from households was running out onto the roads, this can lead to the contamination of the water supply. Furthermore, if the grey water can be treated it can be reused for agricultural purposes.

After conducting focus groups, surveys and the formation of the WASH committee. The following was decided for a new drainage system in Malkaipet Thandda:

- Open Drain Section 1 of length 36.74m was constructed
- Open Drain Section 2 of length 40.3m was constructed

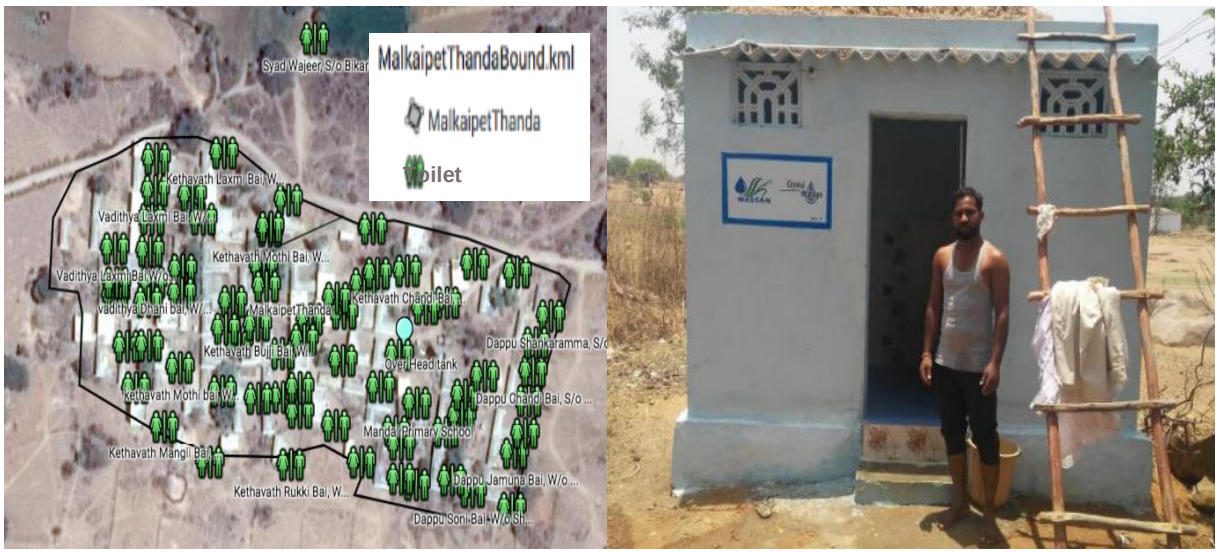
The cost of the new open drainage system was split between the villagers, the villagers paid for the masonry and labour costs while Crystal Drops provided the materials – please see expenditure report in the Annex for further details.

❑ SANITATION:

Initially in Malkaipet Thanda 100% of the villagers did not have access to a toilet facility and villagers were defecating in an open area near agriculture fields, bushes and road side. Lack of awareness and financial ability are the major reasons for not having even a single toilet in village. Open defecation on road side and the agriculture fields are affecting health and environmental sanitation. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their livelihoods. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them.

Crystal Drops projects helped facilitate the construction of an IHHL in 79 village HH's. Cost of the materials were bought by Crystal Drops and the masonry and labour charges were provided by the beneficiary. Please see annex for details of IHHL beneficiary families and material costs. 26 remaining HH's did not participate in the facilitation of IHHL as they had seasonally migrated to Pune, Hyderabad and Mumbai.

Map of IHHL's installed under the Crystal Drops Project – 2017



IHHL installed in the HH of Dappu Kamili Bai, W/o Subhash - 2017

❑ ACHIEVEMENTS OF PROJECT:

- 79 HH's now have a two pit latrine, greatly reducing the practice of open defecation in the village.
- New open drainage system installed of total length 77.04m around the village to maximize the number of HH's reached and improve the environmental sanitation of the village.

❑ EXPENDITURE REPORT FOR MALKAIPET THANDA:

S. No.	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	Individual Sanitary Latrines	Twin Pit Latrine	11828	79	934375	706875	227500
2	Open Drainage 1	Rmt.	2057	36.74	75565	60448	15117
3	Open Drainage 2	Rmt.	2067	40.3	83289	66631	16658
4	Total				1093229	833954	259275
5	Complete Village Total				1093229	833954	259275
6	Percentage %				**100**	**76**	**24**

VILLAGE PROFILE STORY OF NASKAL VILLAGE:

NASKALis located in Naskal Grama Panchayati of Doma Mandal in the Vikarabad district. It is at a distance of 8 Kms from its mandal head quarters and 85 Kms from the district head quarters. There are total 532 Households in the village with a population of 2433.

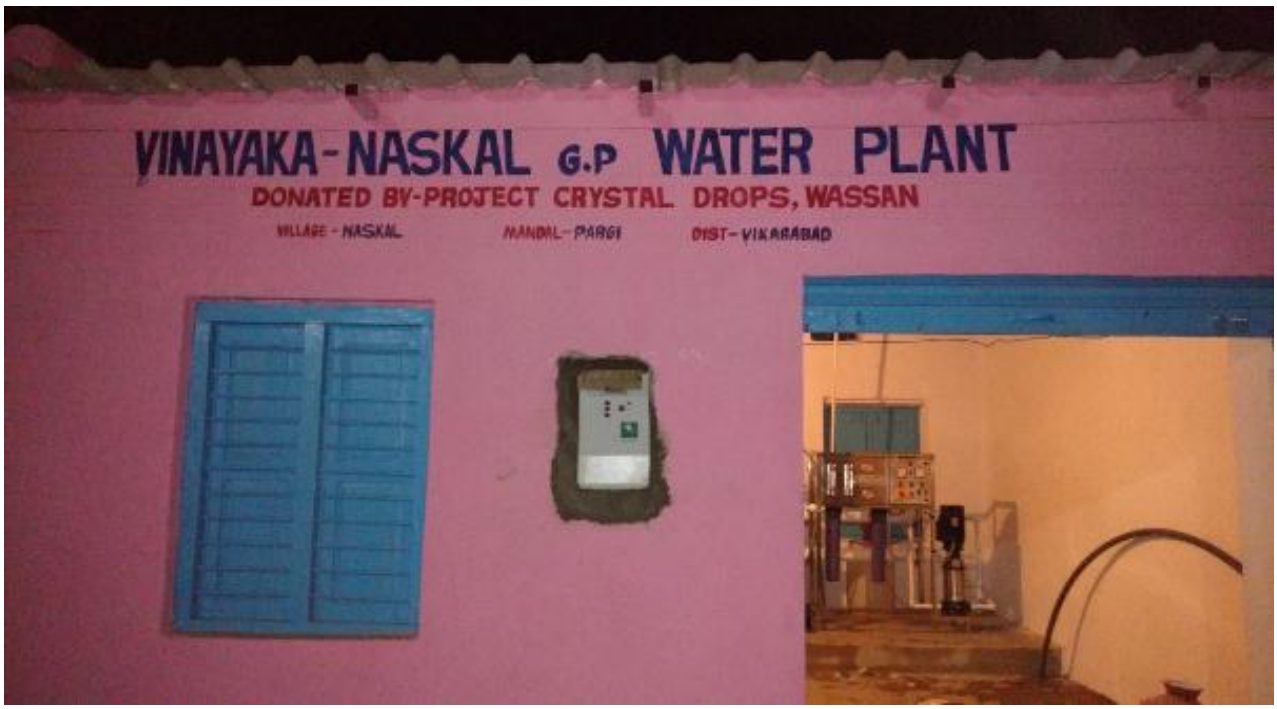
Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions (FGD), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

Table of village data summary	
No. of HH's	532
Total Population	2433

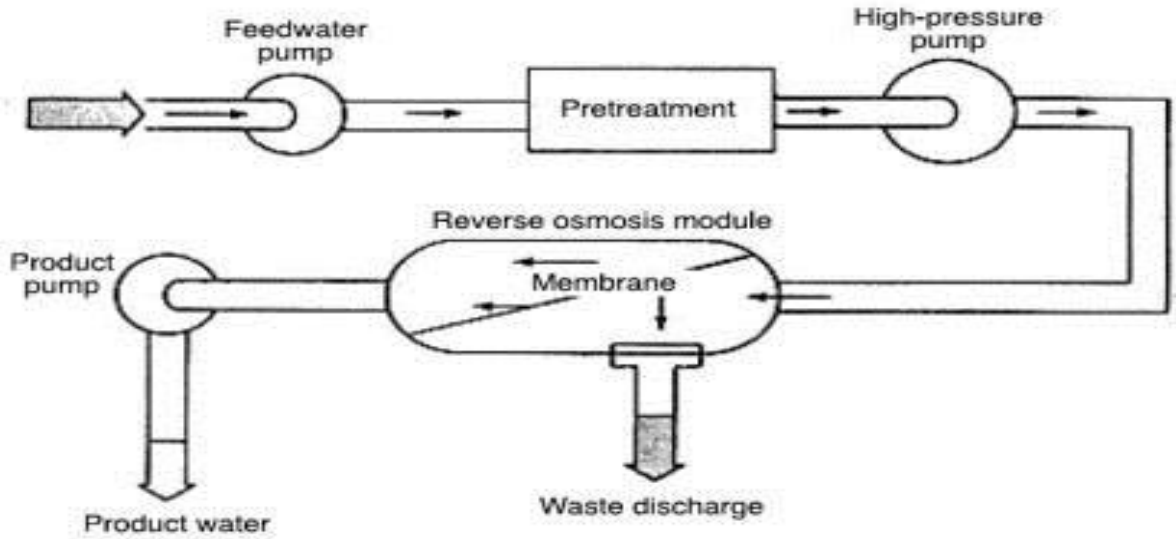
❑ WATER SUPPLY:

The main source of drinking water is the 5 borewells located in the village. 156 HH's had existing individual tap connections directly connected to the borewells. As the water supply was based on the fluctuating power supply and there was no timing or ON/OFF switch function – this led to a large amount of water being wasted. The remaining households relied on water sources of the cistern, public stand post and bore wells – an OHSR (Overhead service reservoir) was also located in the village for storage and distribution of water. All HH's had the water source within 100m. None of the households use any water treatment methods (Filter, Boiling etc), which prevent the contraction of water borne diseases from consumption of dirty water. Taking into consideration the survey data, facilitating village focus groups and formation of a WASH committee it was decided that the best project for Crystal Drops in Naskal to improve the water supply was the implementation and construction of an RO (Reverse Osmosis) plant.

Left: Map of Naskal – RO Plant location - 2017Right: Existing cistern and OHSR in Naskal – 2013



New RO plant installed in Naskal – 2017



Process Diagram an RO Plant

Image Source: http://www.thewatertreatments.com/water-treatment-filtration/reverse-osmosis-plant-ro-desalination/

❑ DR.AINAGE:

Initially in Naskal there was an open drainage system for only a few houses in the SC colony and in the wider village, due to improper maintenance the drainage got blocked in sections. This leads to waste (grey) water flowing onto the roads, additionally the waste water from the HH's with no drainage was flowing onto the roads. There was a risk that the waste water could contaminate the drinking water, especially around water sources such as public stand posts. All the waste water from the drainage system is flowing in to a nearby kunta at either sides of the village into agricultural fields.

Taking into consideration the survey data, facilitating village focus groups and formation of a WASH committee it was decided that the 186m of open drainage was to be constructed around the village to maximize the number of HH's with an open drain connected to their HH.

Photos of the existing waste water spilling onto roads – 2013

Construction of drainage in Naskal - 2016

❑ SANITATION:

Initially in Naskal 80% of the HH's did not have a toilet facility and open defecation was common practice near the roadside and agricultural fields. Open defecation on road side and agriculture field are affecting health and environmental sanitation. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the livelihoods of villagers unable to complete tasks or activities to improve their livelihoods. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them. The primary school located in the village had a toilet facility but no water available and had not been properly maintained.

Crystal Drops projects helped facilitate the construction of an IHHL in 22 village HH's. Cost of the materials were bought by Crystal Drops and the masonry and labour charges were provided by the beneficiary. Please see annex for details of IHHL beneficiary families and material costs. Due to the hard rock geology of Naskal it as not possible for the traditional two pit latrine or the bio toilet, this lead the engineers at WASSAN to propose a Septic tank, of 10 000L capacity, which was accepted by the community. This was connected to all 22 toilets by a 281m underground drainage system.

Photos of the Septic tank and connecting pipe near completion - 2017

❑ ACHIEVEMENTS OF PROJECT:

- Construction of RO plant in Gudur, this will ensure that villagers have accent to clean drinking water all year round.
- Construction of 186m open drainage system around the village to provide drainage for the waste water from HH's. this will significantly improve the environmental sanitation.
- Facilitation of 22 IHHL's in Gudur, due to hard rock geology, each is connected to a Septic Tank.

❑ EXPENDITURE REPORT FOR NASKAL:

S. No.	Item of Work	Unit	Unit Cost (Rs)	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	RO Plant	RO Plant	354982	1	354982	279982	75000
2	Total				354982	279982	75000
Environmental Sanitation							
3	IHHL	Twin Pit Latrines	8331	22	183272	119772	63500
4	Septic Tank (ST) and Under Ground Drainage (UGD)	ST (L Capacity) and UGD (Rmt)	-	ST (10 000L) and UGD (281m)	237159	217159	20000
5	School Toilets	School Toilets	12769	1	12769	12769	0
6	School Toilets - Plumbing Items & Plumber	-	25310	1	25310	25310	0
7	Open Drain	Rmt	2268	186	421899	337519	84380
8	Total				880409	712529	167880
9	Complete Vill.Ttal				1235391	992511	242880
10	%				**100**	**80**	**20**

VILLAGE PROFILE STORY OF RATNA NAIK THANDA

Ratna Nayak Thanda is located in Doma Mandal, Vikarabad district, Telangana. It is at a distance of 10 km from Mandal Headquarters in Doma. Ratna Nayak Thanda consists of 21 Households and has a population of 105. All of the households belong to the same ST caste. Nearly 68% of the houses of semi-pucca type and the remaining 32% are pucca structure.

Summary of village data	
Total HH's	21
Total Population	105
Caste	ST

Before any proposals for the Crystal Drops project were drawn up. A situational analysis of the current WASH facilities and services was conducted through household surveys, Participatory Rural Appraisal (PRA), focused group discussions (FGD), and developing maps (using GIS and Google maps). In order to identify the problems in the village, Focus group discussions (FGD's) were conducted with Youth, Girls, Women and newly created WASH committee members, this was mainly intended to understand the perception of different age groups on the existing WASH services and the improvements which they require.

❑ WATER SUPPLY:

The main source of water supply initially was a public borehole located in the centre of the village. A second bore is located in the school premises to supply water for the school. Two hand pumps were also located in the village, to provide an alternative water supply for the villagers when power is off. This can mean a water fetching distance of over 50m for villagers. The main public bore in the village has no ON/OFF valve which was leading to water being wasted. There was no water storage facility in the village prior to crystal drops project.

After the capacity building exercises carried out by WASSAN in the village, the feedback as well as the data collected from surveys, concluded that the following water supply infrastructure was proposed and then constructed:

- Construction of an OHSR (Overhead Service Reservoir) for water storage capacity 16 000L.
- Installation of individual taps connections to 21 HH's and the school.
- Construction of water supply 813m pipeline connecting borehole outside the village to OHSR.
- Construction of water subline distribution pipe, this will provide all households with tap connections to a water supply.

Laying of the pipeline connecting the borehole at the north of the village and the OHSR to the south - 2016/17

❑ SANITATION:

Initially in 2013 none of the HH's in Ratna Nayak Thanda had a toilet facility in their homes. A few of the HH's had temporary structures for bathing purposes. The practice of open defecation was common in the proximity of agricultural fields and by the road side. Open defecation is a major sanitary concern for the village, pathogens from fecal matter entering drinking water supply or food will cause illness. Frequent illness as a child can lead to stunting as well as holding back the

livelihoods of villagers unable to complete tasks or activities to improve their livelihoods. Villagers are facing difficulties during night time going to the toilet, especially women and girls, as there are no toilets at home – this can be an unsafe practice and lack privacy for them.

Crystal Drops projects helped facilitate the construction of an IHHL in all 21 village HH's. Cost of the materials were bought by Crystal Drops and the masonry and labour charges were provided by the beneficiary. Please see annex for details of IHHL beneficiary families and material costs.

Note there is a HH to the north of the village, Crystal Drops ensures all members of the community are reached. One beneficiary had already constructed a toilet in their HH, they just required materials to construct the pit.

❑ ACHIEVEMENTS OF PROJECT:

- Construction of an OHSR (Overhead service reservoir) for water storage capacity 16 000L.
- Installation of individual taps connections to 21 HH's and the school.
- Construction of water supply 813m pipeline connecting borehole outside the village to OHSR.
- Construction of water supply subline distribution pipe, this will provide all households with tap connections to a water supply.
- Formation of WASH committee.
- 21 HH's now have IHHL's with two pits.
- 21 HH's and the school (22 total) now have individual tap connections.

❑ EXPENDITURE REPORT FOR RATNA NAYAK THANDA:

S. No.	Item of Work	Unit	Unit Cost	Quantity	Amount (Rs)	Crystal Drops (Rs)	Community (Rs)
Drinking Water Supply Systems							
1	OHSR	Overhead Storage Tank	171707	1	171707	145707	26000
2	Water Main Pipeline - Borehole to OHSR	Rmt	165	813	134145	134145	0
3	Earthworks for Main Pipeline	Hrs (JCB Hire)	750	46.67	35000	0	35000
3	Water Distribution Line	Rmt	125	250	31250	31250	0
4	Water Sublline	Rmt	13	408	5140	5140	0
5	House Hold level tap connection	Public Tap(No)	558	22	12276	12276	0
6	Total				389518	328518	61000
Environmental Sanitation							
7	Individual Sanitary Latrines	Twin Pit Toilets	12547	20	250940	186440	64500
8	Total				250940	186440	64500
9	Complete Village Total				640458	514958	125500
10	Percentage %				**100**	**80**	**20**

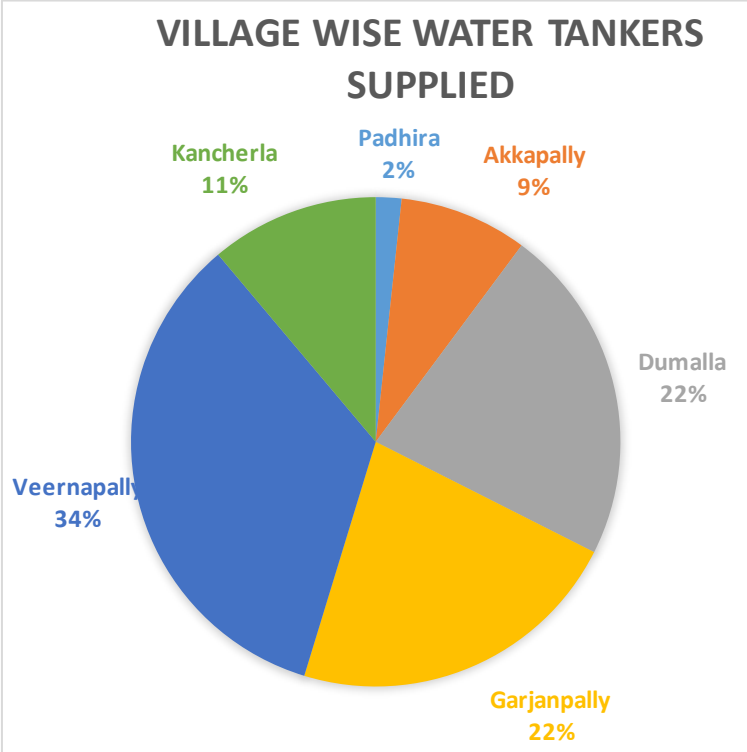
WATER FOR PARCHED VILLAGES…

During summer and early monsoon period of 2016, several villages in Karimnagar district were reeling under severe water scarcity. To address the water scarcity in selected villages, WASSAN organized water distribution to four villages in Yellareddypet mandal, Karimnagar district. Coromandel International Ltd, WASSAN and Grama Panchayats of selected villages supported this initiative. This initiative covered all households of five villages - Veernapally, Dumalla, Garjanapally, Kancharla and Akkapally/Padhira villages in Karimnagar District, where drinking water scarcity is severe in May 2016.

The water distribution program was formally inaugurated in Veernapally, Garjenapally and Kancherla on 2nd May 2016. In Padhira and Dumalla villages on 3rd May 2016.Shri. T.Agayya, ZPTC member (Zilla Parishad) of Yellareddypet Mandal, K.Laxma Reddy CESS Chairman, Village sarpanches, Dy sanrpanches and ward members, Panchayat Secretaries of Dumalla, Veernapally, Kancharla, Garjenapally, Padhira, SHG members, Mana Gromor team members and WASSAN team and other villagers have participated. Shri T Agayya ZPTC appreciated the efforts made by development agencies like WASSAN. The following are some of highlights of the project.

- All villages / Grama Panchayat members gave resolutions defining the following points.
  - There is a water scarcity in their village and they need support in water supply.
  - They will decided the locality, target population and purpose of water use, as per the local conditions/ needs/ priorities.
  - They ensure that there is discipline and coordination among local families and other.
  - Water would be used for general purpose. In case it is used for drinking purpose, they will take proper precautions.

- Water samples were collected for all the villages and sent to the RWS lab in Sircilla for water testing. It was found that the bore well water in Veernapally village was not fit for drinking purpose as it contains excess fluoride. WASSAN informed the villagers not use for drinking purposes on the same day. On 9thMay, WASSAN collected another water sample in Veernapally. It was found that the water is fit for drinking. WASSAN was supplying the same water from 9thMay onwards, from this well.



- WASSAN team had conducted village level campaigns on methods of water purification and safe water drinking with the support of RWS officers, GP representatives, SHG and Health department staff.

- It was agreed to take the water tank to different localities within the village so that there is no crowd at any place. Every designated family will get time to fill water, without having to quarrel with others. As per this plan, men and women are gathering near the designated places (one point for 10 households) to collect water.

- Rural Water Supply and Sanitation Department, Sircilla Division has given chlorine tablets for disinfecting the water. Chlorine tablets have been distributed in the colonies/hamlets. Primary Health Centre (PHC), Yellareddypet Mandal Medical Officer, supervisor, ANMs were also extended their support. PHC Officer advised the local ANMs and other staff to provide necessary support and ensure the chlorination process.

- WASSAN has formally communicated to concerned district officers about this initiative.

- The district and mandal level officers like, Dy.CEO, MPDO, RWS officers, Primary Health Centre (PHC) officer, Gram panchayat staff and representatives and SHGs have provided their support.

- WASSAN was updating the Dy. CEO and MPDO about the water supply on daily basis. Doordarshan (Yadgiri) team visited Veernapally village on 16th May and documented the water

- supply is one of the activity in Veernapally village adopted by Honorable MP, Karimnagar.

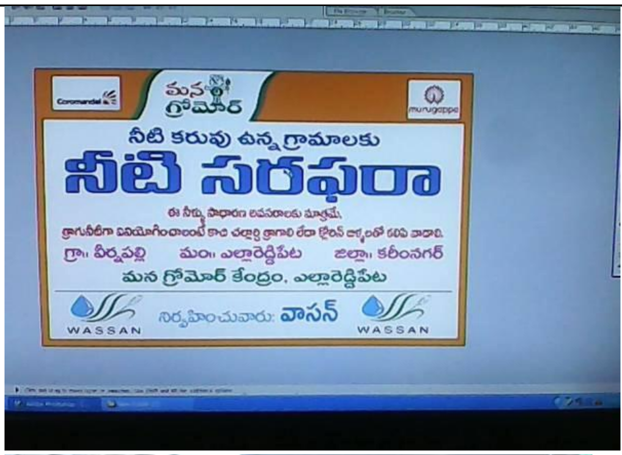
- Two local resource persons Mr. Raju and Mr. Srinu have been deployed to ensure the regular water supply on time as decided by the community in all the villages.

- Ms. Geeta, WASSAN has coordinated this project including field visit to colonies/hamlet/village, interaction with community, GP also updated MPDO.

- Sarpanches and village community requested to provide water supply up to 15th June as the monsoon is expected to receive after 7t June 2017. Based on this request, the water supply arrangements were extended up to 2nd week of June 2017. The project was formally concluded on 17th June 2016, after the arrival of monsoon.

- Gramp Panchayat representatives and many villagers particularly women expressed happiness and thanked WASSAN and other supporters of this initiative.

❑ PHOTOGRAPHS


Coromandel
మన గ్రోమోర్
murugappa
నీటి కరువు ఉన్న గ్రామాలకు
నీటి సరఫరా
గ్రా॥ వీర్నపల్లి మం॥ ఎల్లారెడ్డిపేట జిల్లా॥ కరీంనగర్
మన గ్రోమోర్ కేంద్రం, ఎల్లారెడ్డిపేట
WASSAN
నిర్వహించువారు: వాసన్
WASSAN


నీటి సరఫరా

DIGNITY AS BASIC NEED - EVOLVING SUPPORT SYSTEMS FOR SINGLE WOMEN

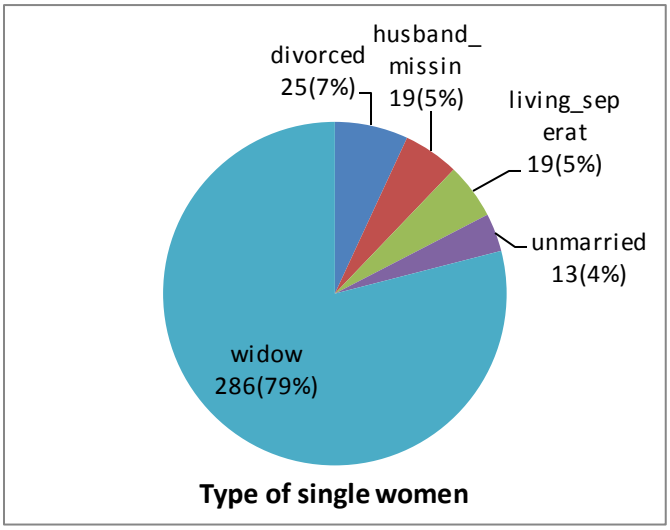
Women headed families are more vulnerable in the society. The issues faced by single women are also intensified because of the social stigma, the single women face. While implementing rural development or natural resource management programmes WASSAN learnt that single women are generally excluded It is important to develop an inclusive approach to strengthen livelihoods and social status of single women. The normal development programmes did not address the critical needs because their issues are so special hence deserve special approach. With this motto WASSAN tried to understand the issues in a detailed manner first.

❑ COMPREHENSIVE SURVEY OF SINGLE WOMEN:

WASSAN did not have adequate knowledge on issues of single women. Gramya is a resource center for women. Gramya is working for the betterment of women for a long period. WASSAN staff attended training programme at Gramya to get the basic orientation on single women issues, concerns, existing resources, success stories in supporting single women. WASSAN conducted the survey of single women in 11 villages/urban locations of Ranga Reddy and Karimnagar district to understand the dimensions of issues related to single women. The survey covered social, economical, livelihood, social security, disputes with the family/ in-laws, existing support from the society, etc. This survey was conducted in July/ Aug/ Sep 2016.

❑ FINDINGS OF SURVEY:

Women who are divorced, whose husband is missing for a longer period, who is unmarried and widows are considered as single women. This study is taken up using the mobile based kobotool box, an online survey tool. It is learnt that overall 9% of the total households are single women headed. From 4004 households in all the 11 villages/urban locations, 362 households are headed by single women. Out of these 362 households, 262 are widows, 13 are unmarried, 19 are living separate, 19 are husband missing and 25 are divorced. In rural or urban areas, number of women proceeding to the court for getting the divorce legally is very less. The legal status would solve several issues such as division of property, remarriage, etc.



Type of single women

❑ SOURCE OF LIVELIHOODS OF SINGLE WOMEN:

Single women also live in the same locality, more or less, where they have been living. Hence, they tend to choose the livelihood activity which doesn't force them to move to the distant place. Therefore, there is no much difference in the livelihoods of normal women and single women. The normal women would have support from their children or spouse, but single women don't. Hence, the single women are forced to work even their age and health doesn't help them to do a particular livelihood activity.

Agriculture	Daily labour	Govt job	Private job	Own enterprise	Lives tock	Pension	Other	No income	Beedi worker	Total
41	203	2	7	6	1	230	6	11	108	615

The above table tells that single women are largely depended on pension followed by daily labour work and beedi workers. The daily labour is provided from construction activity. Beedi making is an easy option for single women though they knew that it is very hazardous to the health as they left limited option.

- 78% of single women are members in SHGs
- Almost 30% of the single women are beedi workers as it is not safe for health
- 56% of single women also do daily labour
- 64% of single women are depending upon pensions. It doesn't mean that all of them are getting old age Pension.
- 11% of single women are doing agriculture for their livelihood

❑ SOCIAL SECURITY:

Depending on Children	Taking loans for consumption	Bank A/c	BPL Card	Antyodaya	Job Card	Total
0	199	344	270	84	217	362
0%	55%	95%	75%	23%	60%	100

Above table tells that none of them is depending upon children. Despite difficulty in getting livelihood, they are choosing to live independently. 95% of them have bank accounts in their name, but 55% of them take loan/debts for daily consumption. 60% of them have job cards. They all depend partly on NREGS for wage employment. But, not getting the job regularly and whenever they actually need it. Delayed payments and not giving the work are major issues. Social security measures are very important for single women. These measures help them to survive to some extent during the drought, difficulty and distress times. They undergo lot of psychological stress of living alone or without any family support. The financial needs worsen their situation to more vulnerability.

❑ LIVING PLACE:

Often disputes arise with in-laws or children on the death of spouse or parents of single women. Division of assets is a strong reason for several of such disputes but never came to the light as main reason for such frictions. The pending legal processes or not proceeding through the legal process, most often push single women to more vulnerable conditions. The situation may arise where the single women are pushed out of home. In such conditions these single women are left with very limited options. Such options would also have no basic facilities such as toilet, drinking water and electricity. Absence of such facilities also makes them prone to physical and sexual harassments.

Different place	In laws place	Maternal place	Total	Own House	Toilet Facility
34	164	164	362	208	258
9%	45%	45%	100%	57%	71%

- Only 45% of the total single women are living in in-laws place. About 45% are living in maternal place and 10% in other places. This is clear evidence that the reason for living away from the in-laws house is either property disputes with in-laws or poor support from them.
- About 57% of single women are living in own house, but about 29% do not have toilet facility.
- Drinking water is available with in the village. The difficulty in getting water is same as is for others.

❑ **CONFLICTS:** 23% of them are suffering from conflicts with relatives, 17% of them have threat of robbery as they are single women and do not have security, 9% of them felt that they are discriminated as they are single women. 53% of them felt that their livelihood is threatened by the climate.

❑ DISTRIBUTION OF SINGLE WOMEN AGE WISE:

Age is an important factor with the single women. They have different types of difficulties at every age. But, certain age would be more prone to particular type of issue. For example, age between 18 to 35 years would be more prone to sexual harassment and age of 36 to 45 years will have more responsibilities in terms of the health, education, marriage of their children.

Sl No	Type of Single Woman	Total	18 to 25 Years	26 to 35 years	36 to 45 years	46 to 55 years	56 to 65 years	Above 65 years
1	Divorced	25	2	8	9	3	2	1
2	Husband missing	19	3	7	7	2	0	0
3	Living separately	19	2	11	5	1	0	0
4	Unmarried	13	1	6	3	3	0	0
5	Widow	286	7	62	103	64	35	15
	Total	362	15	94	127	73	37	16
	%	100	4%	26%	35%	20%	10%	4%

- The above table tells us that more number of single women (35%) is in the age group of 36 to 45 years age, where many responsibilities on the parents are laid, such as education and marriage of their children.

- The next highest category of single women is between 26 to 35 years age groups. If we consider that the marriage age of girls is less than 20 years in majority of the cases, the age of 26 to 35 years is very crucial in having children, their health, care and education. About 26% of the total single women are in this category.
- About 20% of the single women are in the age group of 46 to 55 years. This is the period where they get their children married. Having a spouse living together would be a great support at this age to women.
- Overall, 172 of the total single women are widows in the age of less than 45 years, constituting 60% of the total widows.
- Overall 79% of the total single women are widows.

❑ DIFFERENT TYPES OF ISSUES:

As indicated in the previous sections, single women have many problems. These problems are categorized into basic facilities,

❑ BASIC FACILITIES:

Out of total 362 single women households surveyed, 132 single women headed households are facing basic issues such as drinking water, firewood/fuel problem, road connectivity problem and school issue for their children in the place where they are residing

Sl No	Basic Facilities	No of Single women
1	Drinking Water Problem	9
2	Firewood/Fuel Problem	42
3	Road Problem	37
4	School Issue for children	44
	Total	**132**

Sl No	Conflicts	No of Single women
1	Conflicts with neighbors	32
2	Conflicts with Relatives	82
	Total	**114**

❑ CONFLICTS:

Whatever is the reason could be, but out of total 362 single women surveyed, 114 single women have conflicts with their neighbors or relatives. This could be understood as part of social stigma and lack of support from the relatives and neighbors when actually they need it.

❑ THREATS:

About 275 single women have threat from different sources. The major threat is from the climate. But they feel unsecured from such threats including threat of robbery and wild animals.

❑ HARASSMENT:

About 16 single women have harassment related issue such as physical violence, verbal abuse and sexual harassment.

Sl No	Threats	No of Single women
1	Threat of Evacuation	2
2	Threat of Demolishing	0
3	Threat of Robbery	60
4	Threat from Wild Animals	21
5	Threat from Climate	192
	Total	**275**

Sl No	Sexual Harassment	No of Single women
1	Physical Violence	6
2	Verbal Harassment	5
3	Sexual Harassment	5
	Total	**16**

❑ SOCIAL STIGMA:

About 86 single women are facing acute social stigma. Single women need lot of inclusiveness in all types of social and cultural events and day to day family affairs. These single women are feeling discriminated from the society on themselves and on their children. 22 single women felt that they did not have freedom.

Sl No	Sexual Harassment	No of Single women
	Discrimination on children	26
2	Discrimination on you	33
3	No Freedom	22
4	Loneliness	5
	Total	**86**

Sl No	Sexual Harassment	No of Single women
1	House under Repair	35
2	Problem to pay Rent	1
	Total	**36**

❑ FINANCIAL ISSUES:

36 single women are facing financial issue. It doesn't mean that the other single women are well-off economically. But, for 36 members financial issue is the major issue compared to other issues.

❑ EFFORTS BY WASSAN:

- Organised village wise meetings with single women
- Facilitated Mushtipalle single women to get training in paper plates making. District Collector adapted this village and sanctioned paper plate making machine to this group.
- About 56 single women have undergone training on making of millet cookies. WASSAN is trying to link this group with marketing facility
- Facilitated single women to apply for getting single women pension to the Government. About 35 single women applied for this.
- In other villages, little support is provided in agriculture production systems for relief measures.
- WASSAN facilitated applications to the Government of Telangana to get benefit under single women pension scheme.

❑ FURTHER PLANS:

- Provide livelihood security: Identify potential single women, build their capacities so that they are able to earn at least 6000 Rs/month.
- Provide social security: Facilitate to get basic benefits such as own house, toilets, drinking water facility, PDS cards
- Counseling to relatives to reduce the threats and potential clashes. Enhance social support system from the relatives and neighbors
- Explore options/ strategies for integrating the agenda of single women in all mainstream programs of the country.

WASSAN intends to work on this agenda in a cohesive manner in rural and urban context. This study is a starting point. WASSAN intends to evolve various strategies for inclusive approaches for improving the social status and dignity of single women in the society.

"JECC is anchored by WASSAN and local NGOs. With the support of DistrictAdministration, JECC reached out to 4,02,158 adivasis covering more than 1000 villages. It won "Odisha Living Legend Award -2016. For exemplary social service"

PREVENTING DISEASES AND DISASTER IN TRIBAL REGION OF ODISHA

Malkangiri is southernmost district of Odisha. Geographical area is 5791 Sq kmdivided in to 7blocks and 108 panchayats.Total population of the district is 612727 (ST: 351889:57.43%, SC: 130817:21.35%). It has 1056 villages and 2569 habitations. Literacy rate is 49.49 % and has positive sex ratio of 1016 women per 1000 males. The district is part of the Eastern-Ghats characterized by undulating topography.

WASSAN is functioning as Secretariat for Orissa Tribal Empowerment and Livelihoods Project. As part of this project, WASSAN team and partner NGOs are engaged in developing the tribal villages with watershed and agriculture related actions. Improving basic facilities in the villages is one of the important component of this project.

❑ FIGHTING THE DEADLY DISEASE – COLLECTIVE ACTION FROM CIVIL SOCIETY GROUPS:

Japanese Encephalitis (JE) is one of deadly fevers that can lead to quick death. JE epidemic started in the month of September and rapidly spreadsince last week of September 2016. More than 33 children have died due to deadly Japanese Encephalitis (JE) and 70 children have died due to AES in Malkangiri in Sep to Nov 2017. More than 100 villages are affected by JE virus. Pigs are one of major carriers of JE virus through mosquitoes. Existing health services were not able to contain the outbreak due to lack of preparedness and grassroots penetration. Lack of awareness, resistance to sanitation practices, and rains also made the problem worse. District adopted four-pronged strategy focussing on Isolation of pigs, vector controland management of cases with administrative support.

❑ ESTABLISHING JE COORDINATION CENTRE – A COLLABORATIVE INITIATIVE BETWEEN CIVIL SOCIETY GROUPS AND DISTRICT ADMINISTRATION:

As this is a major crisis and needed a comprehensive effort in a coordinated manner with multiple stakeholders, a JE Coordination centre was formed to facilitate discussion and coordination between CSOs and Department of Health. Out of 4 challenges, vector control was the most difficult and most important issue. It consisted ofFogging, Larvicidal (BTI) Spraying,Indoor Residual Spray(IRS), Distribution of mosquito nets, distribution of mosquitorepellents and sanitation. Medical experts from state recommended extensive fogging as an effective short-term strategy against JE. Given the lack of machines, geographical spread, lack of mobile and road connectivity, complexity of managerial exercise it was a daunting task. An agile flexible unit was needed with support of government to ensure it is effective on the ground.In this context, A JE Coordination Centerwas established at ITDA Office in collaboration with District Administration for overseeing fogging operations, and fever surveillance. It was a voluntary effort to work with District Administration, NGOs, Farmer groups to spread awareness and combat JE Epidemic. Rajesh Tamadapally (PMRDF, Malkangiri) was the nodal person and in charge of JECC. It was anchored by WASSAN OTELP Consortium and supported by local NGOs on field level operations. NareshBabuKunche (PMRDF, Sukma), PiyushGoel (I DO, Sukma) and Ms MamtaSahoo(Bastar)provided strategicsupport.

❑ RESPONSIBILITIES OF JECC:

- Fogging Strategy and Day to day fogging operations
- Training and Capacity Building of para workers on fogging
- Technical support on fogging machines and on field support to para workers
- Long term strategy and data analysis
- Coordination with NGOs on fever surveillance and emergency on call support.

❑ ACHIEVEMENTS OF JE COORDINATION CENTRE:

- Reached out to 4,02,158 adivasis (85756 Households) in 1085 villages (some villages are repeated) in last two months through fogging , coordination centres for referring patients, fever surveillance, etc in Malkangiri.
- JE Coordination Center developed IEC material. 10000 copies were distributed by District Administration for dissemination of information.
- More than 100 para workers have been trained on operating fogging machines
- 6 local technicians were trained to repair the machines provide on field services.
- More than 100 critically ill childrenhave identified and referredto hospitals for emergency care by fogging team and sent to hospitals for emergency medical care.

- Coordination meetings were held with PRI members, NGOs, Sangathan, NSS, Red Cross for the increased coordination.
- Proving round the clock customer careand on call support for JEfor the district to ensure medical vans reach the critical area in time.
- It also collaborated with NGOs of Malkangiriin spreading the awareness about the Japanese Encephalitis. NGOs of Malkangiri have worked extensively conducting various awareness camps and campaigns to sensitize people about the JE epidemic.

❑ FUNCTIONING OF JE COORDINATION COMMITTEE:

- Coordination Centre is a voluntary effort to work with District Administration, NGOs, Farmergroups to spread awareness and combat JE Epidemic. Given the short-term needs of the situation JECoordination unitisfocused on Fogging operations andimprovingfeversurveillance coordination at grassroots.

- It has 5 teams
  - **Strategy Team:**Analyses the trends in JE occurrences and develops strategy and daily fogging operations plan.
  - **Operations Team:** Coordination workers on day-to-day basis for fogging.
  - **Technical Team:** Provide technical training on operation of fogging machines and provides on field support in time of breakdown.
  - **Finance Team:** Ensure all fogging operators are paid in time and relevant financial documentation is in place.
  - **Communication Team:** Ensures all calls are taken from citizens and redirected to concerned departments/ agencies for quick action.

- As part of the effort, JECC recruited and trained a cadre of 100 para workers and trained them on the fogging operations and JE management. District Administration is supporting the initiative with PMRDF providing the convergence with various line departments.
- JECC para workers are doing fogging in the effected villages and nearby areas in a cluster approach. Though District Collector is extremely cooperative and hard working there is always issues with speed. District Administration provided the support to village level workers and met the operations cost. Team members are working completely in voluntary capacity.

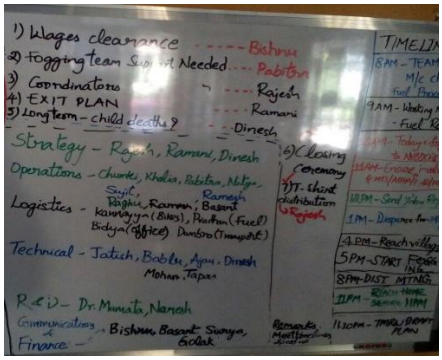
❑ PROCESS OF OPERATION IN DETAIL:

- Step 1: Strategy team works with Department of Health and analysis the medical data. Based on the data analysis, patterns are identified. Route maps are identified and management strategy is prepared before 9 AM. Strategy team is also responsible for training of new para workers.

- Step 2: Technical team ensures that all the machines are in working conditions and non-functional machines are identified. Technical team completes their work before 9 AM.

- Step 3: Based on the analysis and no of working machines, each day before 10 AM, JECC Strategy team prepares a list of villages where fogging should take place. All villages are segregated in to clusters based on proximity. This list is then shared with Department of Health and DRDA. DRDA and DoH allocates one nodal person for the villages from their side and communicates it to JECC by 1 PM.

- Step 4: JECC Operations team then calls the para workers from the nearby locations and provides them with machinery and village data. They also ensure that enough fuel is ready and available. They fill the buses or pickups or 4 wheelers and make logistics plan for the day. All form filling is completed by Operations team by 1 PM. Fogging paraworkers leave the JECC HQ with village list, route map, Monitoring Format and contact details of Nodal person for the village.



- Step 5: Fogging Para workers usually reach village around 4 – 4 30 PM. After reaching the village, they interact with ASHA and Anganwadi Workers. ASHA and Anganwadi workers mobilise the community. Para workers start the fogging around 5 30PM. Fogging Operations last for 5-7 Hrs depending on the no of households and distance between them. After completing the work, they get signed statement from RI/Nodal person on successful completion. They return to HQ and submit the format.

- Step 6: JECC Finance team ensures that all stock inventory is maintained. They also ensure that all bills and vouchers are maintained properly. JECC Finance team also makes payment to the para workers at the rate of Rs 300 per day based on submission of signed monitoring format. This monitoring format ensures that effective and quality fogging has happened. District Administration is funding all aspects except expenditure of JECC coordination team.

- Step 7: Communications team manages the helpline and attends calls. It coordinates with different departments in case of emergencies and dissemination of information.

GROUND WATER COLLECTIVIZATION -CRITICAL IRRIGATION AS BASIC NEED FOR RAIN-FED AGRICULTURE

Dream of all farmers is to have access to dependable water for irrigation. This is particularly true with farmers engaged with rain-fed farming in drought prone areas. Watershed development projects have demonstrated the recharge of groundwater resources could take place by watershed treatment. However, this is not sufficient for ensuring that all farmers get access to groundwater. Those farmers who have capital/ investment capacities are able to invest on bore wells and access augmented groundwater. This is leading to competitive digging of bore wells in all villages where watershed projects are implemented. Because of this unregulated process of exploiting groundwater, the augmented water resources are quickly exhausted and there is water scarcity in those villages, which were considered as successful models of watershed management, at one point of time. Can this process of groundwater exploitation be stopped? Can every farmer in the rain-fed regions/ watershed villages get access to groundwater? Can the benefits of watershed development projects be long lasting? These were the questions that bothered WASSAN for a long time.

WASSAN realised that access to water is a basic need for farmers in rain-fed regions of India. WASSAN experimented on groundwater management in several villages and evolved a protocol for participatory groundwater management in rural areas. Based on the efforts made by WASSAN and its partners, watershed projects funded by NABARD agreed to extend the pilots of groundwater sharing in selected watershed projects in Telangana.

As a follow up of these efforts, WASSAN motivated the decision makers of IGWDP/ NABARD to support one pilot per district to demonstrate the collectivization of groundwater resources in watershed project villages. NABARD/ IGWDP/ WDF teams agreed and supported four watershed committees in Telangana state.

Followed by this decision, WASSAN functioned as a resource support organization and supported partners and village watershed committees in executing this pilot. WASSAN followed this protocol for this.

- Motivated and mobilized the farmers with support of VWC.
- Potential sites are identified where there is scope of groundwater sharing/ people's contribution/ good yields of aquifer. WASSAN conducted this preliminary feasibility study with the support of trained resource persons.
- Based on this feasibility study, WASSAN developed a detailed project report in collaboration with local NGO partners.
- WASSAN and local NGO partners facilitated the complete process of planning and execution of the pilots. As part of this, bore well owners agreed to share groundwater with other farmers who do not have bore wells. WASSAN facilitated discussions between the bore well owners and farmers who do not have borewells. Based on these agreements, water sharing norms/ distribution protocols were decided.
- WASSAN organized series of meetings/ exposure visits and training programs for farmers in the selected villages to understand the entire process.
- After this process, the pilots were executed in the following sites.
- WASSAN continued to support these groups of farmers in the form of crop water budgeting exercises, supporting them in water sharing processes, shifting cropping pattern and so on.

- These pilots demonstrated the feasibility of groundwater sharing among farmers in watershed context. It also demonstrated that watershed projects could facilitate the process of equitable distribution of water to all farmers, irrespective of bore-well ownership.
- These pilots received considerable attention in the media, NGO circles and also within government/ NABARD circles.
- These pilots could be taken as role models for the Pradham Mantri Krishi Sinchayi Yojana.

NABARD provided Rs 23 Lakhs grant to five watershed committees of the respective villages for executing these pilots during the financial Year 2015-16. The work with these villages and support to these villages from WASSAN continued till Sep 2016. WASSAN provided necessary support to ensure that these watershed committees and water sharing groups are able to manage the system effectively.

❑ PHOTOSGRAPHS FOR GROUND WATER AND CROPWATER BUDGETING:

❑ WATER AS A BASIC NEED OR FARMERS IN WATERSHED VILLAGES:

DETAILS OF PILOTS UNDER NABARD FUNDED WATERSHED PROJECTS IN TELANGANA

S. No.	Location/ Village, District	No of Farmers with bore/ open wells	No. of farmers without bore well	Total Number of farmers in group	No. of acres	Crops grown	NABARD grant
1	Laxmipur	3	15	18	36	Vegetables, Maize, paddy	6.31 lakhs
2	Chintakarra	4	6	10	34	Millets, Onion, Vegetables, Pulses	2.41 lakhs
3	Shivaru Venkatapur	5	10	15	44	Vegetables, Paddy, cotton, Maize	6.53 lakhs
4	Azmeer thanda	7	12	19	69	Red gram, cotton, Maize	4.83 lakhs
5	Vusthafa gudem	6	4	10	27	Red gram cotton maize vegetables	3.23 lakhs

IMPROVING COOPERATION AMONG FARMERS:

COOPERATION FOR SHARING WATER RESOURCES:

WASSAN has been providing support and guidance to the water sharing groups to sustain the activity in the post project period.

Sl. No	Location/ village	Waters sharing group	No. of farmers	No. of acrs	Crops grown	WASSAN
1	Laxmipur	Maheswari Ummadi neeti yajamanya sangam	18	36	vegetables, Maize, paddy	Motivated and mobilized the farmers with support of VWC. NABARD funded for infrastructure during project period. WASSAN is providing support during post project period to sustain the activity by Conducting crop water budget plans, meetings with farmer groups, resolving issues among the group
2	*Chintakarra*	Hanmanthababa Neeti Yajamanya Sangam	10	34	Millets, Onion, vegetable, Jowar, Pulses	WASSAN is providing support during post project period to sustain the activity by Conducting crop water budget plans, meetings with farmer groups as and when required. SISS NGO and Cooperatives are following the suggestions and supporting WASSAN.
3	Shivaru Venkatapur	water sharing group	15	44	Vegetables, Paddy, cotton, maize	WASSAN is visiting field sites, interacting with farmers to continue the activity during post project. Conducted crop water budgeting plans every year
4	Azmeer thanda	water sharing group	19	69	Redgram cotton maize	WASSAN is visiting field sites, interacting with farmers to continue the activity during post project. Crop water plans
5	Vusthafa gudem	water sharing group	10	27	Redgram cotton maize Vegetables	WASSAN is visiting field sites, interacting with farmers to continue the activity during post project. Crop water plans.

❑ IMPROVING COOPERATION AMONG FARMERS:

Most of the Indian farmers are dependent on monsoon for their agriculture. There are several odds against these farmers and the distress in agriculture is only increasing with time. Watershed management projects and other public investments would make effective contribution to address this issue, only when farmers are organized into institutions of collective action. WASSAN is engaged with developing cooperation among farmers for a long period. During the year 2016-17, WASSAN formally developed partnerships with selected cooperatives in the country – Telangana and Andhra Pradesh states. WASSAN provided a variety of support services to these cooperatives and strengthened them. This section of the report provides a glimpse of these efforts.

- **Cooperatives from Watershed Management Projects**
  a. Cooperatives from IWMP Villages
  b. Cooperatives from NABARD WDF Projects

- **Cooperatives for Rain-Fed Agriculture**
  a. Watershed SAGY Villages
  b. Cooperatives for Rain-fed Farming (Vikarabad and Anantapur)
  c. Cooperation for Seed Security – Community Managed Seed System
  d. Cooperation for Agricultural Diversification – Reviving Millets
  e. Cooperation for Nutrition – Backyard Poultry

❑ COOPERATIVES FROM WATERSHED MANAGEMENT PROJECTS:

Watershed Management projects aim at reviving natural resource base of the village – land, water and biomass. It is expected that the improved natural assets would support the production purposes more effectively (such as agriculture and so on). When these resources are collectively accessed, utilized and managed by cooperatives of farmers, there is a better chance of sustaining the benefits from natural resources/ assets in the villages. WASSAN's main aim is to demonstrate the sustainability/ continuity of benefits of watershed management projects by collective action of farmer's cooperatives. Given this background, WASSAN decided to work with cooperatives of farmers that emerged from watershed management projects supported by Government of India (IWMP) and NABARD funded watershed management projects. During 2016-17, WASSAN has evolved clear streams of action on this agenda.

❑ EXPERIENCES OF WORKING WITH COOPERATIVES FROM IWMP PARIGI/ DOMA:

- WASSAN is implementing Integrated Watershed Management Projects (IWMP) in Parigi/ Doma mandals, Vikarabad. WASSAN was organizing user groups of farmers and encouraged them to save money regularly. Based on this

experience, WASSAN motivated farmers to establish two cooperatives at Parigi and Doma mandals.

- Cooperative in Parigi has 200 members with a share capital of Rs 95000/-. These members emerged from smaller groups at village level. These groups have Rs 150000 as savings. These members are able to use this savings regularly for credit/ internal lending purpose.
- Cooperative in Doma Mandal has 350 farmers with a share capital of Rs 250000/-. They also have savings within the smaller groups (at village level) to an extent of Rs 350000/-. This savings amount is used for internal lending.
- These two cooperatives are not yet linked to any financial institution for credit/ any other financial support so far. WASSAN will facilitate this process in due course of time, based on the maturity of these cooperatives.
- At present, these cooperatives are engaged in procurement of inputs for the agricultural purposes.
- During Kharif/ Rabi season (2016-17), the members of these two cooperatives are engaged in production of seeds for millets in their land. They are also selling the millets and seeds of millets.
- WASSAN is able to channel all government schemes (Silt application; boulder removal, farm ponds, etc) to the members of cooperatives on priority basis.
- During 2016-17, the members of cooperative prepared and sold 1000 lts of concoctions as part of promoting chemical pesticide free agriculture in the villages.

❑ EXPERIENCES OF WORKING WITH COOPERATIVES UNDER NABARD FUNDED WATERSHED PROJECTS:

- During the execution of watershed development projects funded by NABARD, Project Facilitating Agencies established six cooperatives in Kumaram Bheem Asifabad district (3 Nos) and Bhadradi Kothagudem districts (3 Nos).
- Though these cooperative were established in 2014, the functioning of these cooperatives is still in nascent stage. About 4% to 35% of farmers in these villages are part of these cooperatives. The facilitating agencies (NGOs) could not continue their association with these cooperatives. These cooperatives requested WASSAN to support them in their affairs. Based on this request, WASSAN agreed to collaborate with these cooperatives.
- Facilitating agencies made limited efforts while forming these cooperatives. There are several challenges in this agenda now –such as limited membership of the farmers; low share capital and unpaid dues/ loans, etc. WASSAN is about to work with these cooperatives to sort out these issues and strengthen these cooperatives as institutions. Given this background, WASSAN is expected to strengthen the watershed committees in these villages.
- There are several opportunities to demonstrate a new model of development in these villages. During 2016-17, WASSAN conducted field visits and interacted

with the field level functionaries/ NABARD officers to understanding the field level situation.

- The cooperatives and watershed committees have a variety of funds with them. These two institutions should have a common understanding on the roles/ responsibilities of each institution and how they want to work with each other. WASSAN is in the process of developing these protocols.
- At present, Watershed Committees have maintenance fund and livelihoods fund with them. Watershed committees are giving loans to cooperatives and to others (individuals) and recovering these loans. There are outstanding loans at watershed committees.
- Cooperatives have share capital and money borrowed from watershed committees. The cooperatives are able to give this amount as loan to its members and recover the same. However, they did not return to watershed committee.

❑ WASSAN INTERACTED WITH THESE MEMBERS AND FACILITATED THE FOLLOWING EVENTS FOR WATERSHED COMMITTEES AND WATERSHED BASED COOPERATIVES

- Conducted crop water budgeting
- Conducted training programs for watershed committees on maintenance and management of water harvesting structures with sharamdan.
- Encouraged farmers to grow vegetables, cashew, pulses, millet and follow low external input based agriculture by purchasing concoctions from women SHGs for pest management
- Facilitated events for vaccination of livestock
- Encouraged construction of composting units to farmers through MGNREGS
- Motivated farmers to transport the silt from nearby tanks during the excavation under Mission Kakatiya.
- Conducted orientation for MACS members,
- Conducted cluster meetings with cooperative members and watershed committee members.
- Encouraged cooperative members for bulk purchase of seeds and fertilizers
- Providing support for financial management, repayment of Livelihood funds (outstanding dues) given from VWC.

DETAILS OF COOPERATIVES UNDER NABARD FUNDED WATERSHED PROJECT VILLAGES

S No	Name of Cooperative	No. of members	Share capital with Cooperative	Maintenance Fund with WC	Livelihoods Fund Released from NABARD to Watershed Committee	Money Borrowed by Cooperative from WC	Bank Balance at WC	Outstanding Livelihoods Funds at WC level
1	Koutaguda Asifabad (Kumarm Bheem Asifabad)	150	112800	755000	1468000	302000	234000	932000
2	Ringanguda Asifabad (Kumarm Bheem Asifabad)	90	32000	1036000	1663000	400000	93500	328000
3	Wavudam Asifabad (Kumarm Bheem Asifabad)	75	38400	1623000	2036000	260000	123000	546000
4	Jagannadapuram Aswaraopet (Bhadradri Kothagudem)	35	10000	394000	1064000	379000	65800	619200
5	Mallaigudem Aswaraopet (Bhadradri Kothagudem)	69	45000	608000	1287000	762000	7713	517287
6	Gandlagudem Aswaraopet (Bhadradri Kothagudem)	24	0	519000	953000	0	48456	904544

❑ COOPERATIVES OF RAIN-FED AGRICULTURE FARMERS:

Farmers in rain-fed farming situations face considerable uncertainties and risks. The institutions of farmer under rain-fed farming conditions supports them to overcome the distress and help them from collective action. WASSAN is supportive various cooperatives of farmers who are in rain-fed conditions for a long period. During the year 2016-17, WASSAN made advancements on this agenda. The following are the high lights of this experience.

❑ COOPERATIVE FROM SAGY VILLAGE - VEERNAPALLY MUTUALLY AIDED COOPERATIVE SOCIETY:

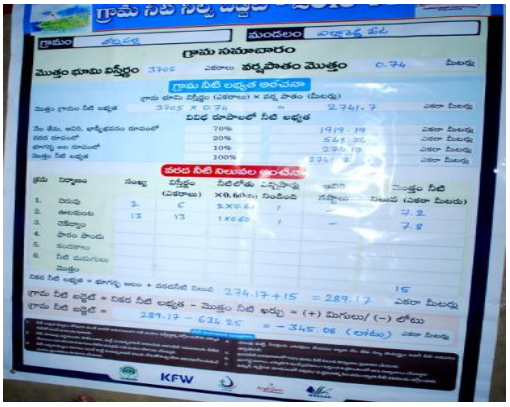
WASSAN is actively engaged with Veernapally (Yellareddypet mandal, Rajanna-Sircilla Dist), which is identified as “Pradhan Mantri Samsad Aadarsh Gram Yojana”. This village is recognized as one of the most happening villages under this scheme in the country. One of the important achievements of this village is Veernapally Mutually Aided Cooperative Society. WASSAN is actively engaged in promoting and nurturing this cooperative.

WASSAN has conducted series of meetings and organized an exposure visit to best cooperative in the district with the support of Department of Agriculture. After these initial efforts, “Veernapally Mutually Aided Cooperative Society is established with 83 farmers with Rs.91,000 share capital. Veernapally MACS got registered in 2015. VMACS established aAgri Business Information Shop in May 2016 to supply agri inputs and seeds etc for farmers in the village. The cooperative borrowed Rs.1.0 lakh from a borrower for 2 months. The

cooperative used this money for purchasing inputs at bulk prices and distributed to the members. So far the MACS has transacted R.6.8 lakhs business and earned Rs.35000/- profit on the purchasing of seeds, fertilizers and other agri inputs. WASSAN organized workshops/ orientation programs/ training programs for the cooperative members/ directors for developing business plan for coming three years. As part of this plan, the directors agreed to increase the membership base and share capital.

- WASSAN supported the cooperative to access schemes of Department of Agriculture/ other departments (Farm mechanization unit and construction of water harvesting structure under NFSM). With the support of AO, Department of Agriculture and WASSAN, MACS members identified progressive farmers for organic farming under PKVY. WASSAN carried out an exposure visit to Gangidevipally MACS with the support of agriculture department.

- Crop water budgeting exercise was conducted in the village. About 200 farmers participated in the planning process. Total available water resources are 289.17 ac meters through various resources. Water requirement/demand for Livestock/Human/ Crop etc 634.25 ac meters. Negative balance is 345.08 ac meters. Villagers agreed to reduce the area under paddy, which a water guzzling crop. Pulses (Redgram and Green gram) cultivation has been increased and after the crop water budget plan.



- WASSAN provided financial assistance to cooperative for purchasing of pulses and millets seeds during 2016-17. About 205 kg of seeds (Redgram, green gram, black gram, Cowpee, Finger millet, Foxtail millet and Jowar) have been distributed as a loan through Mana Vittana Kendram (MVK) to 54 farmers for 80 ac (solo and inter crop). After the harvest the farmers agreed to return the 1:2 ratio of seeds. As a result of this initiative, the cropping pattern in the village changed towards lesswater consuming crops in the village.

Cropping pattern: SAGY village			
Before		**After**	
Crops grown	**In ac**	**Crops grown**	**In ac**
Cotton	522	Cotton	368
Paddy	295	Paddy	55
Maize	10	Maize	380
Pulses	20	Pulses and Millets	125
Vegetable	5	Vegetable	12
Organic farming	0	Organic farming	50

- Haritha haram is a flagship program of Government of Telangana, WASSAN and Veernaplly farmers cooperative society planted 1000 plants in the village in 2016.

Haritha Haram Program

❑ CLIMATE / FARMER INFORMATION CENTRE :

- Access to and availability of information, knowledge and technology at farmers' doorstep are prerequisite for sustainable management of natural resources and livelihood promotion. In this backdrop, WASSAN supported the Cooperative in Veernalpally village to establish "Climate Information Centre (CLIC)" in the village. The software of this center is developed by WASSAN. This center provides necessary information about crops and crop management to the farmers in the village. About 100 farmers are getting weather bulletin through SMS in the local language. This initiative was well appreciated by Honorable Minister (Rural Development) Government of Telangana and Member of Parliament (Vikarabad) and senior government officers from GoI/ GoTelangana in July 2016.

	
Honorable Minister for IT Shri. K.T.Rama Rao, Hon'ble MP Shri. Vinod Kumar Shri. Patak, SAGY Director, District Collector Smt. Nitu Prasad visited CLIC centre on 28th July 2016	CLIC centre and Farmer Information centre and Rainguage

EXPERIENCES OF WORKING WITH ANNA DAATA IN ANANTAPURAM DISTRICT, ANDHRA PRADESH:

In Anantapuram district (Andhra Pradesh), WASSAN established a cooperative of farmers - Annadaata Cooperative. This cooperative has 1930 members from Gandtlapenta and Nallacheruvu mandals. Majority of farmers paid Rs 100/- as share capital and the total share capital is Rs 232000/-. While the institutional processes are being strengthened through a variety of interventions, the farmers of these cooperatives are engaged in the following activities that improve their agriculture. These efforts mainly focused on reduction in cost of cultivation and improving resilience of agriculture.

- The members of these cooperatives follow non-pesticide management of crops. To establish their credentials, these farmers follow rigorous participatory guarantee system. They document the protocols of pest management without using chemical pesticides and maintain necessary records. These records act as proof of their collective action towards reducing cost of cultivation and practicing environmentally friendly cropping systems.
- The members of these cooperatives are at the forefront of recent transformation in the district – a decisive shift from mono cropping system to diversified cropping systems. These farmers are cultivating millets and following "Navadhanya" method of cultivating crops in 4000 acres of land. These methods of cultivation are rooted in traditional practices and considered to be harmonious with nature as they consume less water and need little external inputs. These cropping systems are helping the farmers to develop resilience in agriculture in the advent of climate change and regular droughts/ monsoon failures in Anantapuram district. WASAN is strengthening these efforts by proving guidance, technical support/ advice; training programs and linking them with government schemes.
- WASSAN is in the process of developing group/ village level savings systems for these cooperative members. In due course of time, WASSAN intends to link these cooperatives with mainstream banks/ other financial institutions.

❑ COOPERATION FOR SEED SECURITY – COMMUNITY MANAGED SEED SYSTEM:

During 2016-17, WASSAN supported 90 Mana Vittana Kendraalu in Anantapuram District through a network of 20 NGOs; 22 Mandal Mahila Samkhyas in 43 mandals of the district. The main purpose of this initiative is ensure seed security for groundnut farmers in the district. This initiative is taken up in partnership with Department of Agriculture, Government of Andhra Pradesh. As part of this initiative, WASSAN is able to establish 90 Mana Vittana Kendraalu (Our Seed Centers) which function as nerve center of production, procurement and distribution of good quality groundnut seeds.

In this arrangement – 11680 seed-producing farmers are identified well in advance for each season. These farmers produced good quality of seeds (in 14150 acres) under the supervision of local leaders, department of agriculture officers and local NGOs. The seed produced by these farmers are certified by Mana Vittana Kendraalu after due diligence by local KVK; officers of Department of Agriculture and community leaders. During this process, the local committees ensure that the seed is produced with high quality and other necessary systems of seed production are followed. These

MVK clean these seeds; pack them and supply to various farmer, as per the demand. Farmers make payment to Mana Vittana Kendraalu and procure these seeds, after getting satisfied with the quality of seeds. As most of these farmers are already witnessing the production process in their village, they are very sure that the quality of seed is high at Mana VittanaKendraaalu. Based on the payments to Mana VIttana Kendraalu, the farmers receive seed subsidy from Department of Agriculture, Government of Andhra Pradesh.

Department of Agriculture was initially procuring groundnut seeds from other states. There were concerns related to quality and timely availability of seeds. WASSAN' s partnership with Department of Agriculture; local NGOs and Mana Vittana Kendraalu established a new method of production, procurement and distribution of good quality seeds to farmers at affordable prices. The community based institutions – Mana Vittana Kendraalu are able to solve an important problem through this system.

During the year 2016-17, these MVKs are also engaged in supplying local variety of seeds that promote diversity in agriculture (through Nava Dhanya system). It is estimated that about 50000+ farmers would procure 80000 kits (seeds of nine variety of crops) from Mana Vittana Kendraalu for Kharif 2017. This means a decisive shift towards diversity from mono cropping systems to diversified crops in Ananatapuram district.

At present, the community managed seed system is expected to serve 80000 farmers for the Kharif in 2017 (for both groundnut/ Navadhanya). However, it is likely that the system would reach out to at least 50000 farmers in 43 mandals of the district for groundnut seeds. Each farmer is given a 1 Quintal of seed.

During Nov 2016, the Department of Agriculture, GoAP agreed to extend this system to Chittoor district also. During this period, seed producing farmers are identified and the process is initiated for next Kharif season (2017) in Chittoor.

❑ COOPERATION FOR AGRICULTURAL DIVERSIFICATION – REVIVING MILLETS:

One of the important concerns in agriculture is mono cropping. Because of mono cropping system, soils are degrading; productivity is reducing and pest attacks are becoming unmanageable. The cost of cultivation is also increasing leading distress in agriculture. It is important to stop this trend and reverse the same, by promoting diversity in agriculture. WASSAN is collaborating with large number of agencies (Department of Agriculture; KVKs; research institutions; NGOs and community-based organizations) for promoting diversified cropping systems in the rain-fed conditions. These are mainly in the form of – Navadhanya System of Agric
ulture in Anantapuram and Revival of Millets in North Coastal Andhra Pradesh/ Rayalaseema.

During the year 2016-17, WASSAN functioned as Lead Technical Agency for promoting millets in North Coastal Andhra Pradesh. As part of this initiative, WASSAN collaborated with 32 NGOs in 44 mandals (16 mandals in north-coastal district and 28 mandals Rayalaseema). Together with these partners, WASSAN is able to promote cultivation of millets in 44000 acres by 50000 farmers (approx). As part of this initiative, Ragi (Finger Millet); Korra (Foxtail Millet); Sama (Little Miltet); Jowar (Sorghum); Bajra (Pearl Millet) are promoted. Other millets (Oodalu/ Arkalu/ Variga) are also

cultivated on a small scale. Ragi is one of the major millets that is cultivated by large number of farmers under this initiative.

During the 2016-17, production of millets increased substantially in the project villages. To support the farmers in marketing, Markfed; GCC and local FPOs procured the Ragi from farmers. The Markfed announced a minimum procurement price (25 Rs/Kg of Ragi) for Ragi crop. This helped to create better price for Ragi crop. Other traders also procured Ragi at 23 to 25 Rs/ Kg from farmers, which was much higher than the previous year's prices. The millet farmers immensely benefited from this better price for Ragi.

One of the important achievements of this year 2016-17 (which is second year of the initiative) is to attain self-sufficiency in millets seeds (up to 70% of total requirement) at local level. During the first year of the project, majority of the seed was supplied from outside the village, as part of the project initiatives.

WASSAN and its partners are engaged in creating awareness on promoting millets and in improving the productivity/ agronomy practices in millet cultivation. As part of this initiative, partner NGOs are establishing custom hire centers at village level. Local institutions / entrepreneurs operate these centers/ equipment's. These centers have necessary tools/ equipment for better agronomical practices, particularly for ragi cultivation. As part of this initiative, WASSAN and its partners promoted System of Root (Ragi) Intensification method for cultivating Ragi. A technical committee assessed the results of this process in 44 sites in Srikakulam district (through crop cutting method). These results indicate that the minimum yield for Ragi crop is 6 Quitals/ Acre and highest yield is 14 Quintal/ Acre, under SRI method of Ragi cultivation. When compared to normal yields of Ragi (3.5 quintal/ acres under normal method of cultivation), this is spectacularly high. With better agronomy practices and support of equipment (marker/ weeder and transplantation protocols), farmers could almost double the yields of ragi crop.

It is necessary to establish processing units at local level and cluster level for increasing the availability of processed millets for consumption. At present, there are hardly any processing facilities for millets at local/ cluster level. Considering this gap in the value chain, WASSAN and its partners are in the process of establishing basic processing facilities at village level (Eg: Pulverizers) and advanced processing facilities at cluster level. For this process, WASSAN and its partners completed the basic preparatory work – identification of entrepreneurs; identification of appropriate processing machines; identification of vendors/ suppliers; constituting the technical committee for procurement; and organizing the meetings of these committees, etc. Once this process is completed, the partners should be able to establish processing facilities at local/ cluster level. The cluster level facilities are expected to process millets – 2 Quintal/ hour. Project aims to establish about 320 village level pulverizers in due course of time.

This initiative is creating a wave in the food habits of rural and urban habitations. By the end of this project, it is likely that millets become part of fields and food in majority of villages. The efforts made by WASSAN an
d its partners during 2016-17 are able to establish a stable path towards this goal.

COOPERATION FOR NUTRITIOUS FOOD – BACKYARD POULTRY:

Food security has to be defined and understood as nutritional security. It is important to realize that most of Indian children and women suffer from malnutrition. This is cause of concern for the country. Improving quality of food in terms of nutrition is a priority for the country. Considering this, WASSAN was engaged with food production processes in various forms (Eg: Reviving Millets). Backyard Poultry is an important option for tribal population as this has high potential of adaption in these regions. As tribal regions are increasingly being exposed to broiler chicken, the local breeds of chicken are slowly disappearing from the landscapes. The policy and program support for poultry sector is also biased towards broiler chicken and there is hardly any space/ support for growing desi/ local backyard poultry. WASSAN piloted in few localities in Srikakulam district with partner NGO –CAVS on the feasibility of nurturing backyard poultry farms. This pilot could demonstrate the protocols of promoting backyard poultry (of desi variety) by dividing the production into two or three stages. The pilot provided different support at each stage so that the critical issues of that particular stage are addressed systematically.

This pilot paved path for a bigger project, which was formally approved by Department of Animal Husbandry, Government of Andhra Pradesh. This pilots is being implemented in 129 clusters of five districts of Andhra Pradesh. WASSAN is functioning as lead technical agency for this initiative. 12 NGOs are partners of this initiative.

Sl	Name of the District (ITDA)	Name of Mandal	Name of Field Partner	No of Clusters
1	Visakhapatnam (Paderu)	Paderu, Pedabayalu, Dumbriguda, Hukumpeta, Aaraku, G Madugula	SMILE, Laya, Sanjeevini, Vikasa & Jeevam	50
2	Srikakulam (Seethampeta)	Seethampeta, Hiramandalam, Kothuru	ARTS & CAVS	20
3	Vizianagarm (Parvathipuram)	Pachipenta, G Laxmipuram	AASRA & SMART	20
4	East Godavari (RC Varam)	Addateegala, Y. Ramavaram, Gangavaram	LAYA & Girijana Deepika	29
5	West Godavari (KR Puram)	Kuknuru	CHESTD	10
	Total			**129**

After selection of partner agencies, WASSNA team developed a protocol of launching the project in the selected clusters. The following process is being followed in these clusters.

- Baseline Data
- Formation of Common Interest Group
- Opening of Poultry Fund A/c
- Identification of Vaccinators
- Training of Vaccinators
- Vaccination Services
- Identification of Potential Breed Farm Entrepreneur
- Check list for selection of Breed Farm Entrepreneur
- Technical Verification of Breed Farm Entrepreneur
- Deposit contribution in Poultry Fund
- Layout of Night Shelter
- Construction of Night Shelter
- Technical Supervision of Night Shelter
- Data collections from Breed Farm Enterprise
- Uploading data to dash board/ project review

In this initiative, the production of backyard poultry is divided into two stages. During first stage is about production of chicks (up to 45 days age). This is taken care of by an entrepreneur. This entrepreneur is carefully selected, based on commonly agreed criteria. This entrepreneur is supported with subsidized infrastructure (night shelter/ fencing arrangement that allows free gazing of chicks). The entrepreneur feeds the chicks and takes care of them up to 45 days. After this period, s/he will sell these chicks to interested backyard poultry farmer.

The second stage begins from here. The farmers (largely women) who are interested in backyard poultry are already organized into common interest group. They would have a bank account too. Each member will deposit 200 towards vaccination services. After purchasing the chicks (45 days old chicks from the entrepreneur), hese farmers rear them at home. They also construct a night shelter for protecting the chicks during the nights and from predators. The farmers feed these chicks and ensure that they get proper feed. After few months, these farmers could sell them and consume them. They also regularly sell the remaining eggs after consumption at home. Each farmer gets a blue card. The details of the chicks (number of chicks; live/ dead; sold/ consumed; details of vaccination, feed, income from sales, etc) are recorded on this blue card.



This data base is collected by comunity worker and shared to the common web site through a specially designed APP (Kototool Box). The data base of this project is available to all partners and the web site operates as a common resource center for all the data needs.

A cadre of local health workers are trained for providing vaccination services. Based on the pre-determined calendar, these local experts offer vaccination services to all desi birds/ chicks. The farmers already paid 200 Rs as deposit. This deposit is used for payment of these vaccination services.

During the year 2016-17, this entire project management systems are established and each cluster is having its own entrepreneur, trained vaccination workers and 100 farmers with necessary infrastructure/ support service providers. The cycle of desi-birds is expected to continuously run without break, even after the project period. The monitoring system ensures that all actions are tracked and results are consolidated on day to day basis.