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Introduction

Krishnapudur is a Sri Lankan/Tamil settlement in the outskirts of the Kotagiri town. The village is divided into 2 parts by a stream running across. The community still live in government houses provided during the late 1970's which is now in a very bad shapes. The village is one among the vulnerable villages notified by the government for landslides and flooding. The general hygiene in the village is a concern with direct exposure of the community members towards the contaminants. The open drains are clogged with food and other waste which becomes a breeding ground for mosquitoes and diseases, at the same time attracts wildlife into the village causing unwanted interactions. Space is another major concern as the families have grown in size but have no space for moving out or building new houses. This is highlighted in all our community engagement meetings, that the houses are in a very bad shape and during rainy season there is leakages and some houses close to the stream are affected due to rise in water level which enter their houses.

These issues are prioritised and highlighted more in our meetings along with the issue of contaminated water which they believe is a reason for many illnesses among the villagers in general. Access to clean water has been an issue in the past 2 decades as per key people in the village. The wells are set up on the banks of the stream, and as the stream water is polluted by various developmental activities around the Pandian park area and the coarsely stream area it has affected the villages drinking water supply. The village has 4 wells as of date and only one well is free from contamination say the villagers.

1. **Village Profile**

Village Name	Krishna Pudhur
Panchayat	Kotagiri town panchayat
No. of households	150 - 160

Population	780~
Community	Sri Lankan Tamil and Mixed Communities
Institutions in the village (if any)	Angan vadi, Youth group, Women Self Help Groups
Private toilets	19 households
Public toilet	OD- 131 households

2. Water supply and Demand

Village Name	**Krishna Pudhur**	
Seasons	**Monsoon**	**Summer (in liters)**
Average daily water demand of the village (Liters per day)	55,275,	63,750
Average daily water supply in the village (Liters per day)	60,000	53,000
Average daily shortfall/surplus in water supply in the village (Liters per day)	4725	10750

3. Water Storage facilities

3(a).Water Storage facilities in a household in the village

Households harvesting rain water at home	No
Average water storage capacity in a household (in litres)	410 litres
Maximum storage capacity in a household (in litres)	370 litres

(b). Water Storage facilities in the village

Krishna Pudhur : Village Ground Level Reservoirs – 3

GLR 1 – Filled with mud	Defunct	Not used anymore

GLR 2 – Other side of the stream	30000	Connected to 80 houses~ (leakage and not maintained)
GLR 3 – Close to the temple and road	30000	Connected to 80 houses~ (leakage and not maintained)

3. Water Resources

S No.	Name of the village	Type of resource (Spring/Open well/wetland/stream)	Dimensions of the water resource in m	Seasonality	Spring shed/catchment area (Acres)	Land ownership	Land-use pattern of the watershed area	Geology of the watershed area
1	Krishna pudhur	Open Well 1	2*3.25*3.7 1.95*3.8*3.95	Perennial	529	Panchayat	Tea estate, vegetable farming, settlements	Highly weathered Saprolitic layer on the road cuts with thin lateritic soil layer. Clayey soil in the valley close to stream.
2	Krishna pudhur	Open Well 2	??	Perennial	529	Panchayat	Tea estate, vegetable farming, settlements	Highly weathered Saprolitic layer on the road cuts with thin lateritic soil layer. Clayey soil in the valley close to stream.
3	Krishna pudhur	Open Well 3	??	Perennial	529	Panchayat	Tea estate, vegetable farming, settlements	Highly weathered Saprolitic layer on the road cuts with thin lateritic soil layer. Clayey soil in the valley close to stream.
4	Krishna pudhur	Open Well 4	??	Perennial	529	Pudu Kotagiri / handed over to panchayat	Tea estate, vegetable farming, settlements	Highly weathered Saprolitic layer on the road cuts with thin lateritic soil layer. Clayey soil in the valley close to stream.

S No.	Name of the village	Type of resource (Spring/Open well/wetland/Bore well/stream)	Users of the water from this resource (People/Wildlife/School/Anganwadi/PHC/resort/private estate/community toilet etc.) List all	How is the water delivered from the source? Describe	Which storage infrastructure is used?	State of sanitation near the source (toilet, waste dumps, OD, etc.)	Water Quality issues (in different seasons)	Other issues (In different seasons)	Long term prospect (Will it remain perennial)
1	Krishna Pudhur	Open Well 1	Community, Anganwadi	Pipeline	No storage. Fetching and headloads	Open defecation	Yes	Yes- water turns muddy during monsoon	Will remain perennial. But issues of Water quality needs to be addressed
2	Krishna Pudhur	Open Well 2	Check community	Pipeline	To GLR 1	Open	Yes	Drainage flow	Will remain perennial. But

			toilet connection			defecation		into the well	issues of Water quality needs to be addressed
3	Krishna Pudhur	Open Well 3	Community	Pipeline	Direct supply	Open defecation	Yes	Drainage flow into the well	Will remain perennial. But issues of Water quality needs to be addressed
4	Krishna Pudhur	Open Well 4	Community	Pipeline	Direct supply	Open defecation	Yes	Drainage flow into the well	Will remain perennial. But issues of Water quality needs to be addressed

6. Discussions and Interventions

The discussions with the Community started with the NFLC research project to understand the Water systems and Sanitation situation in the village in the year 2018. Out of the 3 villages chosen for the study Krishnapudhur village was found to be more vulnerable in all aspects. The community spent a lot of time explaining issues faced by them in all aspects in their daily life.

The issues highlighted time and again were the

- Issue of water quality in their drinking water wells,
- Health issues among all age groups like diarrhoea, and water borne diseases due to the bad quality of water used for drinking and other uses
- Leaks in the storage infrastructure,
- Most of their houses are in a damaged state and are difficult to live in,
- Vulnerable to landslides and flooding during rainy season,
- No individual toilets in the village and most people take to open defecation around the roads,
- The community toilet complex is not maintained and the septic tank is full which makes it difficult to use, (No road access to empty the septic tank, another pit needs to be dug up and the sludge to be emptied into it.
- Issue of wildlife interaction in the OD sites around the village
- Solid waste dumped all around the village.

The main priority for the village is:

1. Cleaning up of the open wells and stream to improve the quality of water that they use.
2. A pit to be dug to empty the sludge and ensuring availability of water in the community toilet and making it easy to access.

3. A partition wall to be built to divide the Community toilet complex separately for men and women. Doors to be installed in the children's toilet to be useful for women.
4. Ensuring household segregation of waste and setting up waste bins for easy disposal and collection.
5. Creating awareness among the people about how the waste they dispose into the river is affecting their life directly or indirectly.

Name of the water resource	Interventions	Expenditures (Rs)	Description/Status
Well-1	Emptying and cleaning the well and fixing net on the well which act as a cover	3,000	Material cost borne by Keystone. Labour by community. Not done
Well-2	Emptying and cleaning the well and cleaning its surrounding area.	10,000	Minimal cost borne by Keystone. Labour cost borne by community – Not done
Stream	Cleaning the stream and the slope, planting tree species near the stream	15,000/- 25 people will work with a daily wage of 600/-	JCB needed to clean the stream and the banks of waste and silt. People cleaning the stream of invasive plants through community participation. – Not done
GLR 2	The leakages in the GLR 2 and 3 need to be fixed to ensure storage in the village and also to use it in the Community toilet.	76625/-	Material cost – 30000 Labour – 46625 Panchayat contribution – 25000 (not received yet)
Community Toilet	Renovating the defunct community toilet complex and making it available for both men and women to use.	Material - 23890 Labour - 44500	Partition wall built New Doors installed - 4 Connection to Water tank Storage tank cleaned for rain water Steps built for easy access
Septic tank	The containment in the village is full and the people are not able to use the toilet anymore. There is no access for vehicles to remove the sludge. Another septic tank needs to be built to make the CT usable again.	40000/- to do it systematically 15000 spent by employing manual scavenging (Illegal as	A pit has been dug to empty and bury the fecal sludge. Cleaned by the panchayat – Villagers were employed to clean it. Manual scavenging has been done to reduce cost – 15000

		per law)	

Discussion 1 : **October, 2019**

Source : **Well-1**
Intervention : **To clean the well and set up a lid for covering the well to prevent waste going into well.**
Total expenditure : **Rs 3,000**

Interventions	Reason (benefits)	Expenditure (Rs)
1. Cleaning the well	Water from the open-well is used by the community for household purposes. The cleaning of well in help the communities in removing all the accumulated waste and other contaminants and provides access to clean water	Labour cost to be borne by the community.
2. Fix a casing on the top of the well	To prevent leaves from falling, and entry of any kind of contamination into the well. Water will be less. This source of water is being directly used by the village people for drinking purpose.	Rs 3,500

Discussion 2 : **October, 2019**
Source : **Well-2()**
Intervention : **Cleaning the well.**
Total expenditure : **Rs 10,000**

Interventions	Reason (benefits)	Expenditure (Rs)
1. Cleaning and removing the unwanted materials from well 2. Clearing the area around the well. 3. Adding alum into the well that will fix the turbidity of the water.	This water source is being supplied to the community for drinking purpose by pipes to community taps. This source has different sort of organisms like dead snakes, phyto-planktons, frogs, earthworms and mud.	Rs 10,000

Discussion 3 : **October, 2019**
Source : **Stream.**
Intervention : **Cleaning the waste from the stream.**
Total expenditure : **Rs 15000/-**

Interventions	Reason (benefits)	Expenditure (Rs)
1. Cleaning the waste from the stream 2. Cleaning the slope area where the waste is being dumped.	1. Krishnapudhur village people uses the stream water for household purpose and even washing their hands 2. The stream flows down to a village where it is again used for drinking purpose. It involves the behavioral change. As dumping of the non- degradable waste near the slope ultimately enters the stream water making it polluted and the waste ultimately blocks the flow of stream.	15,000/-

Discussion 4 : **March 2021**
Topic : **Sanitation**
Intervention : **Setting up 4 Portable Mobile toilets with a prefab septic tank**
Total expenditure : **113280 + 79500 + 7500 = 200280**

Interventions	Reason (benefits)	Expenditure (Rs)

1. Portable mobile toilets provided for Community - 4	Out of the 160+ households in the village, only 25 households have reported having an IHHL. The remaining households are practicing open defecation.	

7. Maintenance and Intervention

To ensure regular operation and maintenance of water sources in Krishnapudhur village the following points were discussed

- The community should unite together and form a group among themselves who will take the responsibility of monitoring and maintenance of all open wells.
- The maintenance cost to be borne by the community people by setting up savings group/water user groups.
- Ensuring not to dump waste in the stream and also on the slopes by the side of the stream to stop contaminants from entering the water body. Setting up a waste disposal bin and to ensure segregation at source.
- Cleaning the surrounding of the well and maintenance of the casing by the community people.
- Making sure the Community toilet is used and well maintained by the individual users/user groups.
- Cleaning the area around the well once in a month.

8. Other agencies and village institutions

- Angan vadi
- Youth group
- Temple committee

9. Finances:

There is a finance committee in the village. It works only during the temple festival.

Add annexure of the bills and expenses 2019-2020

Water quality assessment of water sources of Krishna Pudhur (October2019):

Parameter	well 1	well 2	stream	Permissible level (as per BSI)
ph	6.5	6.5	6	6.5-8.5
Temperature	20	19	18	10-20 degree celsius
Dissolved oxygen	4mg	12mg	8	about 5mg/l is healthy for aquatic species
Fluoride	0.6	0.6	0.6	1-1.5mg/l
Faecal coliform	present	present	present	should be absent
Residual chlorine	0	0	0	min. 0.2mg/l
Phosphorus	0.1	0	0.1	na
Nitrate	10	10	10	45mg/l
Iron	less than 0.3	less than 0.3	0.3	0.3mg/l
Hardness	120	80	80	300-600mg/l
Chlorides	70.9	35.45	35.45	250-1000mg/l
Ammonia	0	0	1	less than 1.5mg/l
Turbidity	10	25	10	5-10 NTU
Alkalinity	120	40	140	200-500mg/l