TOWARDS TRAJECTORIES OF INCLUSION, MAKING INFRASTRUCTURE WORK FOR THE MOST MARGINALISED
2020/2023

TECHNICAL PROPOSAL FOR THE COMMUNITY INTERVENTION

Funded by UK Research and Innovation through the Global Challenges Research Fund (GCRF)

Implemented by CMRD in partnership with SEVANATHA

SEVANATHA Urban Resource Centre
No. 102/02, Koswatta Road,
Nawala, Rajagiriya, Sri Lanka
Tel: +94 11 2879710
Fax: +94 11 2878893
Email: sevanata@sltnet.lk
Web: www.sevanatha.org.lk

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Abbreviation

ADB	Asian Development Bank
AVG	Average
BPT	Break Pressure Tank
CMRD	Centre for Migration Research and Development
DSD	Divisional Secretariats Division
ESTD	Estimated
GCRF	Global Challenges Research Fund
GI	Galvanized
GND	Grama Niladari Division
IDS	Institute of Development Studies
LKR	Lankan Rupees
LPCD	Liters per Person (Capita) per Day
O&M	Operation & Management
PVC	Polyvinyl Chloride
TV	Television
UK	United Kingdom

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1.0 Background

This project, ***"Toward Trajectories of Inclusion: Making Infrastructure Work for the Most Marginalized,"*** investigates different ways of accessing basic services in low-income neighborhoods. The project is funded by UK Research and Innovation, through the Global Challenges Research Fund, part of the UK's Official Development Assistance Commitment. Research is coordinated by the University of Sussex and the Institute of Development Studies (IDS) in collaboration with nine organizations across five countries (Bangladesh, Somaliland, Sri Lanka, and Zimbabwe) from 2020 to 2023.

In Sri Lanka, the Centre for Migration Research and Development (CMRD) and the SEVANATHA Urban Resource Centre (SEVANATHA) are involved with research activities conducted across six sites: Sammanthranapura, Lunupokuna, Navagampura, and Salamulla flats in Colombo; Mahaiyawa in Kandy; and Sarnia Estate in Badulla.

The project has three objectives:

A. Conduct research in selected neighborhoods to identify how households access six basic services: housing, water, sanitation, transport, energy, and communication.
B. Investigate the ways those services are provided that may support inclusion or create exclusion.
C. Identify ways of creating more inclusion in service provision and communicate results to organizations able to implement them.

A combination of methods is being used, such as focus group discussions, a large household survey, and interviews with residents, and a series of expert interviews. It uses photography to work with residents of selected neighborhoods and develop comic script art to tell their stories in an accessible, anonymous way and highlight issues of inequality in access to key services.

The surveys are expected to identify the most problematic services in the target communities, and a community intervention will be implemented to overcome such problems. SEVANATHA is responsible for implementing the community intervention identified by the research through different methods used.

2.0 Introduction to the Community Intervention

SEVANATHA, being the partner organization engaged in community awareness and mobilization activities, performs the following roles in the research project with the CMRD.

- Identification of the most problematic community through baseline survey
- Gathered preliminary information related to the community intervention
- Undertake the preparatory work for the community intervention
- Visit the identified community and establish connection with the community members
- Carry out the initial field investigation in the community and identify existing water supply system
- Prepare a draft community intervention action plan including the design of water supply system
- Share the action plan with the project partners
- Obtain necessary approval from the plantation company
- Present the action plan to the community and establish a water management committee
- Initiate contractor selection process and bid calling
- Selection of qualified contractor and offering of the contract
- Construction of the water supply system by the contractor
- Handing over of the completed water supply system to the community
- Develop O&M procedure of the water supply system which is to be manage by the community water committee
- Assist in the monitoring and evaluation of the impact on the community

Based on the findings of the research, it has identified different priority services across the six communities surveyed under the project. E.g., while water supply is the most emerging issue among the other services in the Sarnia Estate community, in Nawagampura, Sammanthranapura, and Lunupokuna, housing has been identified as the emerging problem. In the Salamulla community, sanitation and waste disposal were the emerging issues, while in Mahaiyyawa community, sanitation was identified as the emerging issue.

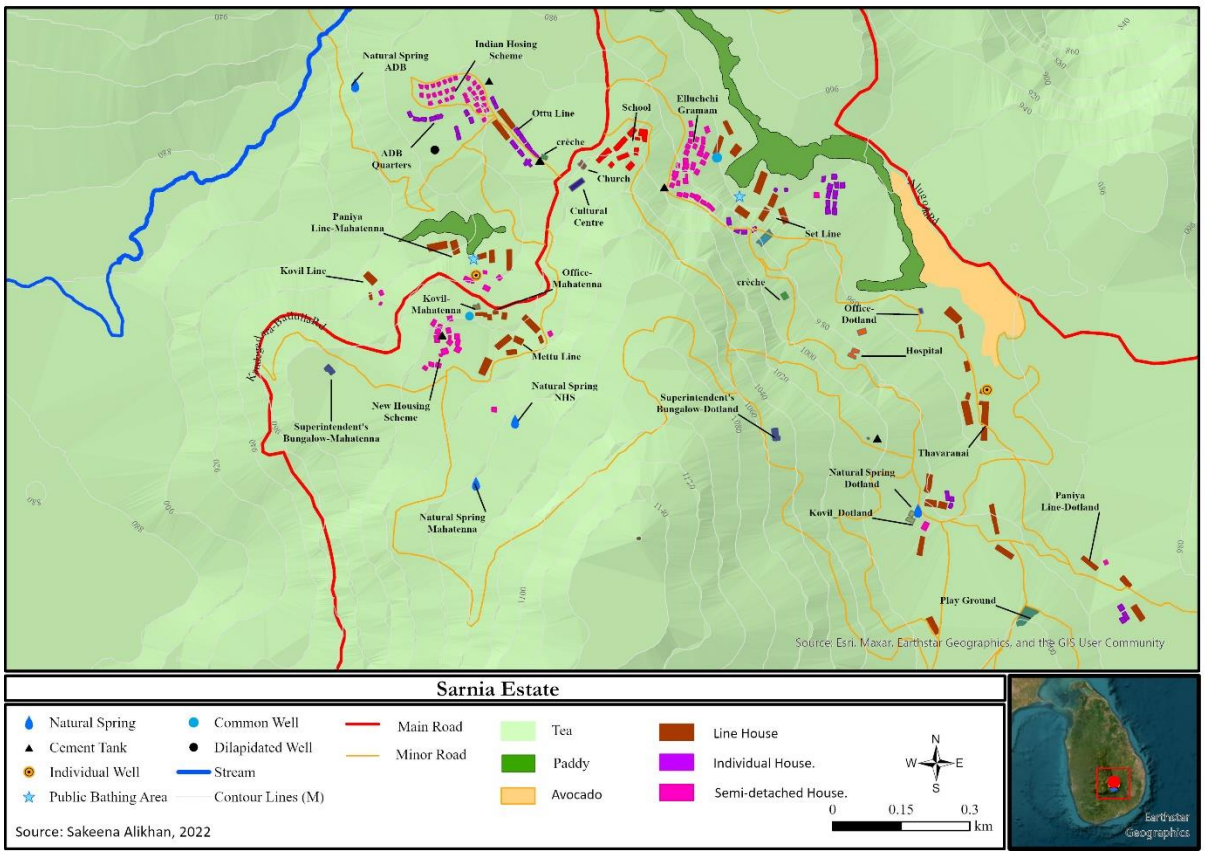
During the project team meetings, it was widely discussed about selecting a community for the community intervention activity and agreed to develop community intervention to address the water supply-related issues in the Sarnia Estate community in Badulla, by considering the critical nature of the water supply related problems in Sarnia community. It was also consider the benefits that the community would gain from such intervention as well as having an opportunity to evaluate the impact of the community intervention during the project period.

3.0 Community Description

Sarnia Estate is located in the Soronathota Divisional Secretariats Division (DSD) in the Badulla District, Sri Lanka. The community is spread over five settlement clusters, namely Mahatenna, Dockland, Sarnia 1st Division, Thangamalai, and Keenakele. Administratively, these clusters are spread over five Grama Niladari Divisions (GND) in Soranathota Divisional Secretariat Division (DSD). Out of these settlements, Mahatenna and Dockland are selected for the case study. These two settlements are located close to each other, and they consist of 49% of the population in the five GNDs. A total of 892 households consist of these GNDs (Alikhan, 2022). For community intervention, the Mahatenna settlement cluster has been considered.

Further, by considering the time and resources for implementing the community intervention, it has narrowed down the community clusters to include only Ottu Line, ADB Quarters, Panier Line, and Mettu Line, which are already obtaining water from the Mahatenna water source. The map below depicts these community clusters.

Figure 1: Location map of Sarnia Estate, Badulla



Source: Centre for Migration Research and Development (CMRD)

4.0 Community Needs & Prioritization

- **Water**

Natural springs are the primary source of water for the Sarnia community. Community members in Mahatenna have been receiving this facility free of charge for a long time. Water from springs is diverted through a ground-level storage tank and distributed to the community through tap lines. A single pipe line serves six to eight families on average, and this service is handled by a caretaker appointed by the estate management. However, according to respondents, the caretaker is influenced by some people. As a result, he shows favouritism in water distribution. Because of uneven distribution, particularly during the dry season, many families in the community suffer inadequate water supplies for drinking and other household needs.

A resident who has been living in the Mahatenne division since birth emphasized that water is a highly needed service for the estate community. Due to the insufficient supply from the springs, he and another group of people from the Mahatenne area arranged another water pipe line connected to a well belonging to the Sri Shivasubramaniyam Kovil. Water is pumped by a motor from this source and distributed through individual pipe lines to the community. Each family pays LKR 300 per month to the Kovil for this service. According to another resident, the Sarnia Estate and surrounding areas have rich water sources. Nevertheless, lack of a proper system for supplying water from these sources is the key reason for water scarcity in the community.

Figure 2: Two water supply systems in Mahatenna

Captured by: SEVANATHA on 30.09.2022

- **Sanitation**

Toilet: According to census data, all households have toilet facilities in Mahatenna GND. The primary toilet type used by the families is water-sealed and connected to a sealed pit, and 97.6% of households use these types of toilets. Some people have built the toilet on their own, and some have received funds from the Estate Welfare Trust to build their toilets (Statistics, 2012).

Drainage: Mahatenna settlement does not have a proper drainage system. Due to the sloping nature of the residential plots and labour lines, the wastewater from the houses discharges to the open land. During the rainy season, the wastewater discharged from the houses gets mixed up with the stream water.

- **Energy**

Electricity: The primary source of lighting is electricity. 90.9% of households use electricity supplied by the National Electricity Network, and 9.1% use kerosene lamps for light. Generally, a six-member family spends around LKR 900 per month on electricity expenses, according to data collected in 2021.

Cooking fuel: 95.8% households use firewood as the primary source of cooking fuel. They collect firewood from their surrounding neighbourhood free of charge. The remaining 4.2% of households use gas as a fuel for cooking. Nevertheless, it was revealed that around 25% of households use gas as cooking fuel during the rainy season due to lack of firewood.

- **Transport**

Kandegedara is the nearest mini-town for the Sarnia community. Although small groceries are available in the settlement, people use to purchase their monthly necessities in bulk from Kandegedara town on salary day. This town is located 1-2 km away from the Mahatenna settlement. People use diverse transport modes, like motorcycles and three-wheelers, or walk to reach the town. Due to proximity to Kandegedara, transport is not a major issue for the people from Sarnia Estate to reach this town centre. Furthermore, it is revealed that community members from Sarnia Estate used to travel to Haliela and Badulla town for purchasing durables and clothing etc. Public bus transport is available from the area to the above towns on regular basis.

- **Communication**

Most of the people in the community use mobile phones as their primary communication mode. The coverage strength and quality depend on the houses' geographical location. The majority the persons who participated in the research project connected to phone conversations and Zoom meetings without significant difficulty. Dialog and Airtel are the two most widely used mobile networks in Sarnia. People, particularly youngsters, mostly Facebook and Whatsapp for communication. Generally, a youth spent LKR 500–600 per month for voice and data access, according to information collected in 2021.

Most households have televisions. Some are using antennas to watch local channels only, and some households have disk TV services provided by the Dialog Company. People spent LKR 5000 as an initial payment to access this facility, and the monthly charge varies between LKR 500 - 850 (2021). People can enjoy many channels from this service, and they prefer Tamil films and dramas broadcast on Indian channels (Alikhan, 2022).

5.0 Issues in Existing Water Supply Methods

During the initial site visit to Sarnia Estate, Badulla, the SEVANATHA and CMRD have observed the accessibility and conditions of present drinking water facilities for the communities living in the Mahatenna area.

5.1 Description of the main water source

There are four settlement clusters called Ottu Line, ADB Quarters, Panier Line, and Mettu Line in the northern area of the Mahatenna cluster, consisting of a total of 167 housing units who are depending on the existing water source at Mahatenna.

a) Ottu Line - 33 Housing Units
b) ADB Quarters - 20 Housing Units
c) Mettu Line - 32 Housing Units
d) Panier Line - 78 Housing Units
e) Staff Quarters - 03 Housing Units
f) Estate Bungalow - 01 Housing Unit

The main source of the water supply for these settlements is through natural springs located at higher elevation in the Mahatenna area. Three (3) earth drains were built on the catchment area to collect water as the main components of this spring water source. Out of these drains, only two consist of masonry side walls about 2 feet high (one side only) to collect water for the filter chamber. The water collected in these drains from springs in the catchment area is diverted into the water storage tank through the filter chamber as shown in below figures.

The distribution lines that are laid from this storage tank (which was built about 15 years ago) directly supplies water for ADB Quarters, Ottu Line, and Mettu Line, which is irregular and frequently interrupted. This storage tank is not functioning properly, and no water is stored there due to an improper way of fixing the distribution lines without any control valves.

In addition to this water storage tank, there are some abandoned components, such as water collecting chambers, silt chambers, etc., within this water distribution network.

Figure 3: Main Water Source- Water Spring, Filter Chamber and Drains




Figure 4: Abandoned tanks & individual pipe connections


Capture by: SEVANATHA on 30.09.2022

A brief description of the water supply situation in the four settlement clusters is given below.

a) Ottu Line

There are two separate sub-distribution lines in the Ottu Line housing cluster and ADB Quarter's storage tanks, which can be connected separately to the distribution line of the Mahatenna (spring) intake. Each household in this settlement, Ottu Line, has a separate, individual pipeline connected to this sub-line, and a separate supply line from the well located at the new ‘Kovil’ premises is also being used.

There are about 8 families in this settlement getting water from the distribution line of Mahatenna (spring) and others from the well at New Kovil, and some families depend on tube wells. However, when the community gets water from the distribution line of Mahatenna, the existing sub-line in the settlement can be connected to the distribution line after disconnecting the ADB quarters sub-line. Communities in Ottu Line and ADB Quarters are sharing water through this distribution line.

However, there is no continuous supply of water from the Mahatenna (spring) to these communities. Therefore, the communities in both settlements are facing difficulties in obtaining a continuous water supply. The existing water storage tank on the pre-school premises is no longer operational. Hence, the community has made arrangements to store water in separate storage tanks placed by themselves on the ground.

Figure 5: Temporary storage tank and abandoned tank near pre-school in Ottu Line

Captured by: SEVANATHA on 30.09.2022

b) ADB Quarters

All the families in this settlement have individual pipe lines that are connected to delivery lines for water storage tanks. There are two water storage tanks within this cluster to store water, but they are not functioning due to insufficient water in the supply line. The main delivery line of the storage tanks is connected with the distribution line of Ottu Line houses, and therefore, there is a regular interruption to getting water to the ADB houses since families of Ottu Line disconnect the supply to the ADB housing line.

Due to inadequate water flow, there is not enough water to store in the tanks of ADB Quarters. As a result, the community in this settlement is facing severe difficulties in fulfilling their water needs. There is a natural spring and a stream, which are located at a considerably lower elevation on the adjoining tea estate. The community in this area used to walk up and down the slope for bathing and washing purposes which is a high risk journey especially for the women and children.

Figure 6: ADB Quarters and Individual Pipe Line

Captured by: SEVANATHA on 30.09.2022

Figure 7: Natural water sources- stream and well located at the lower section of the tea estate

Captured by: SEVANATHA on 30.09.2022

c) Mettu Line

Mettu Line has about 52 families in its line houses. Majority of families in this community use water from natural springs and wells. However, it was found that about 8 families in the Mettu Line obtain water from the Mahatenna water source through tap line.

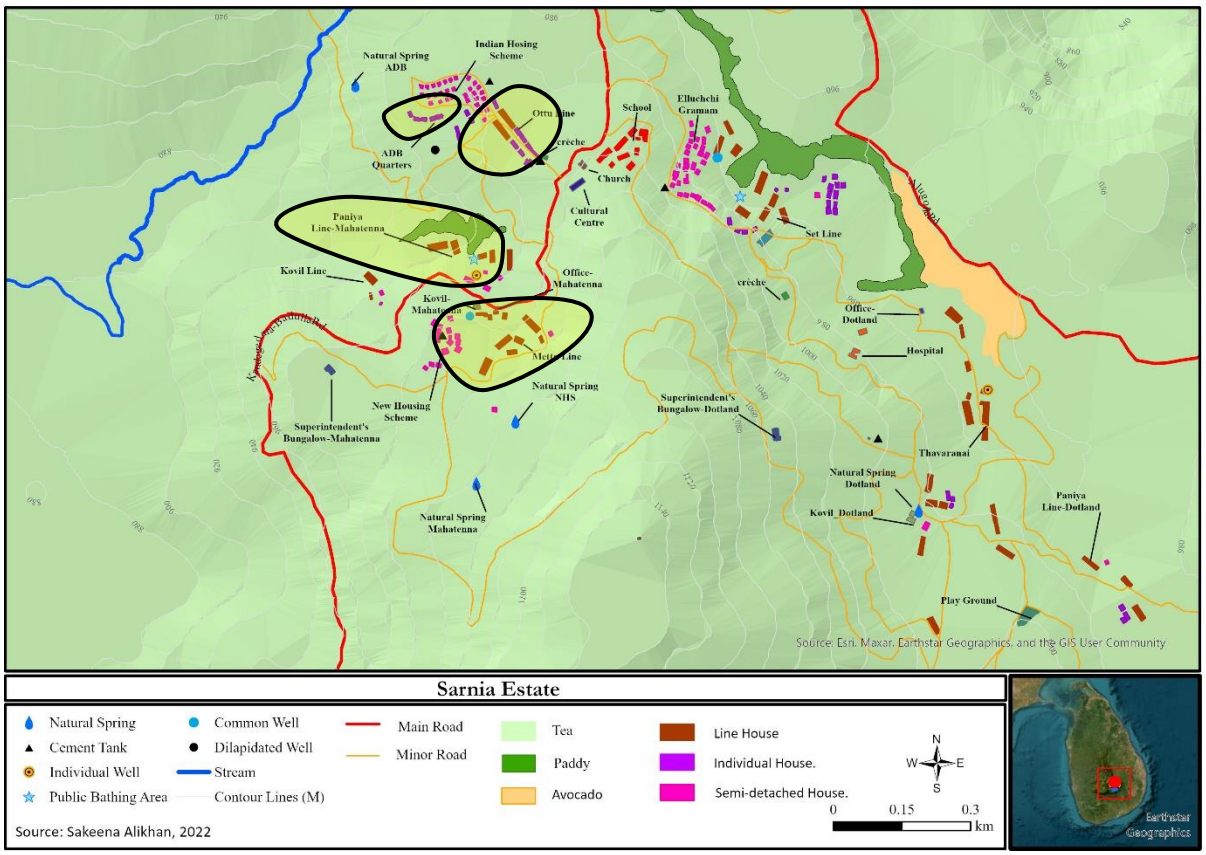
d) Paniya Line

In Paniya Line, about 78 families live in six-line houses and some detached houses. Most of the families have their own private wells, and the water will not dry out even during the dry season. Some residents use streams for bathing and washing purposes. However, it was found that about 8 families get water from the Mahatenna source through two tap lines to their houses.

Figure 8: Public bathing place and the stream

Captured by: SEVANATHA on 30.09.2022

Figure 9: Locations of Selected Communities in Sarnia Estate



Source: CMRD

6.0 Field Visits and Observations

The CMRD and SEVANATHA team made the first joint field visit during 29th to 31st September 2022 to Sarnia Estate and met the General Manager of Sarnia Estate and engaged in an inspection of Mahatenna and Dotland areas. Also, the team had met the residents of settlement clusters in Mahatenna. After that, SEVANATHA has engaged in another field visit during 6th to 8th November 2022 to further investigate details about the water source in Mahatenna and meet the community members in the settlement clusters. The team has paid attention to collecting information on the following aspects related to the water supply situation in Mahatenna.

- Locations of water sources (intake, storage tanks, distribution network, delivery areas, etc.)
- Issues related to the present water supply systems in the settlements
- Physical condition of the above locations and an understanding of the existing water distribution system
- Community concerns about the present water supply situation

6.1 Community views on the existing water supply system

During the field visit the project team had discussions with the community in Ottu Line and ABD Quarters to obtain their views on the following aspects.

- Level of satisfaction with existing water supply systems
- Possible water sources
- Technical Options

a) Level of satisfaction with existing water supply systems

The residents are not satisfied with the existing water supply system since it is not regular or sufficient to meet their daily water needs. They also expressed that there is no proper water supply and management system in operation at present. The current practice is ad-hoc and unreliable. Therefore, they are not satisfied.

b) Possible water sources

All the community members have pointed out that the Mahathenna water source has sufficient water capacity if it is properly protected and stored. Further, they have mentioned the possibility of constructing deep wells and pumping water to storage tanks to distribute to the families.

c) Technical Options

They have no idea about the technical options for water supply but have emphasized the need for a properly managed water supply system under the close supervision of the estate management.

Figure 10: Community views on the existing water supply system

Captured by: SEVANATHA on 30.09.2022

6.2 General Observations

- Investigating the existing water distribution system in the area, it was observed that there is a complication in the pattern of the existing water network (Please refer to Annexure 01). The intake area is not protected and is filled with leaves and other debris.

- A filter chamber was constructed, which is not maintained properly, and therefore water flows through it to the storage tank. However, due to several pipe lines connected to the bottom of the storage tank, the water does not get stored in the tank and instead flows through many pipe lines. There are some leaks through the bottom of the existing masonry side walls of the intake drains. As a result of these leakages, the retaining capacity of water in the intake area is reducing.

- The filter chamber is filled with earth, and washouts are blocked and not protected (no cover slab). Water from the filter chamber flows to the storage tank through an open channel that is also not protected.

- There are no control/gate valves and valve chambers in the main delivery pipe line of the storage tank (the exit gate valve is damaged). The delivery pipe lines from the storage tank are not jointed properly and have no intermediate support, which are exposed and could be easily damaged by moving cattle and other animals.

- Most of the communities living in these settlements are facing severe difficulties in obtaining adequate water facilities for their day-to-day requirements, mainly for drinking purposes.

7.0 Proposal for Improvement of Existing Water Supply System

Based on the information collected through the baseline survey, community profile, key informant and resident interviews, and the Photo-voice workshop (11th January 2023), field investigation (20th January 2023), a basic framework for community intervention activity has been prepared by SEVANATHA. By considering the time and resource availability for the implementation of community intervention, it is proposed to limit the community intervention to improving the existing water supply system in Mahatenna and providing water to the most problematic communities identified through the study process. It is proposed to ensure water supply to all families who currently obtain water from the Mahatenna source, as well as to provide new connections to the most vulnerable people in the same communities. Accordingly, the following technical interventions are proposed.

Intervention 01:

- Improve the gravity scheme of Mahatenna source + Sri Shivasubramaniyam Kovil well including catchment improvement + Dotland water source improvement

Intervention 02:

- Improve the gravity scheme of Mahatenna source + Sri Shivasubramaniyam Kovil well + tube well including pumping

7.1 Outcome of the Photo-voice Workshop

The CMRD has organized a Photo-voice workshop by inviting the selected community members of settlement clusters of Sarnia Estate on 11th January 2023. The participants of the event included representatives of University of Sussex, CMRD team, SEVANATHA and the local community members from Dotland, Mahatenna, New Housing Scheme and Sanasa community, Kandegedara Town.

Key highlights of the Photo-voice workshop which are relevant to the design of the community intervention include the following:

a. The community water supply system managed by Sanasa Society (a thrift and credit cooperative society) at and in Kandegedara town is a successful case where the water supply is regulated by fixing individual meters and maintenance by Sanasa Society.

b. At the discussion, it was highlighted that existing water source near the Dotland Kovil need to be cleaned and fenced to protect the source. The regular power interruption affects the pumping of water from this source to the main storage tank.

c. Community representatives of Mahatenna have highlighted the availability of sufficient water in the existing water source in Mahatenna (natural spring) which

need be improved by constructing a protective fence and removing the debris on the surface area of the water source.

d. The representatives of new housing scheme pointed out that their water quality is very poor and they are more concern about the negative health effects of drinking this water. They also requested to looking into this issue.

By considering the above-mentioned specific outcomes of the Photo-voice workshop, SEVANATHA's technical team has considered it is appropriate to include above issues in designing of water source at Mahatenna in order to provide improved water supply system to a larger section of problematic community groups in Mahatenna. Further, it is proposed to improve the water source at Sri Shivasubramaniyam Kovil, Dotland which is included in the intervention 01.

8.0 Design - Initial Stage (Catchment Improvement, Water Source Protection, Design of Distribution System) – Intervention 01

Activities under Initial Design

8.1 Mahatenna Water Source

I. Catchment protection/fencing to prevent wild animal entering to the water source and to prevent contamination
II. Catchment improvement
    a. Surface area cleaning, gravel packing and sand laying
    b. Repairing of existing water diversion drains to prevent water leakages and improve the volume
III. Conduct field tests for identifying the water yield in identified points of the water source.
IV. Repair of existing water filter chamber
V. Construct the proposed main water storage tank
VI. Improve water inflow lines to the filter chamber
VII. Increase the daily collection volume of water in the storage tank
VIII. Prepare a water distribution plan to the community clusters (in consultation with community)
IX. Repairing of existing water storage tanks in community clusters
E.g. ADB Quarters, Mettu Line, and Ottu Line
X. Provide systematic water connections to the families
XI. Agree with the beneficiary community to establish community managed water distribution system
XII. Establish a water management committee
E.g. By identifying minimum two community members (representing at least one female member from each community) from each community cluster
XIII. Provide O&M training for the water management committee members about preparing for defects in the water supply system, maintenance of the water source and storage tank etc.
XIV. Provide a basic tool kit for the water management committee to be used for O&M purposes

8.2 Dotland Water Source

I. Cleaning of the pond by removing debris
II. Construct a protective fence around the pond
III. Establish a Water Management Committee by involving the representatives from beneficiary communities

9.0 Water Consumption and Yield Test

9.1 Water Consumption

In order to improve the water supply system of the identified families, it has gathered data on minimum water requirement of rural sector population on daily basis. Accordingly, it is revealed that 35 liters to 100 liters per capita per day has been used by the relevant authorities for designing water supply systems (Kaushalya, Wijeratne, & Manawadu, 2020). Based on this information, it is proposed to adapt 60 liters per capita per day would be appropriate for the target community under this intervention. The utilization of 60 liters of water per day is considered for the following needs.

Table 1: Estimated Water Consumption by Purpose

Purpose	Quantity (LPCD)
Drinking	4.5
Cooking	7.5
Bathing	22.5
Washing utensils & house	10.5
Sanitation	15
Total	***60***

Source: https://megphed.gov.in/standards/standards.htm

Based on the above-mentioned 60 liters per capita per day consumption rate, the estimated water requirement for the identified communities in Mahatenna is indicated below:

Table 2: Water Requirement for the identified communities in Mahatenna Cluster

SN	Name of the Housing Scheme	No. of Housing Units	Population (AVG.)	ESTD. Water Requirement per day
1	Ottu Line	33	132	7,920
2	ADB Housing	20	80	4,800
3	Mettu Line	32	128	7,680
4	Staff Quarters	3	12	720
5	Mararіyamman Kovil	8	32	1,920
6	Estate Bungalow	1	-	500
	Total	**97**	**384**	**23,540**

Assumptions:

- No. of members in a family = 4 per family
- Water requirement = 60 liters per person per day minimum

Water requirement per day for Mahatenna = 23,540 liters per day

9.2 Yield Test

SEVANATHA with the support of community facilitator in Mahatenna has carried out a water yield test of Mahatenna source on 30th November 2022 and the results of test are given below:

Table 3: Water yield test of Mahatenna cluster

SN	Test Point	Amount of water which could be collected			
		liters per second	liters per minute	liters per hour	liters per day
1	Filter Chamber/ Intake pit	0.33	20	1,200	28,800
2	Tank Inlet	0.36	21.82	1,309	31,421
3	Storage Outlet	0.39	27.5	1,650	39,600
4	Outlet - Ottu Line and ADB	0.25	15	900	21,600

After conducting the water yield test, the technical expert has suggested to consider that test point at filter chamber to be considered being the most appropriate point of the yield test, the result of which would be used for estimation of the volume of water generated in the catchment. Further, it is expected that with the improvement of the water catchment, the volume of water yield would be improved as indicated in the below table.

Table 4: Capacity Improvement at Mahatenna Water Source

SN	Capacity Improvement	Per day increase liters	Total water amount liters	Allowed 10% for losses
1	10% Improvement	2880	31,680	28,800
2	15% Improvement	4320	33,120	30,109
3	20% Improvement	5760	34,560	31,418

According to the above analysis, with 10% improvement of water yield from the present source and after allowing for 10% lose, the daily minimum water needs of target beneficiary families could be achieved (23,540 liters per day).

Figure 11: Yield Test at Mahatenna Water Source

Captured by: Darshani, Sarnia Estate on 30.11.2022

10.0 Estimated Cost of the Proposed Improvement Work of the Gravity Water Supply System in Sarnia Estate

Based on the above details on the proposed community intervention for improvement of the existing gravity water supply system in Sarnia Estate, SEVANATHA has prepared the activity cost estimation which is presented in the below table 5. According to the description, total cost of the proposed improvement activities is estimated to be LKR 5,999,894.25 which will be allocated by SEVANATHA through the project funds. In addition to the above, improvement of the water intake near Sri Shivasubramaniyam Kovil also been included in the cost estimation which is LKR 750,000.00.

Table 5: Estimated Cost of the Proposed Improvement Work

A. UPGRADING OF EXISTING GRAVITY WATER SUPPLY SYSTEM AT SARNIA ESTATE, MAHATENNA, KANDEGEDAERA , BADULLA		
SUMMARY		
No.	**Activity Description**	**Amount Rs.**
A	Preliminaries	275,000.00
B	Erection of Chain Link Security Fence	891,000.00
C	Improvement of Intake (Catchment Area)	973,475.00
D	Construction of Collection Chamber	508,225.00
E	Construction of Main Water Storage Tank	1,316,410.00
F	Repairing of Existing Break Pressure Tank (BPT) / Storage Tank	232,700.00
G	Placing 5000 Liters Plastic Shell Water Tank with support base and Valve Chamber	242,125.00
H	Placing 2000 Liters Plastic Shell Water Tank inside the existing masonry Water Tank - (at Ottu Line H/S)	155,300.00
I	Repairing of Existing Ground Water Tank at ADB H/S	226,200.00
J	Laying New Water Distribution line in Ottu Line H/S	893,750.00
Total **LKR**		5,714,185.00
Contingencies 5%		285,709.25
Total Amount LKR		**5,999,894.25**

B. CLEANING OF POND/INTAKE AND CONSTRCT A PROTECTIVE FENCE - DOTLAND		
	COST ESTIMATION	
	Activity Description	**Amount LKR**
A	Cleaning Pond and Construction of Protective Fence in Catchment Area- 400'0" (Concrete Posts with PVC coated GI Chain Link Net)	750,000.00
Total Amount LKR		**750,000.00**

11.0 Community Intervention Work Plan

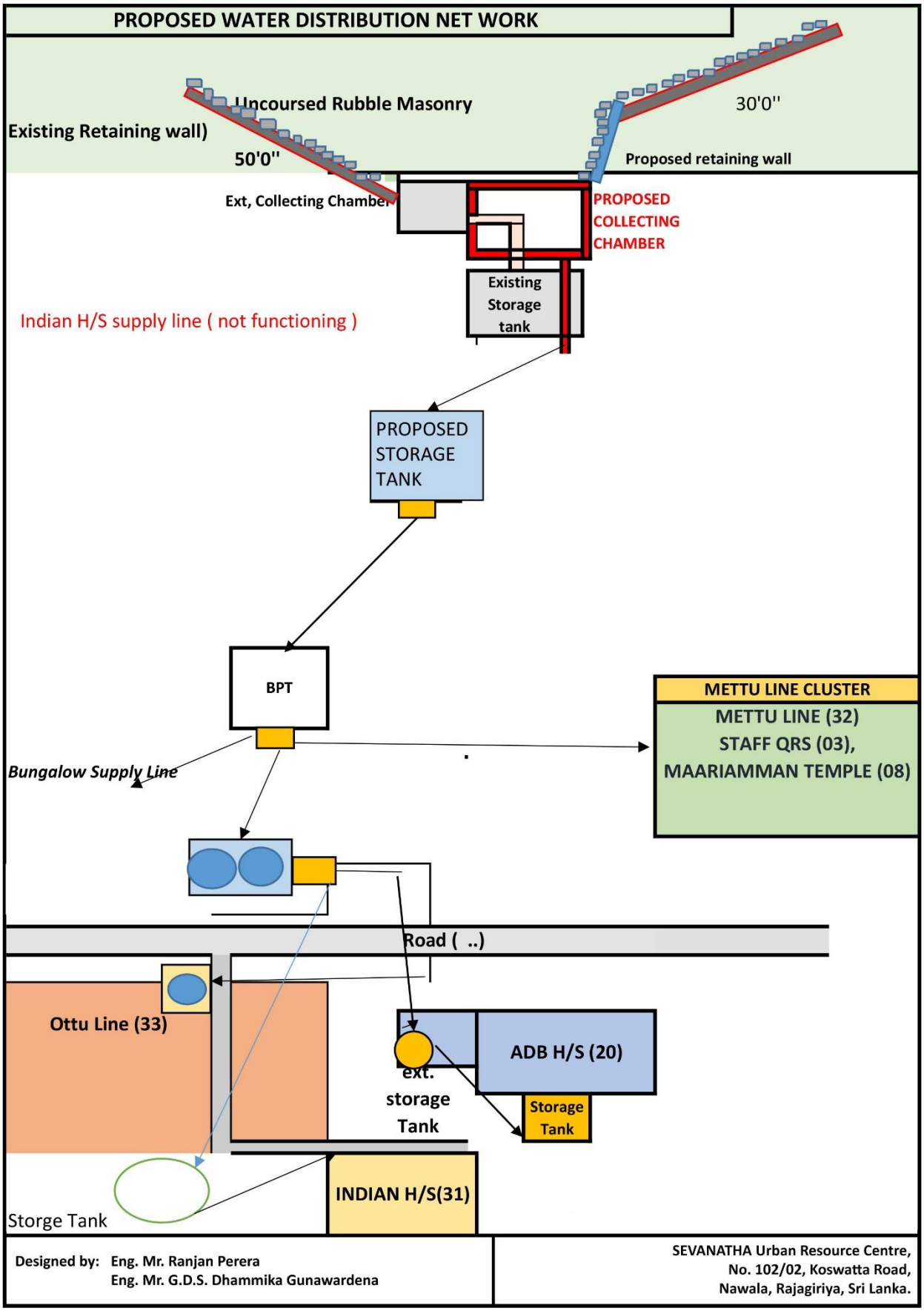
The following table represent the activity plan of community intervention during the project period.

Table 6: Community Intervention - Work Plan

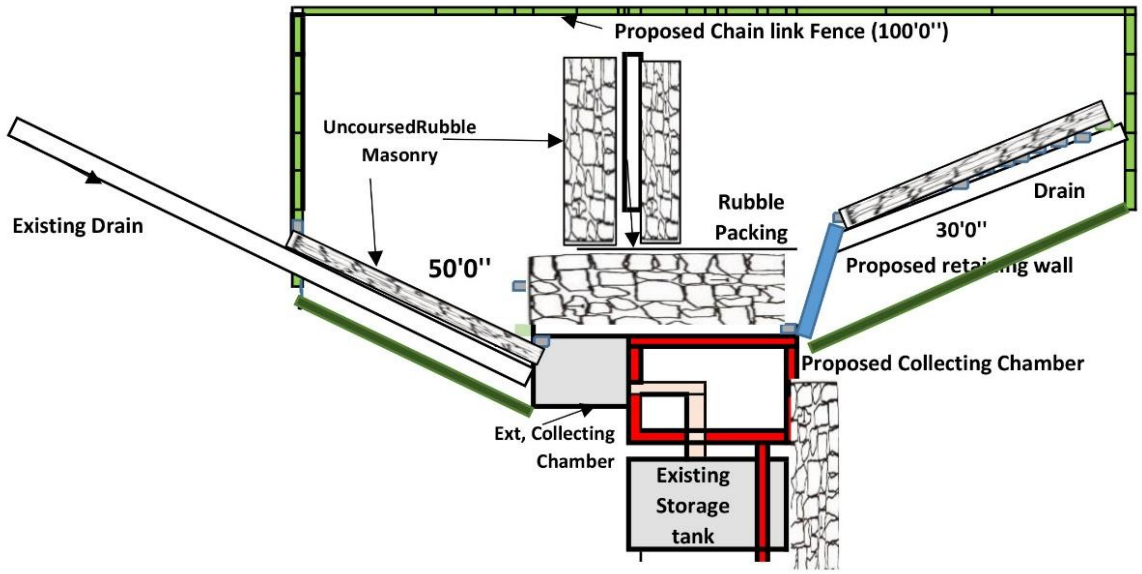
No.	Activities	2022				2023							
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
1	First joint field visit to Sarnia												
2	Preparation of draft proposal outline												
3	Second field visit to Sarnia												
4	Preparation of draft proposal												
5	Obtain feedback from the CMRD team												
6	Preparation of initial design												
7	Participation in photo voice workshop/ feedback												
8	Preparation of final design and estimate												
9	Present the final design to the community and stakeholders												
10	Agree on implementation method												
11	Establish water management committee												
12	Implementation of the proposal												
13	O&M training												
14	Provide water connection to the families												
15	Review meeting with community and stakeholders												
16	Impact assessment by CMRD/panel survey												

The updated design of the intake, filter tank and the water distribution network are included in Annexure 01.

Annexure 01: Diagrams of the Proposed Community Intervention


PROPOSED WATER DISTRIBUTION NET WORK
Uncoursed Rubble Masonry
Existing Retaining wall)
50'0"
30'0"
Proposed retaining wall
Ext, Collecting Chamber
PROPOSED COLLECTING CHAMBER
Existing Storage tank
Indian H/S supply line (not functioning)
PROPOSED STORAGE TANK
BPT
METTU LINE CLUSTER
METTU LINE (32)
STAFF QRS (03),
MAARIAMMAN TEMPLE (08)
Bungalow Supply Line
Road (..)
Ottu Line (33)
ADB H/S (20)
ext. storage Tank
Storage Tank
INDIAN H/S(31)
Storge Tank
Designed by: Eng. Mr. Ranjan Perera
Eng. Mr. G.D.S. Dhammika Gunawardena
SEVANATHA Urban Resource Centre,
No. 102/02, Koswatta Road,
Nawala, Rajagiriya, Sri Lanka.

UPGRADING OF EXISTING GRAVITY WATER SUPPLY SYSTEM IN SARNIA ESTATE,



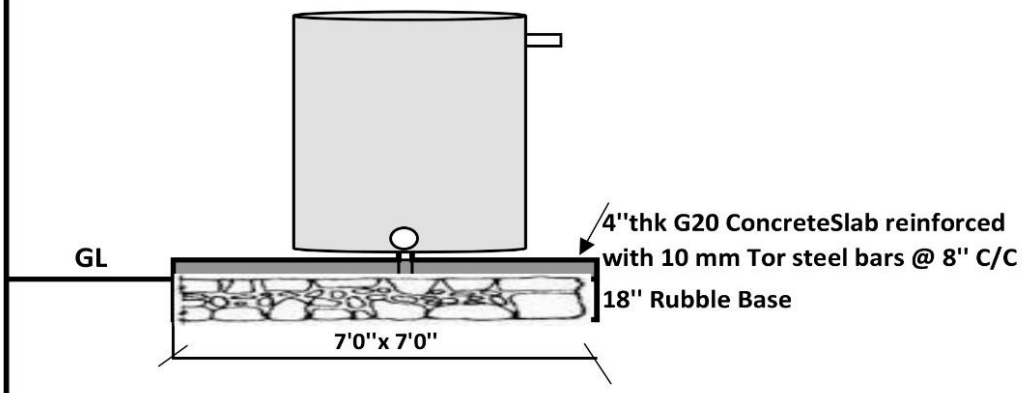
Not to Scale

DETAILS OF INTAKE /CATCHMENT AREA

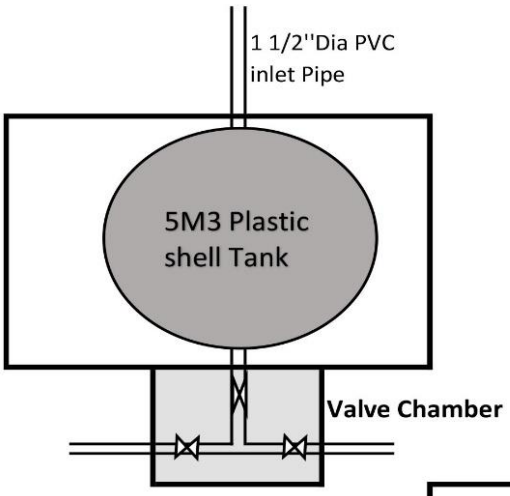
Designed by: Eng. Mr. Ranjan Perera
Eng. Mr. G.D.S. Dhammika Gunawardena

SEVANATHA Urban Resource Centre,
No. 102/02, Koswatta Road,
Nawala, Rajagiriya, Sri Lanka.

Placing 5 M3 Plastic Shell Water Tank



ELEVATION



PLAN

UPGRADING OF GRAVITY WATER SUPPLY SYSTEM IN SARNIA ESTATE

Designed by: Eng. Mr. Ranjan Perera
Eng. Mr. G.D.S. Dhammika Gunawardena

SEVANATHA Urban Resource Centre,
No. 102/02, Koswatta Road,
Nawala, Rajagiriya, Sri Lanka.

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Project Team of SEVANATHA

Name	Designation	Responsibility
Mr. K.A. Jayaratne	President of SEVANATHA URC	Overall guidance and supervision
Mr. K.A.P. Ranjith Samarasinghe	Vice President	Coordination
Mr. H.M.U Chularathna	Executive Director	Coordination and Implementation
Miss R.K.M. Piumi Ravindra	Research Officer	Coordination and Implementation
Mr. Ranjan Perera	Engineer	Technical Support
Mr. G.N.S. Dhammika Gunawardena	Engineer	Technical Support

**Note: Miss Malki Rodrigo, Research Officer, who joined this project on 01st January 2021, and worked until August 2022, was replaced by Miss R.K.M. Piumi Ravindra.*