Learning Document On
Community managed water treatment and distribution system in Lalitpur Metropolitan City

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solaqua

Context

In 2017/2018, the Urban Environmental Management Society (UEMS) carried out a project to provide safe drinking water to urban communities in the Kathmandu Valley by the concept of community-managed water kiosks,funded by Solaqua Foundation (www.solaqua.ch). The project ensures access to safe drinking water for urban communities living in densely populated areas by installing water kiosks, including water treatment and distribution systems, and by building the capacity of the community to maintain the system. At the same time, groundwater resources are being replenished by facilitating the local input of rainwater, thus ensuring sustainable management of the local resource.

The first phase of the project was executed in a series of participatory steps leading to the improvement of water quality through the installation of four water treatment and distribution systems in Lalitpur Metropolitan City (LMC). Key actors involved within the project have been the Tole Sudhar Committees (local community committees) and the mothers' groups in the four intervention communities.

Objectives

- Provide safe and affordable drinking water for urban communities living in water scarce areas.
- Increase capacity of communities to manage and sustain water treatment systems.
- Improve water handling and hygiene practices.
- Lobby and advocate for development of conductive environment for rainwater harvesting and ground water recharge for future replication and scale up.

Project Area

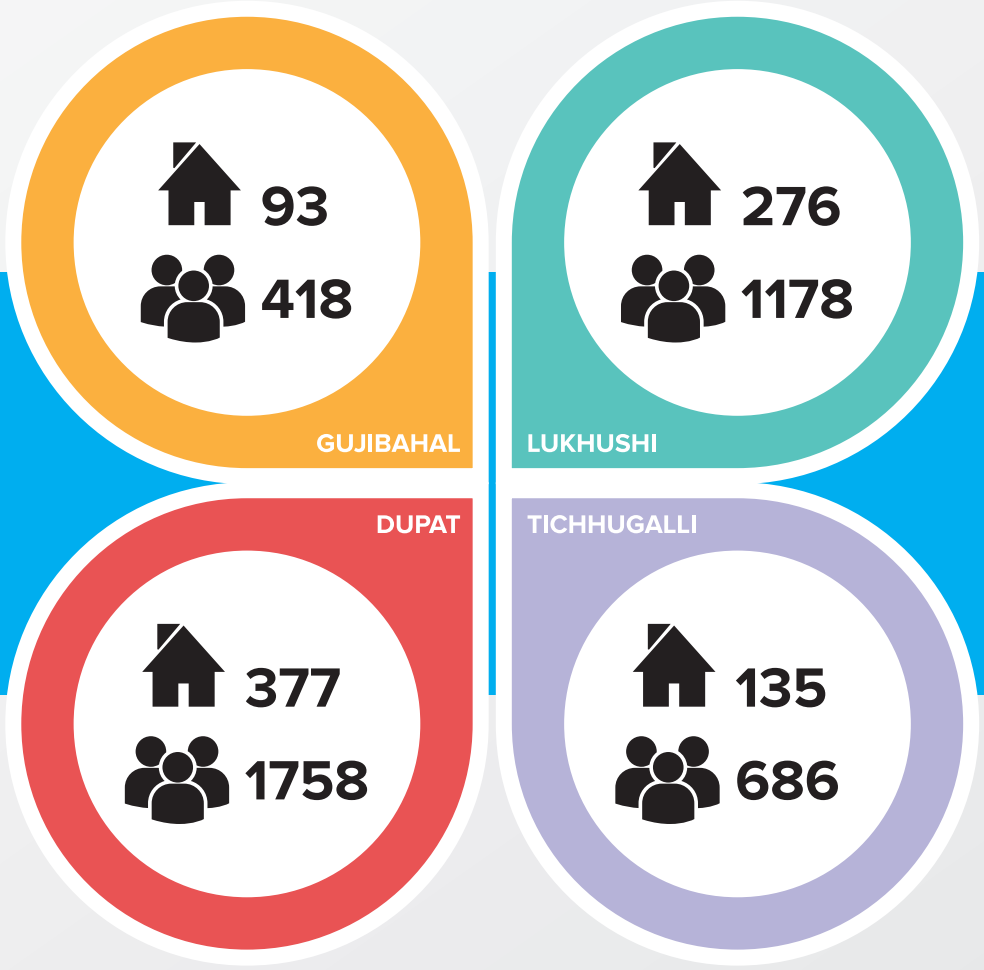
The project areas are in the core of the settlements of Lalitpur Metropolitan city. These areas are densely populated and inhabited by the indigenous Newar community.

Until recent times, the traditional stone spouts and the dug-wells were the major sources of water for these communities. Now, water from these sources is inadequate to meet the demand for water throughout the year as the discharge of the stone spouts and dug-well is very low during the dry season. The wells have been constructed and deepened to the possible extent and still the water availability is too scarce to meet the demand of the population. In addition to the water scarcity, water from these sources is not safe for drinking as the coliform and iron content is very high. Furthermore, the socio-economic status of the population in the selected areas is low due to which they are consuming water delivered by a tanker without any further treatment, which is considered as unsafe to drink.

The four project sites are:

1. Gujibahal, ward-6, LMC
2. Lukushi, ward-17, LMC
3. Dupat, ward-7, LMC
4. Tichhugalli, ward-19, LMC

Beneficiaries



Project Activities:

The major project activities conducted are

- Situation Analysis
- Awareness raising
- Capacity Building of the Users Committees
- Infrastructure Development
- Advocacy and Documentation

Situation Analysis

The project areas were selected based on the need for water in densely populated water scarce areas. Household surveys were conducted in order to select project areas based on socio-economic and environmental indicators.

Awareness raising activities

Awareness raising activities have been organized at community level as well as in schools in the selected project areas. Trainings and workshop were conducted to make students aware about hygiene behaviour related to the use of water, rallies were organised and documentaries have been screened to highlight the importance of rainwater harvesting and ground water recharge, and mass campaigns, targeting the wider public, have been organised to make the communities aware about sanitation and hygiene behaviors.

Capacity Building of the User Groups

User Groups, established in each of the selected project areas, have been trained in the areas of work necessary for the sustainable management of the water kiosks. The following capacity building activities have been conducted within the project.

- Exposure visit and exchange among the users committees
- Orientation programme on water treatment and distribution system
- Training on water quality testing
- Training on Operation and Maintenance of the system
- Training on record keeping
- Workshop on Business plan development

Kick-off workshop with various community and government stakeholders

Infrastructure Development

Biosand filter

Biosand filter technology along with UV systems is installed at each project site. The drinking water is filled in jars and sold to the community at a minimum cost which is estimated to cover the operation, maintenance and upgrading of the system in the long-run.

The economically poor members of the population receive subsidized water at a very low rate to ensure access to all.
Besides the weekly conducted water quality test by the communities themselves, a water quality test is conducted monthly by a third party. The results are published at the water kiosk to ensure transparency and accountability of the operator to the water consumers.

Community managed water treatment and distribution system in Gujibahal, ward-6, LMC, 2018

Rainwater harvesting and ground water recharge systems

Rainwater harvesting and ground water recharge systems are installed in each area in order to compensate for the ground water used. Rapid sand filters are connected to recharge pits to maintain the quality of the ground water as well.

Mothers group being trained on water quality testing, 2018

Advocacy and Documentation

Effective lobby and advocacy is carried out for the development of conductive environment on rainwater harvesting and ground water recharge systems. The following activities were organized for the lobby with the government stakeholders:

1. Project kick-off workshop
2. Monitoring visits with the stakeholders
3. Project Dissemination workshop

Similarly, the following documents are prepared for further references

1. Project Process documentary
2. Photo Documentary
3. Project learning document

Results of the Intervention

- 4040 people gained access to safe drinking water.
- Awareness raised among the communities on improved water handling and hygiene practice.
- Four users communities trained to operate and maintain the water treatment systems.
- Government funding in rainwater harvesting and ground water recharge is increased due to effective lobbying and advocacy.
- A business plan, project learning document and a video documentary on project process were produced.

Success Factors

Strong need, participation and ownership: The targeted communities had a strong need for reliable access to safe drinking water which ensured a high level of commitment, participation and community contribution.

Strong leadership: A strong leadership capacity of local groups has a positive impact on community mobilization at all levels of the project cycle.

Quality Assurance and transparency: The community managed water treatment and distribution system ensures safe drinking water verified monthly by water quality tests carried out by a third party. The established trust among the community towards the quality of the water reinforces the sustainability of the system.

Sustainability

The sustainability of the water treatment and distribution system is ensured due to the following factors:

Institutional Ownership:
Ownership of infrastructure constructed under this project have been fully taken on by locally registered institutions, i.e Tole Sudhar Committees and mothers groups. They are responsible for operation and maintenance of the established water treatment and distribution system, including the collection of fees for the water sold and the management of these funds.

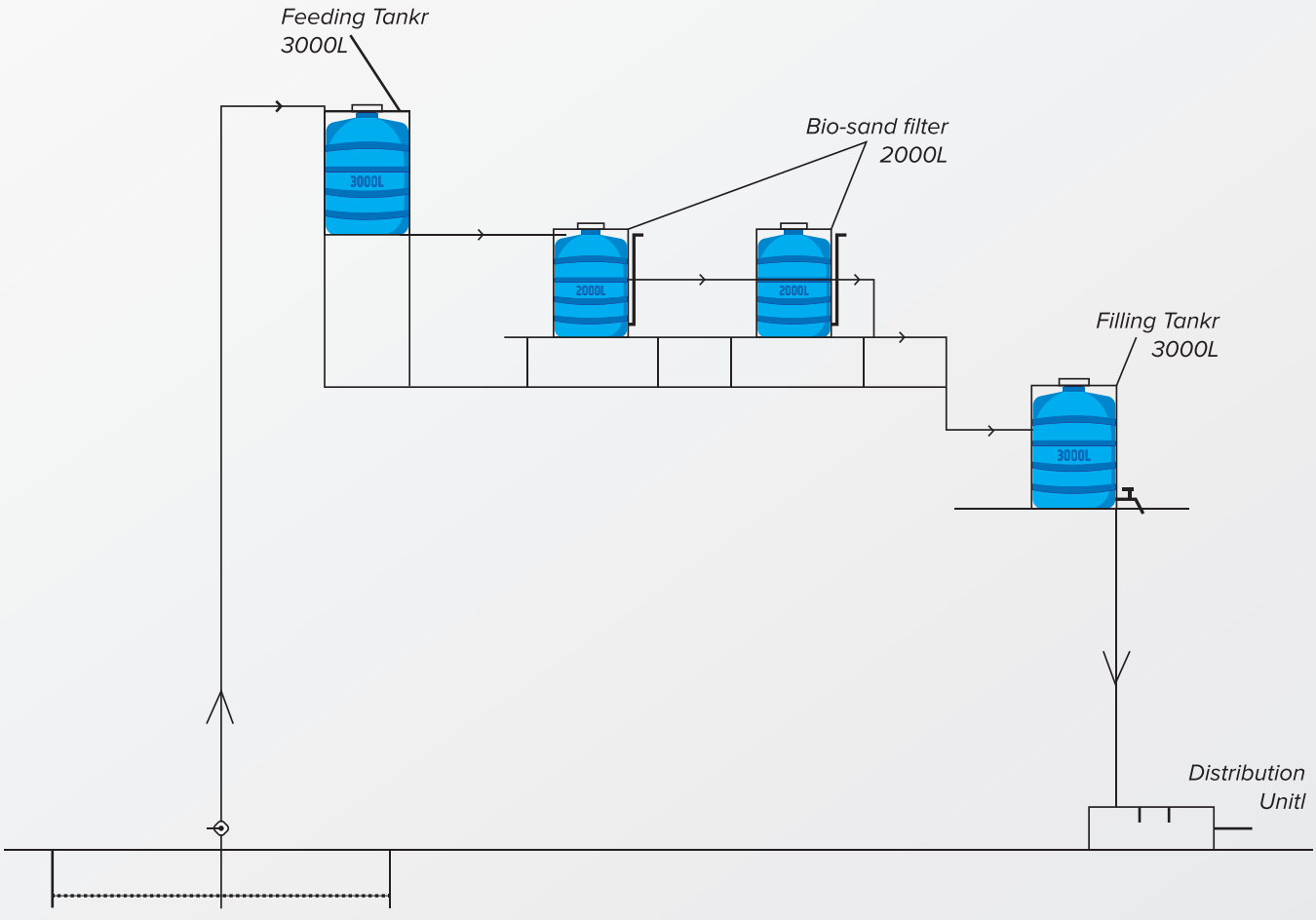
Financial Security:
A business plan sets out how the system can be operated sustainably based on an estimation of the next 5 years. An Operation and Management Fund has been established for the management of the revenues in order to maintain the system. Technical soundness: With the focus on using local resources and local technology, an easy to operate biosand filter system has been installed to ensure availability of spare parts and the technical capacity of the local population for O&M of the system.

Enhanced Capacity:
As a result of the training on O&M, business plan development, water quality testing and improved record keeping, the communities have been trained for ensuring the sustainable operation of the system in their community.

Learnings of the project:

- Coordination and collaboration with government institutions increased their interest in drinking water management systems to serve the urban population and enhanced willingness of government for funding such projects in the futurue
- Identification and participation of active community groups ensures the effective implementation of the project driven by the community itself.
- Capacity development of all stakeholders involved in O&M of the system is the key to sustainability.
- Sharing of information at the initial stage of the project is crucial as to increase the acceptance of the community by clearing up concerns

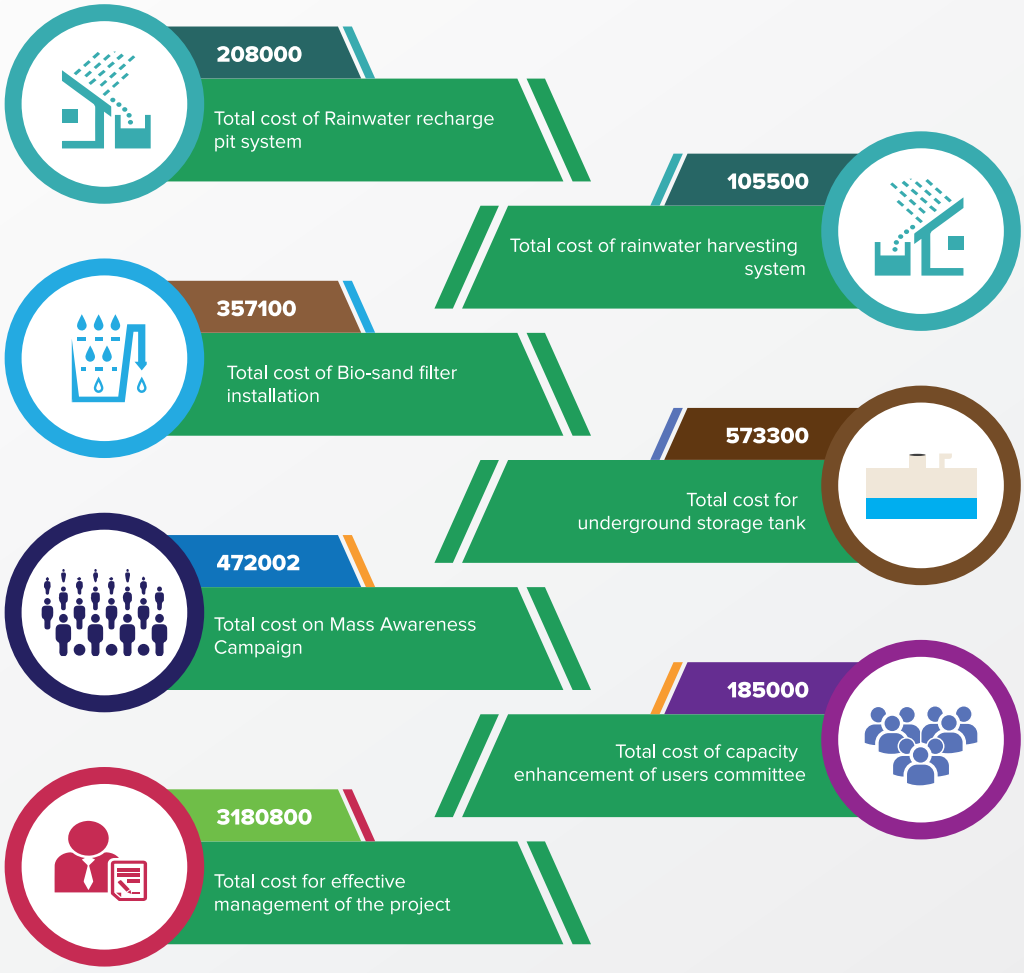
Schematic diagram of water treatment and distribution unit



Schematic diagram of water treatment and distribution unit

Total cost for each project site (average numbers for the four sites):

S.NO	ACTIVITY	COST (NPR)
1	RAINWATER RECHARGE PIT SYSTEM	208000
2	RAINWATER HARVESTING SYSTEM	105500
3	BIOSAND FILTER INSTALLATION	357100
4	UNDERGROUND STORAGE TANK	573300
5	MASS AWARENESS CAMPAIGN	472002
6	CAPACITY ENHANCEMENT OF USERS COMMITTEE	185000
7	PROJECT MANAGEMENT	3180800



Managing our own safe drinking water

Sushrita Shakya, 42, one of the community members of Gujibahal says “We used to go to our neighboring community to fetch a jar of water. That was very difficult but now we are providing safe drinking water to the community by ourselves. I believe we have been empowered, our community and we as mothers group, for which we appreciate UEMS for supporting us in solving drinking water problem in our community.”

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