



Community involvement during DEWATS construction

CLUES: LOCAL SOLUTIONS FOR SANITATION PLANNING

The Case Study of Nala, Nepal

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CONTEXT

The Community Led Urban Environmental Sanitation (CLUES) planning is an area-based planning approach that targets un/under-served urban communities. This approach focuses first on household decisions about service needs, and then moves out to consider the neighborhood, the town and its hinterland. The main aim of this approach is to solve problems where they occur rather than exporting them downstream (Lüthi *et al*, 2011).

As part of a global validation process, the CLUES planning approach was tested in Nala, a peri-urban settlement in the Kavre District in Nepal. The purpose of this intervention was to identify local challenges and assist in streamlining the planning approach in a local context while, at the same time, improving the environmental sanitation condition of the settlement. The CLUES planning process was executed in a series of participatory steps leading to the development of an integrated environmental sanitation improvement plan for Nala in 2009-10. Based on the planning document, the project's implementation took place in 2011/12.

OBJECTIVES

Past experience has shown that lack of appropriate planning, excessive focus on hardware, lack of people's ownership over the decision making process and/or the installed sanitation system, and their unwillingness to pay for operation and maintenance (O&M), as well as weak management systems, have led to failure of sanitation systems established in underserved urban communities. In this context, the Nala project took place as a means to test the validity of CLUES planning approach with the following key objectives:



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1. Apply the participatory CLUES process to validate it in the context of emerging and peri-urban settlements like Nala in Nepal.
2. Develop and implement an environmental sanitation improvement plan.
3. Develop the local capacity to operate and maintain the sanitation system established in the settlement.

PROJECT AREA

Nala is a clustered built-up area situated in Nala Ugrachandi Village Development Committee, about 2.5 kilometers from Banepa Municipality in Kavre District, Nepal. As per the baseline survey data of 2009, the population of Nala was 2274 with 388 households and with an average household size of 5.86. Even though only 66 households did not have toilets prior to this project, sanitation situation was poor in the community. Majority of the households had toilet facilities connected to single cesspits, which were simple pits lined with brick walls and covered with concrete slabs. Due to high water table in the core of the settlement, these pits had to be manually emptied frequently and the sludge disposed onto nearby fields and water bodies. Because the pits filled up so frequently, many people were forced to practice open defecation and, at the same time, the haphazard disposal of the sludge created a nuisance. The unsanitary conditions led to a strong demand on the part of the local population to upgrade their sanitation system and to their willingness and commitment to contribute both cash and in-kind labour to set up and operate the sanitation system. In addition, Nala had active local leadership and community groups that were supportive of the project, making it an ideal community to work with.

KEY ACTIVITIES AND OUTCOMES

The activities in Nala were conducted in two distinct phases: a planning phase and an implementation phase. In the planning phase, an environmental sanitation plan was developed according to the CLUES

Table 1: Steps involved in CLUES planning process in Nala

Step 1: Project initiation and management
Step 2: Baseline assessment and prioritization of users' needs
Step 2.1: Preparation of community map
Step 2.2: Household survey
Step 2.3: Focus group discussions
Step 2.4: Stakeholders assessment
Step 3: Identification of potential sanitation systems
Step 3.1: Expert group consultation
Step 3.2: Enhancing users' knowledge of sanitation systems
Step 3.3: Assessing users' preference of sanitation systems
Step 4: Launching workshop
Step 5: Evaluation of feasible service combinations
Step 6: Preparation of CLUES plan
Step 7: Implementation



Construction of simplified sewer lines

planning process that addressed all waste streams viz. black water, grey water and storm water, solid waste management and hygiene promotion. The main thrust of this novel planning approach was to assist users in making informed choices and to ensure community ownership over and long term sustainability of the sanitation system. The participatory multi-stakeholder process involved household mapping and surveys, user needs identification and prioritization, and a stakeholder assessment (See Table 1). Among the sanitation alternatives that were presented to the community, people showed a strong preference to set up a system consisting of simplified sewerage with a decentralized wastewater treatment system (DEWATS).

Also, during the planning phase, community awareness of environmental sanitation was enhanced through various trainings, exposure visits, exhibition of a sanitation bazaar, focused community interactions and door-to-door campaigns. Community based organizations, such as community health volunteers and women groups, were mobilized to assist in these activities.

The implementation phase followed the CLUES planning phase. The first step was to develop a detailed implementation action plan. This was done in close collaboration with the community. A detailed design and cost estimation was prepared to establish a simplified sewer network and a DEWATS, comprising of an anaerobic baffled reactor and a horizontal constructed wetland, in response to the community's priority to address such issues as black water management. Furthermore, the community actively contributed to the construction and completion of the project, both in terms of cash and in-kind labour.

In order to support the efforts of low income households to construct toilets and/or connect to the sewer network, a micro finance scheme was established in the form of a revolving fund. A local cooperative, providing low interest rate loans with a



Construction of a manhole

flexible payback period of 12-24 months to deserving households, manage the fund. Once the loan is paid back, part of the fund would be used to cover the O&M costs of the sanitation system.

Strengthening local institutional capacity has ensured mobilization of local resources and enhanced the O&M capacities for efficient waste and wastewater management.

SUCCESS FACTORS

Demand-driven and community-based: The project in Nala was initiated due to the strong demand from the community to upgrade their existing sanitation facilities, their willingness to participate in the sanitation planning process and the plan's implementation, and due to the good rapport between the planners and the local leaders.

Strong community participation and ownership: Community demand for the project ensured strong participation from the people during the planning process and implementation phase. Community contributions further strengthened the community's ownership of the project with the community contributing around 48% of all capital expenditure (including in-kind contributions like land).

Strong local leadership: The Users Committee has a vibrant leadership and team spirit. Their dedication and support of the project were major contributors to its success.

Agency partnerships: The strong partnership approach facilitated by the Swiss Federal Institute of Aquatic Science and Technology (Eawag) and the Centre for Integrated Urban Development (CIUD) played a pivotal role in the success of the project. With an environmental sanitation plan on hand, many partners, including the local authority, showed strong interest to invest in the project.

SUSTAINABILITY

There is a high potential that the project will be continued and sustained due to the following factors:

Institutional ownership: At the initiation of the project, an *ad hoc* community level committee, the Nala Integrated Development Committee, was established to facilitate the implementation of the project activities in the community. This committee has now been merged into the Nala Water Supply and Sanitation Users Committee, which is a legal entity registered with the local authority. This committee has taken over the overall ownership of the project and is responsible for O&M of the established sanitation system.

Financial security: The project has developed a sustainable mechanism to assure financial stability of long term operation and management of the established sanitation system. An O&M fund has been created and the monthly service fee collected from each household connected to the sewer network will be deposited in this fund. Furthermore, the revolving fund, in addition to being utilized to improve the environmental sanitation situation in the community, can also serve as a reserve fund in case of any major maintenance work required in the future.

Technical soundness: Competent partners like CIUD and the Environment and Public Health Organization (ENPHO) developed a well-designed sanitation system. Technical supervision of the system's infrastructure by these partners, as well as regular monitoring of it by the community, ensures its sustainability and high quality.

Enhanced capacity: As a result of training on O&M and the wastewater treatment facility, the Users Committee and the community have become very knowledgeable of these issues. In addition, the O&M guidelines, prepared through a participatory process, serve as a major tool for the long term O&M of the



Consultation with the community

system. Several ward-wise interaction programmes and door-to-door campaigns have greatly helped to increase the awareness of individuals about water, sanitation and hygiene issues, and the importance of ensuring the sustainable operation of the system in their community.

INSTITUTIONS INVOLVED

Nala Water Supply and Sanitation Users Committee was responsible for facilitating the implementation activities and for allocating local resources to support the project. This committee is responsible for the long term operation and management of the system.

Nala Village Development Committee provided partial financial support for land acquisition for construction of the DEWATS system.

CIUD, the local partner NGO, provided facilitation and technical support during both the planning and the implementation phases.

Eawag was responsible for technical and financial support during the planning process and for technical backstopping during the implementation phase.

UN-Habitat provided financial support for planning and for construction of some components of the DEWATS.

Water Aid Nepal provided financial support for setting up the sewerage network in Nala.

ENPHO provided technical support to design the DEWATS. It also provided strategic support during the system's construction and will be engaged in monitoring its functioning.

The **National Centre of Competence in Research (NCCR)** through its Partnership Actions for Mitigation Syndromes, provided capacity building activities support (e.g. O&M workshop), partial support towards the construction of the DEWATS system and seed money for establishing the revolving fund.

PRO-POOR AND GENDER FOCUS

Prior to this project, a large part of the population in the project area had to practice open defecation. Women and children, in particular, suffered from harassment, feeling of insecurity, and lack of privacy and dignity. Now, all households have access to toilet facilities, which has brought a sense of security and dignity to the women and children of the community.

The socially disadvantaged section of the community, which makes up 10% of the population, did not have access to any sanitation facilities prior to this project. This intervention ensured sanitation coverage on a priority basis to everyone. An environment was also created to foster social cohesion between men and women and their participation around the project; both men and women had the opportunity to share a common platform to discuss and debate water, sanitation and hygiene issues. They worked together to make the project a success by contributing manual labour and participating in the decision making process. Women received exposure and the opportunity to contribute to a project that has brought a major positive change to their lives.

Facts and Figures

Treatment steps:

- screen bar chamber
- settling tanks with total volume of 36 m³
- anaerobic baffled reactors with total volume of 105 m³
- horizontal subsurface flow constructed wetlands with area of 210 m²

Total costs (CAPEX) (US\$):	165,000
Simplified sewerage	85,000
DEWATS system	25,000
Land acquisition	31,000
Planning costs	24,000
Per capita cost of sanitation system (incl. land) (US\$):	64
Water consumption (lpcd)	35
Spatial footprint of DEWATS (m ²)	348
Treatment capacity (m ³ /day)	32

O&M:

Responsible agency: Nala Water and Sanitation Users Committee
Human Resource: Trained full time care taker, using O&M guidelines



ABR and constructed wetland established in Nala

FURTHER READING

Lüthi, C. *et al*, 2011 Community-led Urban Environmental Sanitation (CLUES), Complete Guidelines for Decision-makers with 30 Tools. Dübendorf, Switzerland.
Sherpa, M., Lüthi, C., Kooztatap, T. 2012. Applying the Household Centred Planning Approach: a case study from Nepal. Journal of Water Sanitation and Hygiene for Development (2)2, 124-132
www.sandec.ch/clues