



Need assessment using PRA and GIS techniques

Afroza Ahmed and Md. Monirul Alam, Bangladesh

IN ORDER TO reduce the incidence of diarrhoeal diseases and parasitic infections among 0.2 million slum dwellers of fourteen municipalities by ensuring and promoting improved hygiene practices, environmental sanitation and safe water supply, the Department of Public Health Engineering (DPHE) and UNICEF have come forward to initiate the Urban Slums and Fringes project. The project has both the hardware (water and sanitation facilities) and software (hygiene promotion and community mobilization) components. To know the KAP (Knowledge, Attitude and Practice) regarding sanitation and hygiene both quantitative (baseline survey) and qualitative needs assessment through PRA (Participatory Rapid Appraisal) techniques were used. The purposes of this needs assessment was to know about their perception of hygiene and needs for water and sanitation. Interventions for the hygiene promotion were developed according to the existing KAP and perception of the community on hygiene and sanitation. And the need assessment by the community helped to plan the hardware interventions. To identify the needs of the slum community for water and sanitation facilities, a combination of participatory and technical tools was applied.

Objectives:

- To know the perception of the community about hygiene and sanitation.
- To assess the community's demands for water and sanitation.
- To allocate required number of water and sanitation facilities according to needs of the community and involve the community in the planning process.

The Process

The total needs assessment process was accomplished in the following four steps:

Step-I: Preparation of Community Maps through PRA

For effective conduction of community mapping using participatory technique, two-day orientation training on methodology and techniques of community mapping were organized in each of these 14 City Corporations/Pourasavas. At City Corporation level 10–15 participants of UDC (Urban Development Center) caretakers were trained on the needs assessment exercise by using PRA technique.

For preparing community maps, the trained surveyors first built rapport with the community by doing transact



Figure 1. Orientation training on community mapping at city corp./Pourasava

walk and reconnaissance survey. The surveyors then conducted Focus Group Discussion (FGD) with the community. There are two parts in the FGD. The first part was to discuss about their perception on the hygiene and identify the problems associated with hygiene in the community. The second part of the FGD was focused on the community's needs to solve these problems associated with water and sanitation facilities.

For this need assessment exercise, with the help of the community the internal circulation network was drawn and the existing WatSan facilities such as hygienic latrines, unhygienic latrines, community latrines, tube wells, ring wells, stand posts, dust bins and open waste dumping sites were located with specified symbols. It is obvious that the

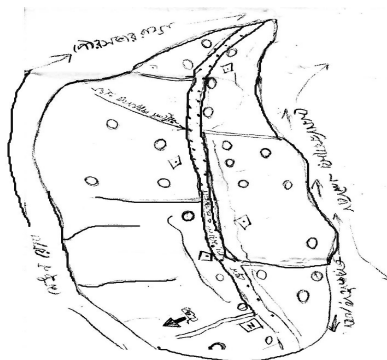


Figure 2. Amanat bag slum Rangamati Pourasava



Figure 3. Validation of community maps

maps (Figure-2) prepared by the community need some corrections to make it compatible for GIS (Geographical Information System) and needs assessment analysis.

Step-II: Validation and Upgradation of Community WatSan Maps:

An agency (Bangladesh University of Engineering and Technology) was assigned to validate and to prepare the needs assessment report for the selected slums of 14 city Corporation/Pourasavas.

As a part of the validation process, slums were divided into several blocks based on physical features or proximity. The number of households, tube wells, hygienic latrines and unhygienic latrines enumerated and marked in the maps. The existing facilities were examined and slum dwellers were consulted to assess their views and perceptions about their own needs. Local officials of DPHE and City Corporation and Pourasavs and/or community workers were also consulted in this regard to assess the hydro-geological scenario and needs of the locality. The location of water mains was also noted. City Corporations/Pourasavas maps were collected and the location of slums were plotted on them.

Step-III: Digital Documentation of Community Maps

After checking and incorporating the necessary corrections, the maps were documented. The updated and corrected community maps were then digitized in PC ARC/INFO GIS software, and map layouts were prepared in ArcView software with a suitable legend of markers. Likewise, the Pourasava and City Corporation maps showing the location of slums were digitized and composed in map layouts.

Step-IV: Need Assessment of Water and Sanitation Facilities

As for assessment, a standard methodology was devised in order to attain some uniformity throughout the four City Corporations and ten Pourasavas and among the slums in each city/town.

Identifying type of slum:

It was observed from the field investigation that not all slums selected for the survey were equal. Several distinct typologies could be discerned:

- Typical urban slum (bastei), Urban slum of better structures and Rural type of settlement.
- Identification of the type of the slum was deemed important to assess the need and intervention requirement regarding WatSan facilities.
- The characteristics of the slum and the number of different facilities that existed on the ground were used.
- It was also investigated whether water mains were available on or near the site were noted.

Categorization of Needs:

A set of thresholds were then devised, based on the standard set by DPHE and UNICEF (Table 1), to categorize the slums separately according to the magnitude of need for new facilities regarding water and sanitary latrines. The three

Table 1. DPHE standards for provision of different watsan facilities

Facility	No. of Families Served
Deep Tube well	25
Tara Pump	10
Stand post	35
Community latrine	20

Table 2. Facility-to-household ration thresholds for need categorization

Facility	Acute need	Moderate need	Minimal need
Tube wells/ring wells	<1:20	1:20–1:10	>1:10
Deep tube wells	<1:25	1:25–1:15	>1:15
Community latrines	<1:20	1:20–1:10	>1:10
Individual latrines	<1:3	1:3–1:2	>1:2

categories are slums with minimal need, moderate need and acute need. It was expected that the categorization according to need would help identifying priority areas for hardware intervention. Areas of acute need should be targeted first followed by areas with moderate need and areas with minimal need may not require any intervention at all. The threshold values are provided in the following Table 2. The figures indicated the number of facilities, Tara pumps or hygienic latrines, per household.

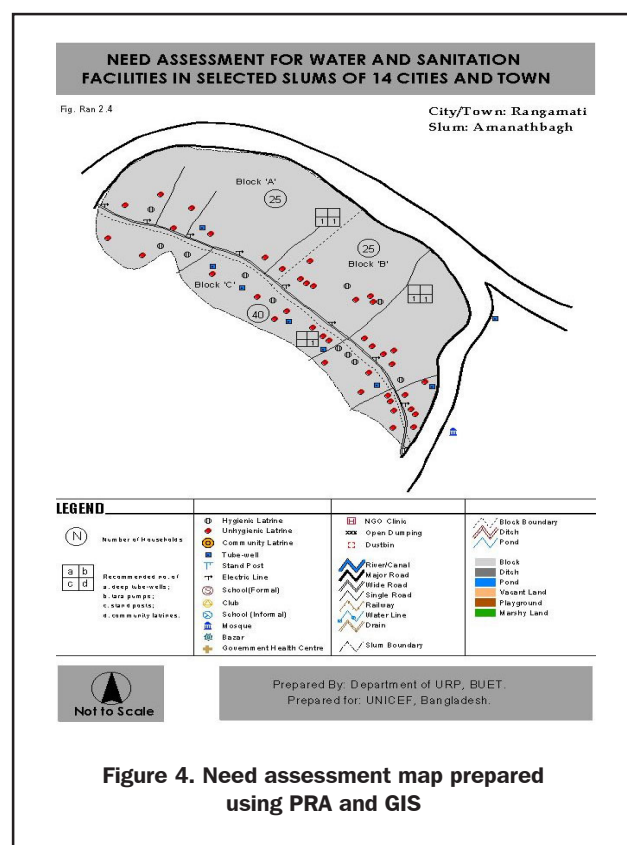
Quantifying Intervention Requirements:

After the category of need was assessed, the intervention requirements were planned. Five types of intervention were considered: provision of Tara pumps, ring wells, deep tube

wells, stand posts and community latrines. If a slum or part of a slum had moderate or acute need of water sources, the number of Tara pumps required to serve the unserved population according to DPHE standards was computed. Similarly, the number of community latrines was suggested according to DPHE standard (Figure 4).

Lesson Learned

- To design appropriate hygiene promotion interventions, community's perception on the hygiene is very important. It was revealed from the PRA discussions, that there is huge knowledge gap about the reasons for diarrhoea occurrence. Most of the people don't have knowledge on the Fecal-oral transmission route. It seems that the people wanted to use latrine for the privacy purpose rather than health reasons.
- To know community's views on the problems associated with hygiene practice the needs assessment exercise found very effective. For instance, there was a strong demand for the bathing places for the slum women. There was also a demand for the separate latrines for the women and men.
- One of the very important lessons learned from the exercise is that sometimes the technically viable options are not necessarily suitable for the community. For instance, the direct action handle of the hand-pumps is in many cases disliked by the women since these are not women friendly. The needs assessment exercise also helped to create sense of ownership among the community as well as the organizations involved in the implementation.
- The community should be given orientation on different technological options beforehand so that they can also readjust and modify the technological options.
- The rehabilitation of existing facilities also should be considered. In many cases it was found that new allocation was made for facilities despite the fact that it already existed. In many cases, the existing non-operative facilities can be made workable by minor repairing.



- The needs assessment can prevent political allocation by the City Corporation/Pourashava. The next phases of the project are designed on the basis of the needs of the community.

Conclusions

To design the appropriate hygiene promotion interventions, understanding of community's perception on hygiene is very important. The field situation and the real needs of the target people usually are not addressed properly in our conventional top-down planning approach. In this backdrop of the prevailing situation, an attempt was made to involve the community at the planning level. It was found that a sense of ownership of the community as well as the other organizations involved in the implementation was created due to this bottom-up planning approach.

This initiative was more of an experimental type involving community in the planning and design process. Besides, for the first time, PRA (Participatory Rapid Appraisal) and high-tech GIS mapping techniques were integrated for needs assessment. Various recommendations made by the community have been incorporated in the revised project. However, based on the experiences gathered from this exercise the project has been redesigned for the next phases (2002-2005).

AFROZA AHMED, Project Officer, UNICEF,
Bangladesh.

MD. MONIRUL ALAM, Bangladesh.
