

cc: Library

205.40 92PA

**Participatory Approaches to Urban Water Supply and Sanitation**  
**by Madeleen Wegelin-Schuringa**  
**IRC, International Water and Sanitation Centre,**  
**The Hague, The Netherlands**

Paper prepared for OECD/DAC Meeting on Participatory Approaches to Urban Development, November 1992, Paris, France.

**1. INTRODUCTION**

Municipal authorities in developing countries are being faced with an explosive urban growth which is largely the result of natural increase of the urban population, but also due to immigration from the rural areas. This growth is leading to a downward trend in the coverage of basic urban services such as water supply, sewerage and drainage. The capacity of the existing systems is often stretched to their limits, while their functioning is deteriorating due to problems in management and financing of proper operation and maintenance procedures. Funds for the extension of the existing systems to meet the demand of the growing population are often not available or are used on an ad hoc basis.

The result of this situation is most pressing in the slum and squatter areas where large proportions of the total urban population in developing countries is living (World Bank, 1991). These areas are also the focus of the population growth and are expected to be doubling in population every 10-15 years (UNCHS, 1991). Most of the slums and squatter settlements are already characterized by lack of basic infrastructural facilities and access to land and with increasing densities, the situation will grow worse. The population of these settlements, who usually belong to the low-income categories, often have to pay more for their basic needs such as water than the more affluent residents of other parts of the cities who have a connection to the piped water supply system.

Where municipal authorities have provided basic infrastructure facilities in low-income settlements, mostly conventional approaches have been used. Design criteria and standards have often not been appropriate for application in low-income areas and this has limited the number of people that could have been served using the budget available. At the same time, the services provided often do not address the needs and priorities of the population. Consequently people are not willing to pay for the services or to take responsibility for basic operation and maintenance.

Many governments have come to realize that with conventional strategies they will not be able to extend services to all urban residents and therefore in many countries projects are being carried out in which innovative approaches are being tried out, not only with respect to technical solutions for basic services, but also in ways to involve the target communities. Nevertheless, still most projects are supply driven and technologies as well as project components including the level of community involvement are predetermined by the agencies involved. This level can take many different forms such as contribution of labour during construction, involvement in decision making on location and design of and community responsibility for daily operation and maintenance. The community however, may not always be receptive to these top-down improvements and may not be very much interested in this type of participation. Another approach which is gradually gaining interest, is the partnership approach whereby communities are involved in decision making from the start of the project and whereby type, level and number of facilities and project components are based on the priorities and demand of the community (IRC, 1991). Usually the objective of this kind of approach is not only to improve living conditions, but to act as a catalyst for ongoing development. The degree in which communities are willing and able to get involved in projects is dependent on a number of factors such as level of organization of the community, interest of the community in the proposed improvements, degree of security of tenure, type of technology proposed and

205.40 92PA-11107

influence on decision making allowed. At the same time, the attitude of the municipal agencies involved and the way in which the project is embedded in the municipal structure are important factors which determine the feasibility of a participatory approach.

The Netherlands Government has been supporting urban basic infrastructure improvement projects in which communities have been involved one way or another. A number of these projects are selected as case study for this paper. The cases were selected on the basis of differences in approaches to involve the communities and of differences at municipal level in organizational structures for project implementation and management. The case studies do not provide a complete description of the projects, but focus on the community involvement and project organization. The scope of the paper does not allow a detailed discussion on the technical quality and sustainability of the improvements carried out. On the basis of the case studies, a number of key issues are highlighted, both at community level and at municipal level which are of influence in participative approaches in urban water supply and sanitation programmes.

## 2. CASE STUDIES

In the following section for case descriptions are being presented of Netherlands supported urban water supply and sanitation projects.

### 2.1 Baldia soakpit pilot project

The Baldia Soakpit Pilot Project was a community-based development project with social and technical dimensions, carried out from 1979 to 1986 under management of UNICEF with financial support from the Netherlands Government. It started with the objective to introduce improved on-site sanitation in Baldia, a low-income area in Karachi, Pakistan. This area had just been legalized under a new law. Through a process of 'learning by doing', the project evolved from the provision of latrines to community-based development in which the project served as a means for building local capacity and self-reliance. Two local NGOs implemented the project for UNICEF. Although there were links with the municipal authorities, they were not involved in the implementation.

An experimental phase of a year served to adapt the latrine design to local conditions and a strategy for community involvement was established, both in coordination with the community of the pilot ward. Baldia was divided into relatively homogeneous wards where people from the same ethnic background lived together who usually had well established community organizations. In the strategy, the pilot ward served as a demonstration area and its sanitation committee as motivators. Wards for project implementation were selected on the basis of socio-economic and environmental conditions by the project team. During the first visits, contacts were established with existing community organizations, and the objective of the project was explained. After a visit to the demonstration area, the organizations were asked to establish a sanitation committee, if they were interested in the project. This sanitation committee was responsible for the planning and organization of the work in their ward, while motivation visits were made by the community organizer. The project had established a maximum amount of subsidy per ward. Four categories of assistance to households were distinguished, varying from full subsidy (for the poorest households) to technical assistance only (for those able to pay). The selection of households for each category was left to the sanitation committee and those wards which had the highest number of people interested, had a priority for inclusion. Thus there was an incentive for the sanitation committees to motivate as many people as possible to contribute to the construction of the latrines. There was also an incentive to reduce the cost of latrines because with the same total amount of subsidy per ward, more latrines could be built. In all, six types of latrines were constructed during the project and the cost was reduced from Rs 2000 per unit to Rs 800. At the end of the project a total of

AND SA...  
P.O. Box 205.40 The Hague  
Tel. (070) 441-2

PSN 11181  
205.40 92 PA

1146 latrines were constructed with subsidy and 3721 latrines with only technical assistance, while for every dollar spent in latrine construction by the project, the community spent almost three dollars. Moreover, because local masons were constructing the latrines and were very motivated to spread the technology which they had helped to develop, the latrines were also constructed outside the project in other low-income areas.

Because the community organizer of the project was a woman, it was easy for her to visit houses and talk to the women. They were often much more motivated for latrines than the men and through them, the project gained more and more acceptance. During the discussions on sanitation and hygiene education between the community organizer and the women, the lack of education opportunities, especially for girls were identified as an issue. A system of home schools was then developed, based on an already existing system of religious instruction. Schools were established in the houses of young women, most aged between 14 and 20, who had an education of at least five years. These women were trained to become homeschool teachers. At the end of the project, 64 schools were functioning with an estimated number of 1700 pupils. A third component of the project was the establishment of primary health care centres, as a response to the expressed need of the community. A number of homeschool teachers was trained in preventive health care, such as vaccination, oral rehydration, nutrition and growth monitoring. Although interest was large in the beginning, this activity was not as successful as the other components.

After successfully having managed the sanitation improvements in their wards, many community organizations started other activities aimed at the development of their wards, sometimes with the help of the municipal authorities, sometimes with NGOs or with external donors. The home school teachers formed an NGO which initiated activities for income generation. When the project finished in 1986, efforts were undertaken to find a municipal department willing to continue to support the activities of the project and to replicate them elsewhere in Karachi. This effort failed because no department felt affinity with the project as a whole, although they were willing to support parts of it. An NGO was then created for continuation and replication, initially supported by UNICEF. They had a difficult start because they lacked the experience the project had built up, they did not have the trust of the community organizations and they lacked support from the municipal departments. This reduced their ability to replicate the project activities in other areas and to stimulate the capacity for development of community organizations elsewhere.

## 2.2 Kanpur/ Mirzapur environmental and sanitary engineering project

This project started in 1987 in India with the main objective to reduce the pollution of the River Ganga through major infrastructural works such as sewerage, treatment plants for domestic and industrial wastewater and drainage. A second objective was the improvement of living conditions of the population in one area in Kanpur and in the whole city of Mirzapur through a community based integrated approach covering water supply, sanitation, solid waste disposal, health and hygiene education. The project is implemented by the municipal and state level authorities with assistance of a Dutch engineering firm. For communication with the community, a special unit was created in the project, the socio-economic unit (SEU). In Kanpur, staff from the urban development department was seconded to this unit and in Mirzapur staff for the unit was recruited by the municipal authority on a temporary basis.

To ensure community involvement in planning, execution and operation and maintenance of the community level facilities and to promote hygienic use of water and sanitation facilities, an indirect approach was used by the project. Intermediate change agents at community level were identified such as traditional birth attendants, private medical practitioners, primary school teachers, community volunteers and handpump user representatives. All these change agents, numbering 500

in each city, received orientation courses and follow-up programmes on the different activities of the project with the aim to enable them to mobilize the community and to conduct health promotion activities in their communities. The change agents were predominantly female. The courses were different for each group of agents because they were based on their professional activities. The agents were also meant to function as a community level network between the municipal departments concerned and the community at large. Besides the training of change agents, a community centre was established for community development work and health promotion, where the SEU also had its office. It was expected that in the course of the project, community organizations would formally be established by user groups, professional groups or by people living close together, to enable the community to assess further development activities and to communicate these to the authorities.

A number of difficulties were encountered in the project with respect to the process as it was planned. The main problem was caused by the difficulty of integrating the efforts to involve the community with the physical improvement activities. Often the orientation courses preceded the actual construction of facilities such a long period that the momentum of motivation of the change agents was lost. Where the community was interested in the facility to be provided, this did not have much repercussions. For instance, the demand for public handpumps was high and user committees were formed and trained. These committees were often able to start a repair fund, collected from the users out of which minor repairs were financed. However, in the case of construction of latrines, the lack of mobilization and motivation did have an impact. This was aggravated by the fact that the engineering department which was responsible for the construction of latrines had carried out the survey on which the selection of beneficiaries for latrines was based. This selection was purely based on the physical possibility of constructing a latrine and not on demand. In the absence of concerted motivational efforts, this resulted in a high percentage of beneficiaries who were not using the latrines and who were not willing to construct a superstructure on the latrines. The SEU only became involved at a later stage and it took a lot of effort to motivate people to actually start using the latrines.

The lack of coordination between the SEU and the technical departments had its impact on other project activities as well. For instance, for the construction of the latrines, a contractor was hired by the department on very favourable conditions. Because this contractor delivered substandard latrines, the project started to train female masons from the area who performed much better. However, they were not recognized by the department and therefore did not receive the same financial arrangement as the original contractor and could not compete. In Kanpur, a solution was found, but in Mirzapur, the female masons could not work.

In a few wards physical efforts of the project were matched in time and place by social oriented activities, such as the establishment of an occupational health clinic and solid waste collection campaigns. These activities reflected the needs felt by the community and as a result, community interest to become involved in project activities and to spend time and effort for the improvement of the area was much higher and resulted in the establishment of formal community organizations. This effect was not reached where mobilization efforts were carried out by the change agents without simultaneous physical improvements and involvement of the community in their planning.

### 2.3 Phnom Penh urban improvement project

This project, supported by a Dutch NGO, had as main purpose to improve environmental sanitation conditions (water supply, sewerage, drainage, human waste disposal and solid waste) in two pilot areas in Phnom Penh. The project which started in 1989 had an integrated approach with strong emphasis on community participation, hygiene education and sustainable operation and

maintenance. A second aim was to assist the different infrastructural departments, not only through the provision of materials and equipment but also in coordination of activities at community level. It was thought that an approach could be developed which could be used on a wider scale in the improvement of Phnom Penh once the unclear political situation had eased and larger funding agencies could be approached. The project team consisted of staff seconded from the sewerage and drainage department, the water authority, the health department and the department of housing and urbanization. This team was advised by an external consultant.

One of the areas selected was a congested inner city area, where people lived in three or more story buildings, located in alleys behind the main streets. They had no security of tenure and basic services such as water supply, sewerage and solid waste collection were either lacking, not functioning or insufficient. The other area was a low-lying peri-urban area with a mix of multi-story buildings and single story houses built of temporary materials, where basic services were limited. The communities were approached through the government appointed community chiefs and the official network of group representatives. Plans were made by the project team to carry out the improvements in water supply and sewerage alley by alley in the central area, linking the alley infrastructure to the main lines located in the larger streets. In the peri-urban area, the main problem was drainage: stormwater from the whole city collected here, and the area was therefore flooded during 6 months a year. It soon became clear that a solution for this problem was beyond the scope of the project and that improvements in water supply, sewerage and sanitation would be unsustainable as long as the drainage problem was not solved. Thus, in the project only the solid waste collection was improved in this area.

From the start, the project faced problems with respect to the involvement of the community and to the coordination with the different departments at community level. The community chiefs were appointed and did not represent the community. Communication between the project staff and the chiefs did not result in discussions at community level on the activities to be carried out in the alleys, while it was not possible for the project staff to directly involve the communities. Thus the activities were not based on a discussion with representatives of the community and therefore had no support from the residents. A second problem was the fact that the Cambodian people had experienced more than ten years of forced communality and as a reaction were very much individual oriented. The insecure political future and the difficult economic circumstances resulted in an atmosphere where every family worked long hours to make a living and to save as much as possible for difficult times ahead. In short, people had no time or inclination to attend community meetings on improvement of living conditions. This situation was aggravated by the fact that most residents had only arrived in the city after the liberation from the Khmer Rouge and no community cohesiveness existed, nor a sense of security that they could remain in their houses in the future.

The municipal departments did not give a high priority for the improvement of the pilot wards through community participation. They wanted a complete rehabilitation of the water supply and sewerage/drainage system, which was clearly outside the scope of the project. Thus, even where improvements were carried out in the sewerage in the alleys, the main sewers remained a problem as many were blocked and in total disrepair. The coordination with the water authority was difficult because of internal management problems within the department, resulting in an unclear policy and absence of a strategy. During the project period, a policy of tariff setting for water was developed, but not applied in Phnom Penh except in the project areas. The consequence was, that people who before the project had free access to water in community tanks in the alleys, suddenly had to pay for the water. Neither the project team nor to the residents had been aware of this consequence and because the improvements were not based on priorities of the residents, they refused to pay. Obviously, this situation had bad repercussions for the improvement work in the other alleys. The only project activity which was successful, was the improvement of the solid

waste collection, because it was a priority for the residents and because the department concerned was also eager to improve its services. After three years, it was clear that the expectations about the project as a whole were too different at the level of the municipal departments, the community and the project team and could not be brought together, while the political conditions were such that the kind of project as envisaged was at that time not feasible.

#### 2.4 Nyala and El Geneina water supply project

This project has been carried out in the towns of Nyala and El Geneina in the Darfur region in the Western Sudan between 1986 and 1992. The aim of the project was to improve and extend the existing water supply network. The project was executed by the National Urban Water Corporation (NUWC) who had the responsibility for project management, and for its planning, design and construction work. They were assisted in this task by a Dutch engineering firm.

Both towns had experienced a considerable inflow of people from the region and beyond who fled for drought conditions, political disturbances and tribal unrest. These people settled around the old towns in a number of settlements which were not reached by the existing water supply network. Water was bought from vendors at prices 15-20 times higher per unit than the water from the piped supply system. Moreover, the water bought from vendors usually was collected from unprotected water sources located in river beds and consequently was of a poor quality. Because of the high water prices, the per capita consumption was as little as 8-12 litres per capita per day.

The project concentrated mainly on the major infrastructural works in which the communities were not at all involved. However, water supply to a number of low-income settlements was effectuated through the construction of water kiosks which were connected to the city network. In Nyala 20 kiosks were constructed and in El Geneina 15, each aiming to serve approximately 1000 people. To ensure involvement of the community in the siting of the kiosks and after construction in their operation and maintenance, the communities were approached by the NUWC to form water committees. The system of water committees was not a new concept as a number of water kiosks was already functioning in parts of the towns. During the community meetings to elect the water committees the NUWC insisted on an equal number of men and women in the committee. Thus, three women and three men were elected by each kiosk community to form the kiosk committee; these then selected a male guard and a female attendant to run each kiosk on a day to day basis. The water committees were involved in the siting of the kiosks. Each kiosk had 8 taps and water was supplied during four hours a day. The opening hours were determined in consultation with the kiosk committee. The female attendants were trained in the maintenance of the taps. If a tap was broken, the attendant had to replace it from the funds collected from the users. The water tariff was determined by the NUWC and agreed upon by the water committees. The fees were collected by the attendant in a box which she could not open. Initially the boxes were collected daily after closing hours by NUWC staff, but recently this was changed to collection once a week. Out of these funds, the attendant was paid as well as the repairs carried out by her. Of the total amount of water distributed from the main station to the kiosks, 80% was accounted and paid for, the remaining 20% were water losses in the system and at the taps.

Although people were generally happy with the provision through the kiosks, there were still some problems. On Fridays the kiosks were always closed and when the fuel for the generators supplying the electricity to the pumps was finished, which did occur regularly due to fuel shortage at the NUWC, the supply also stopped, necessitating collection from the traditional wells. Another problem was caused by the restricted opening hours which resulted in long waiting lines at the kiosk and people going back to the traditional wells to avoid the hours of waiting. The restricted opening hours were necessary because the total amount of water available for both towns was not

sufficient to allow longer opening hours, while fuel shortage necessitated restriction. A third problem were the support services from the NUWC for breakdowns which could not be repaired by the pump attendant. A reliable system of providing spare parts other than through project infrastructure had not yet been worked out. Thus, at community level the system was working well, and the few problems which were experienced were caused by management problems at the municipal level.

### 3. KEY ISSUES IN COMMUNITY BASED PROJECTS

Because low-income communities are not a uniform group of people and also municipal agencies are different from each other, no blueprint approach can be established for community based urban water supply and sanitation programmes. Each programme has to be established as a partnership between the agency and the beneficiary community groups. The case studies show a number of preconditions to enhance the feasibility of a participatory approach. An essential distinction can be made between key conditions related to community level and those to municipal or agency level. These preconditions do not all have to be fulfilled at the start of a project, but partly can develop as component of the project. In the course of a project the community may gradually change from passive recipients to active participators and municipal agencies may start to act more as a facilitator and less as a provider.

In the following, a number of the preconditions and other key issues which have to be taken into account, are discussed, first for the community and then for the municipal agencies.

#### 3.1 Important preconditions at community level

##### **Security of tenure**

If people are not sure that they will be able to stay in their houses, they are not likely to be willing to spend time and money for the improvement of living conditions in their neighbourhood. The Phnom Penh case illustrates that absence of security of tenure very much reduces the interest of the community to be actively involved. In Baldia, the situation was the reverse because legalization was taking place which motivated the residents to improve living conditions in the area. This security of tenure also extends to owner occupancy or tenancy. Tenants are far less likely to invest in the house they rent, while the landlords are also less likely to improve houses they do not inhabit. The security of tenure has to be clear before a project can start.

##### **Degree of social organization**

The degree of social organization is determined by a number of factors. First of all, the homogeneity of the population. This can for instance be in terms of origin (as was the case in Baldia where people from the same rural areas were living together), in terms of occupation (in Mirzapur one of the few areas where social organization took place on a larger scale was inhabited by carpet weavers) or in terms of religion (clusters of moslems living together in Kanpur). Secondly, the presence of formal or informal types of organization. A distinction has to be made between formal leadership which is appointed or which is elected. Appointed leaders do not necessarily represent the community and their involvement can even be counterproductive (Phnom Penh). Elected and informal leaders represent the community, but sometimes only part of it. This necessitates the involvement of more leaders to ensure representation of all groups in the community. A third factor of influence is the stability of the community. If a community has existed for a long period, it tends to be more stable and better organized. If social organization is weak at the start of a project, a long lead time may be required to assist a community in its organization. It may also be necessary to establish milestones at the end of each phase before a next phase can start such as was done in Baldia and Nyala/El Geneina where respectively a

sanitation committee and a water committee had to be established before implementation could start.

### **Involvement of women**

In most countries, women are not represented in the social organization of the community, at best there are separate women organizations. Because women are usually the ones who have the responsibility for water and sanitation at household level, they should be involved in decision making in this field. From the start of the project special efforts have to be taken for their participation, as was done in Baldia, Kanpur/Mirzapur and Nyala/El Geneina. In Phnom Penh the leader of the women's association was involved, but because she was appointed by the government, she was not able to mobilize them or represent their concerns.

### **Motivation**

It is unrealistic to expect people to become involved in a project which they do not see as an improvement of present conditions or if it does not correspond with their priorities. In Kanpur/Mirzapur this is clearly demonstrated by the fact that organization of user groups for water was possible, while organization for sanitation improvements was much more of a problem. This project also shows that motivation cannot be created by just conventional training of key persons in the community. Also, the basis for motivation may be different for different groups in the community. Women are, for example, generally more motivated to have a latrine than men for reasons of convenience and privacy. The Baldia case indicates that a demonstration of the improved technology, the involvement of people from the community in adaption of the design and motivation by people from a pilot area can influence the interest of the community at large. In Nyala/El Geneina, motivation from the people for the water kiosks was such that creation of water committees and payment for water was no problem at all. The water delivered through the kiosks was not only much cheaper than from the vendors, but the quality was also much better. Motivation activities should be based on aspects which are important for the target group and should continue during all phases of a project.

### **Selection based on demand**

If people are sufficiently motivated for a project, it is possible to select beneficiaries or areas on the basis of demand, as was done in Baldia. This system, however, has the inherent danger of favouring the more affluent members or parts of the community. Thus, the target group should be clearly defined. In Baldia, this was done by the project staff who preselected areas for improvement on the basis of environmental conditions and those households selected by the sanitation committee for a project subsidy were all visited by project staff to ensure that they indeed could not afford to fully pay for the facility. If there is a demand for the improvement, people are not only more willing to pay for the service, but are also more likely to feel responsible for operation and maintenance. But this sense of responsibility is also influenced by the degree of involvement in planning and implementation.

## **3.2 Important preconditions at Agency level**

### **Organizational framework**

The feasibility of a participatory approach is not only dependent on the characteristics of the target community, but also on the way the project is organized either within the government structure or outside it. If projects are implemented outside the government structure, this is usually done through a local NGO. This has a number of distinct advantages because NGOs have experience in working with low-income communities, awareness of socio-cultural conditions in target areas, ability to communicate with target groups and ability to mobilize people for a common goal. There are also a number of disadvantages because often NGOs do not have much experience with



appropriate technology, they usually only operate in a limited physical area and they may be unable or unwilling to work with the government. This means that their efforts often remain isolated and do not influence the planning and decision making at municipal level, thus reducing their impact. This is what happened to some extent in Baldia, although here the involvement of UNICEF ensured that the project had a wider impact. However, both in Asia and Latin America, there is a growing tendency for municipal authorities to work with local NGOs on community oriented projects. This is a good development as long as coordination between the NGO and the agency is well established. There is however a danger that the 'social' NGO and the 'technical' agency work alongside each other instead of together. Moreover, it relieves the agency from getting involved with the communities and adapting their functioning and procedures, which at a later stage may have its repercussions on communication for operation and maintenance.

#### **Willingness to work with communities**

Many municipal bureaucracies, and especially the technical departments are reluctant to accept that common people are able to make decisions with regard to technical services. Thus, information required for the communities to make decisions on suitability of improvements is often not given or not sufficiently explained. Moreover, the time required for communication with communities is often underestimated in project schedules. Communication is often left to the social departments, while in infrastructural improvement projects, the technical departments also need to be able and willing to discuss options at community level. Thus, from the start of a project, staff from the technical departments should be involved in communication with the community.

#### **Flexibility of technical and social approach**

The objective of most projects is to arrive at sustainability in operation and maintenance at community level, which is only possible if improvements are adapted to local conditions. This means that technical solutions should be flexible and not predetermined. An issue here is, that often technical staff regard low cost technologies as below standard solutions, which restricts their willingness to experiment with adaptations to local conditions. Moreover, the engineers are often not trained in appropriate technologies. In Nyala/El Geneina, not only the location of the kiosks was selected with the community, but also the number of taps and the design of the kiosks. In Baldia, the design of the latrines was adapted several times to suit local conditions, both with respect to the environment (double shallow pits where the groundwater level was high or solid rock was encountered) and with respect to the financial capacity of the people (construction with natural stone which was cheaper than bricks). Flexibility may also be required with respect to project components. In Baldia, the home schools and primary health care were included because of a felt need in the community and also in Kanpur/ Mirzapur the project assisted the local community with occupational health services to improve conditions at a more general level. These additional components strengthened the support for the initial project improvements.

#### **Integration of project components**

In urban areas most infrastructural services are interlinked, specifically at community level. Thus improvements in one service (for instance water supply) may necessitate improvements in another (drainage). This requires coordination at departmental level which is often lacking. In Phnom Penh this lack of coordination was one of the major problems and in Kanpur/Mirzapur, the weak communication between the socio-economic unit and the sewerage department led to problems in timing of the interventions and in the selection of beneficiaries.

#### **Sustainability of improvements**

After improvements are carried out, the responsibility for daily operation and maintenance is often carried over to the communities. For this purpose, committees have been trained. Usually they are able to carry out minor repairs, but when facilities break down, the support of technical

departments is required. This necessitates a proper communication system and above all, a service oriented attitude from the departments and a management structure which enables prompt action. This is very often lacking with the result that facilities cannot be used and motivation from the part of the community to carry out their share in the responsibility for operation and maintenance diminishes.

#### 4. CONCLUSIONS

Many governments and agencies have come to realize that innovative approaches will be required to extend water supply and sanitation services to all urban residents. This will require a much larger emphasis on participatory approaches which only will be possible if changes are achieved at community level, moving from a passive to a more active role, and at agency level, shifting their role of provider to facilitator. In the urban environment this change at community level is often complicated because of the heterogeneity of the residents. To reach a level of community organization required for a participatory approach, sufficient lead time should therefore be given in all projects to really develop the required level of community organization and priority setting. The other crucial issue specific for urban areas is the often unclear legal occupancy status of the residents. If people are expected to contribute time, money and labour for improvements, they have to have a sense of security of tenure. The more participation expected, the more security will be needed.

At agency level, specific attention in urban projects has to be given to helping project staff to cope with participatory approaches and to coordination between different municipal departments. This requires decentralization of services to local level and improved management procedures at municipal level. Most municipal bureaucracies are overburdened by problems and are barely able to keep the cities functioning. It is unrealistic to expect them to change unless special assistance is given to formulate new strategies to adjust to the role of facilitator and to become more service oriented.

## REFERENCES

- Amiagre, Brian M.M. (1990). A socio-economic survey of the El-Geneina water project.
- Bakhteari, Quratul Ain and Wegelin-Schuringa, Madeleen (forthcoming). From sanitation to development: the case of the Baldia Soakpit Pilot Project. (Technical Paper Series). The Hague, The Netherlands, IRC International Water and sanitation Centre.
- Euroconsult (1988). Nyala and El Geneina Water supply extension project: Institutional strengthening and management development pilot project. Aide Memoire. Arnhem, The Netherlands, Euroconsult.
- Euroconsult (1988). Water supply extension Nyala and El Geneina Phase II/stage 1. Technical report. Arnhem, The Netherlands, Euroconsult.
- Euroconsult (1990). Nyala and El Geneina water supply project Phase 2: rehabilitation and upgrading. Final report. Arnhem, The Netherlands, Euroconsult.
- Haskoning/Euroconsult/AIC/Iramconsult (1991). Towards environmental sanitation: an approach paper on community participation and health promotion aspects. Environmental and sanitary engineering project Kanpur-Mirzapur. Nijmegen, The Netherlands, Haskoning.
- Haskoning/Euroconsult/AIC/Iramconsult (1991). Management information system: progress up to september 1991. Environmental and sanitary engineering project Kanpur-Mirzapur. Nijmegen, The Netherlands, Haskoning.
- IRC (1991). Partners for progress: an approach to sustainable piped water supplies. (Technical Paper Series no. 28). The Hague, The Netherlands, IRC International Water and Sanitation Centre.
- PADEK (1991). Report of an evaluation of the Phnom Penh sanitation project in Cambodia with recommendations for future projects in Phnom Penh. Phnom Penh, Cambodia, PADEK.
- NOVIB (1987-1991). Project proposal and mission reports for the Phnom Penh sanitation project (unpublished documents). The Hague, The Netherlands, NOVIB.
- UNCHS (1991). Urbanization: water supply and sanitation sector challenges. Key-note paper prepared for the Water Supply and Sanitation Collaborative Council, Global Forum. Oslo, Norway.
- Wijk, Christine van (1985). Participation of women in water supply and sanitation: roles and realities. (Technical Paper Series no. 22). The Hague, The Netherlands, IRC International Water and Sanitation Centre.
- World Bank (1991). Urban Policy and Economic Development - An agenda for the 1990s. World Bank Policy Paper. Washington DC, USA, World Bank.