

# **Community Participation in Solid Waste Management**

*Factors Favouring the Sustainability  
of Community Participation,  
A Literature Review*



***UWEP Occasional Paper***

Laura Moningka

Supervisors: Dr. M. Muller

Dr. Ir. F. Laroui

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Cover photo: Meeting of neighbourhood community, Mali.

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## **PREFACE**

This literature survey on the sustainability of community participation has been conducted on behalf of WASTE as part of the Urban Waste Expertise Programme (UWEP). This preparatory study falls under the umbrella of one of the UWEP activities, namely ‘community participation in waste management’. The aim of this UWEP activity is to disseminate experience and to develop instruments to enhance community participation in both solid and liquid waste management in especially low-income neighbourhoods.

I would like to thank my supervisor at WASTE, Maria Muller, for her guidance and good critical remarks. I also want to thank WASTE for giving me the opportunity to conduct an internship at their organisation. Furthermore, I would like to thank Fouad Laroui as the coordinator from EPCEM, European Postgraduate Course in Environmental Management, in Amsterdam.

*Laura Moningka*

## SUMMARY

This literature review has been conducted on behalf of WASTE, Gouda, as part of their Urban Waste Expertise Programme (UWEP). It is a preparatory study exploring the factors that favour the sustainability of community participation.

Most cities in developing countries face urban environmental problems and these are partly caused by inadequate provision of basic services such as water supply, sanitation facilities, transport infrastructure and waste collection. Due to a lack of financial, human and technical resources, municipalities are not able (or willing) to provide basic services to all neighbourhoods within their city. Especially the poor neighbourhoods are deprived of basic services. Many projects have been set up to deliver basic services to these low-income areas and other areas that do not have services. In order for these projects to succeed and have a lasting impact, community participation is essential. Community participation is a process in which community members are involved at different stages and degrees of intensity in the project cycle with the objective to build the capacity of the community to maintain services created during the project after the facilitating organisations have left.

After reviewing the literature and analysing some case studies the following factors are thought to favour the sustainability of community participation and hence of services, like waste collection and separation, set up by the project:

1. Communication strategies are essential to generate a broad-based understanding of solid waste issues among community members on the one hand and responsiveness of the stakeholders to the demands of the community on the other.
2. Representative local leaders and CBOs can stimulate community participation and ensure that community needs are taken into account.
3. Women play a determining role in waste management and they form important channels of communication.
4. Community initiatives and CBOs are less durable if they are not, at some point, recognised and supported by the local authority.
5. Intermediary and consultation organisation to support CBOs in continuing their activities in waste management.
6. Cooperation between the CBO and the local authority to maintain and operate the service system according to formal agreements with stakeholders.
7. Financial and operational viability to make community services less dependent on external support.
8. Follow-up support after project implementation to reinforce awareness and new practices and assist when required with operation and management of new organisations.

Further research must be conducted on the relevance and importance of these factors and to investigate which other factors are essential for the sustainability of community participation after project completion.

## INTRODUCTION

Many local authorities in developing countries suffer from a lack of financial, technical and human resources and are therefore not capable or willing to deliver and maintain urban basic services. Especially low-income areas lack water supply, sanitation, electricity, solid waste collection et cetera. Many initiatives, as well as initiated by the community as by external agencies, have been set up to provide basic services. In the last decades it has been realised that community participation is essential to maintain those services. For instance to keep solid waste management systems running, at a minimum participation of the community is required in putting the garbage at the street in a proper way at the right time.

Community participation can be seen as a process in which community members are involved at different stages and degrees of intensity in the project cycle with the objective to build the capacity of the community to maintain services created during the project after the facilitating organisations have left. Thus, community participation plays an important role in the sustainability of projects, which means that services set up by the project can eventually function without external assistance and will have a long-term impact on the environment and quality of life of the community.

The objective of this study is to investigate which factors favour the sustainability of community participation in solid waste management after completion of the project.

The first chapter goes into the concept of sustainability related to urban development, solid waste management and projects. In the second chapter the concept of community and community participation is treated and the meaning and different ways of community participation in solid waste management are explained. The third chapter deals with factors favouring the sustainability of community participation and project services. To show the importance of these factors some case studies are given in chapter four. In the conclusion a summary of the main findings is given and recommendations for further research are made.

For this report a survey of the literature was made through libraries and the Internet. It was difficult to find literature and case studies on community participation in solid waste management, and on factors favouring the sustainability of community participation. The literature survey through the Internet was not very useful since many literature and case studies deal with solid waste management in general or only give a short description of community participation. Annexes 1 and 2 give a description of the sites visited for this report and the case studies found on the Internet.

## CHAPTER 1 CONCEPTUAL FRAMEWORK

Rapid urbanisation causes enormous pressure from urban areas on the environment. Cities import natural resources which are transformed into goods and services, and in the end are returned to the environment in the form of emissions and waste. This leads to local, regional and global environmental problems, such as resource depletion, deterioration of air, water and soil quality, noise nuisance, lack of green space, waste generation, and many others (Stanners and Bourdeau, 1995: 261, 309). These environmental problems also have socio-economic consequences. Poor environmental quality of cities can deprive citizens of a good quality of life as it affects their health and well being (Geenhuizen and Van Nijkamp, 1995).

To contribute to the solution of these problems the Brundtland Commission introduced the concept of sustainable development. In the first section the concept of sustainable urban development will be elaborated and in the second subsection the concept of sustainability will be applied to solid waste management. The last paragraph goes into the sustainability of projects.

### 1.1 Sustainable urban development

In the 1980s, the debates about the environment became more complex and finally led to the dominant concept of sustainable development as a way of balancing economic development and environmental conservation. This concept, introduced by the Brundtland Commission in 1987, can be considered as a starting point of a new conceptual basis for urban development. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987: 43). Most reports focus on the environmental part of sustainable development, but sustainability is a much broader concept than just environmental protection. Sustainable development is related to the quality of life in a community, meaning that the environmental, social and economic systems that form the community must provide a healthy, productive, meaningful life for all community residents, both in the present as in the future (HED, 1999).

Applied to cities the multiple goals of sustainable development can be described as (Mitlin and Satterthwaite, 1994: 5):

*Meeting the needs of the present...*

- *Social, cultural and health needs* include shelter which is healthy, safe, affordable and secure, within a neighbourhood with provision for piped water, sanitation, solid waste collection, drainage, transport, health care, education and child development. Also they include a home, workplace and living environment protected from environmental hazards. Furthermore, social, cultural and health needs relate to people's choice and control, like homes and neighbourhoods which they value and where their social and cultural priorities are met.
- *Economic needs* mean access to an adequate livelihood or productive assets and to economic security when unemployed, ill, disabled or otherwise unable to secure a livelihood.
- *Political needs* mean freedom to participate in national and local politics and in decisions regarding management and development of one's home and neighbourhood. Within a

broader framework it means respect for civil and political rights and the implementation of environmental legislation.

...without compromising the ability of future generations to meet their own needs

- *Minimising use or waste of non-renewable resources* includes minimising the consumption of fossil fuels in housing, commerce, industry and transport and substituting renewable sources where feasible. Furthermore, it entails minimising waste of scarce mineral resources through reducing use of resources, and re-using, recycling and reclaiming waste.
- *Sustainable use of renewable resources* refers to drawing on freshwater resources at levels which can be sustained, and keeping to a sustainable ecological footprint in terms of land area on which producers and consumers in any city draw for agricultural crops, wood products and biomass fuels.
- *Keeping wastes from cities within absorption capacity of local and global sinks.* These include renewable sinks (e.g. capacity of rivers to break down biodegradable wastes) and non-renewable sinks (for persistent chemicals).

So, sustainable development combines improving the quality of life and controlling or limiting the harmful impacts of human activities on the environment (Hardoy *et al.*, 1992: 172). In the next sections the focus will be on how to relate sustainable development with solid waste management and projects.

## 2.1 Sustainable solid waste management

Most cities in developing countries face urban environmental problems and these are partly caused by inadequate provision of basic services such as water supply, sanitation facilities, transport infrastructure and waste collection. Due to a lack of financial, human and technical resources, municipalities are not able (or willing) to provide basic services to all neighbourhoods within their city. Especially the poor neighbourhoods are deprived of basic services and they end up paying more for e.g. water to private providers than they would if the municipality delivered those services. Moreover, the limited resources available are invested in middle and upper income neighbourhoods and the needs of the urban poor are not taken into account.

This situation also holds true for solid waste management. On estimation about 30 to 50 percent of the generated solid waste remains uncollected and this causes health hazards, smell nuisance, pests, environmental problems et cetera. The need for sustainable solid waste management systems is high and such a system should involve environmental, social and economic objectives.

For environmental sustainability solid waste management needs to work towards the following objectives:

- The generation of waste, both by consumers as producers, should be minimised. At the production site, waste minimisation can be achieved through a new organisation of production processes which makes use of clean technology and uses less packaging materials. At the consumption site, waste generation can be reduced by awareness-raising campaigns on the environmental impacts of waste and on recycling and re-use. Attention

should be paid to the waste generating behaviour of the target group. For example, upper and middle income households import a lot of products and therefore the amount and kind of waste is different, e.g. more plastic and packaging materials, than waste produced by low income groups. Poor people produce less waste since they often re-use or sell valuable materials and the main part of their waste consists of organic materials.

- Re-use and recycling should be maximised. This includes recognising and making use of the informal sector and micro-enterprises that are already involved in collecting and selling recyclable materials.
- The remaining waste should be disposed of in a controlled manner in order to stay within the absorption capacity of local and global sinks. For developing countries the best method, regarding technical and financial means, is disposal at landfills. However, the ultimate goal is to reduce waste generation and optimise recycling in such a way that waste becomes a closed-cycle system, preventing loss of raw materials, energy and nutrients (Van de Klundert and Lardinois, 1995: 41; Grafakos and Baud, 1999: 8, 9).

Apart from environmental goals, a sustainable solid waste management system should also include social and economic objectives, like equivalent access to waste collection, and efficient and financial viable waste services. In more detail, these objectives entail:

- Waste services, like waste collection and cleaning of public spaces, should be provided to all strata of society, regardless of income, ethnic group or social status. At present, most poor neighbourhoods are deprived of waste collection and suffer from the environmental and health risks of uncollected waste, like smells and diseases. One of the reasons is that poor neighbourhoods are not accessible for garbage trucks, and therefore use should be made of appropriate technology, like hand-pushed carts. In this way, at least equivalent service can be provided.
- Safe and healthy employment with a living wage should be maximised through the organisation of the solid waste management system. This also encompasses broader issues like poverty alleviation and improvement of the local economic situation.
- More efficient coordination within the sector of solid waste management. This may entail involvement of other actors, like private enterprises, micro-enterprises or the informal sector, but ultimately local government must be accountable for the functioning of the solid waste management system.
- The system should remain financially viable for all the actors involved. This includes introducing a fee system that aims at full-cost recovery from those who receive high levels of service. Fees must be in accordance to the economic situation of the receivers of waste services (Van de Klundert and Lardinois, 1995: 39-41; Grafakos and Baud, 1999: 8, 9).

### **3.1 Sustainability related to projects**

Related to development projects two meanings can be attached to the term sustainable development. On the one hand, the term refers to projects with sustainability goals and on the other hand to the continuation of projects. Projects with sustainability goals are projects that secure development objectives with a sustainable use of natural resources both for productive inputs and waste generation (Hardoy *et al.*, 1992: 176). Referring to sustainability in an ecological sense, three criteria can be used to assess project sustainability. Most projects that are judged to be sustainable meet one or more of the following criteria:

- The project does not damage natural resources significantly in such a way that the same quantity and quality of natural resources are available for further use as if the project had never been implemented.
- The project does damage some natural resources but it has positive impacts on other natural resources so that the net effect is assessed to be resource neutral.
- The project does not damage the natural resources (Hardoy *et al.*, 1992: 176).

In this report, sustainable development will be used in the sense of a project's durability and continuation. Sustainability in this way refers to projects which can eventually function without external assistance and that will have a long-term impact on the environment and quality of life of local people (Pal, 1998: 457). A sustainable project permanently enlarges the community's resources and reduces its vulnerability. Sustainable projects have two key dimensions, namely the conservation of the benefits that derive from the project and the continuity of the development process after the project (Imperato and Ruster, 1999: I-15).

There are a number of ways in which a project's sustainability can be enlarged:

- Ensuring a permanent solution to the problem so that project activities are no longer necessary. Among other things this involves follow-up support after the project has finished to ensure a more profound and lasting impact on the development process.
- Community participation throughout the whole project, thus from project design and implementation to evaluation, ensures the reflection of community priorities and needs in the activities of the project and motivates communities into maintaining and operating project activities after the project is completed. Furthermore, community participation can increase capabilities at the level of the community and it encourages cost sharing of project activities.
- Transferring project management to a local group or agency, which can be local government or a community-based organisation (CBO). Especially community participation in project management can enhance project sustainability since it increases the level of ownership of the project by local people.
- Engaging in activities that are inherently environmentally sustainable.

Promoting activities, like health and environmental education, which enhance a project's social sustainability (Gopal, 1995: 2; Pal, 1998: 458; Imperato and Ruster, 1999: I-15, III-18, III-19).

## CHAPTER 2 COMMUNITY PARTICIPATION IN SOLID WASTE MANAGEMENT

In the 1990s community-based approaches to environmental problems have become widespread, since there is an emerging global consensus that the implementation of sustainable development should be based on local-level solutions and community participation. In this chapter first the concept and benefits of community participation will be elaborated and then it will be described how communities can be involved in solid waste management projects.

### 1.2 Concepts of community and community participation

In many development projects communities are seen as a homogeneous and harmonious unity, where the members are considered to have the same priorities and concerns. Several assumptions underlie approaches to community-based sustainable development, like the existence of homogeneous, consensual communities and of potentially harmonious relationship between different communities. Also many projects assume that a deteriorated local environment has the potential to be managed in a sustainable way, and the community is seen as the appropriate unit to carry out such management. Most of the time, the community is considered to be capable of acting collectively towards common environmental interests (Leach *et al.*, 1997: 4, 5).

In the literature (Moser, 1989; Leach *et al.*, 1997; Guijt and Kaul Shah, 1998) much critique has been expressed on this view. According to Leach *et al.* (1997) serious attention to social, cultural and economic differences and their implications have been remarkably absent from the involvement of communities in environmental projects. Rather than common beliefs and interests, diverse and often conflicting values and priorities occupy the community and these may be struggled for. Gender, wealth, age, origins, caste, and other aspects of social identity divide members of a community (1997: 5, 6).

To circumvent the difficulties inherent to the concept of community, in this report a more practical definition of the concept will be employed that can be used for urban environmental improvement projects. A community in this sense refers to a group living in a certain geographical or administrative area, e.g. a neighbourhood, who has access to and uses the same service (Anschütz, 1996: 14). This is not to say that the community is considered to be homogeneous, but it is realised that conflicting interests and priorities may exist between different groups or individuals within the community and that these must be recognised and utilised.

Apart from the concept of community, there exists no clear consensus about the concept of community participation and the result is that community participation is used in various ways with different meanings (Moser, 1989: 81; Desai, 1994: 170). According to Paul (1987), community participation is an active process by which the community influences 'the direction and execution of a development project in order to enhance their well being in terms of income, personal growth, self reliance or other values they cherish' (Paul, 1987: 2). In this definition the key ingredient is that the community influences the project. The Canadian International Development Agency refers to participation as 'the involvement of target groups in project design, implementation and evaluation, which aims to build the capacity of the poor

to maintain structures created during project implementation and continue their own development' (Imperato and Ruster, 1999: I-4). This definition goes a step further and the key concept is involvement of the target group in the project cycle in order to come to project sustainability. Since this report analyses the sustainability of community participation in waste management projects, the definition by the Canadian International Development Agency is used to come to the following definition:

**Community participation** is a process in which community members are involved at different stages and degrees of intensity in the project cycle with the objective to build the capacity of the community to maintain services created during the project after the facilitating organisations have left.

## 2.2 Benefits of community participation

Community participation has several benefits, which can be divided in benefits for the community and benefits for the project. On the one hand, community participation can be seen as an end in itself and a way to strengthen the community. On the other hand, community participation can be seen as a means to execute projects in a more efficient way (Moser, 1989: 84).

Possible benefits of community participation for projects are:

- Improvement of project design and effectiveness. If the community is involved in the design of the project, it is possible to integrate its needs and constraints in the objectives of the project and in this way come to a more effective implementation.
- Enhancement of the impact and sustainability of projects. Involving the community in the project may increase local ownership of projects and enhance a sense of responsibility for maintaining services provided by projects. These aspects are both essential for the durability and continuity of projects (Imperato and Ruster, 1999: I-1, I-2).
- Improvement of project efficiency. Community participation may be used to enhance the understanding and agreement of cost sharing (both financial and physical contribution). Furthermore, community participation can be used to prevent conflicts and to stimulate cooperation and agreement between different actors. In this way delays in project execution can be reduced and overall costs minimised (Paul, 1987: 3, 4).

Possible benefits of participation for communities include:

- Building local capacities and capabilities. Community participation may for instance increase awareness of knowledge and capacities, may improve the ability to negotiate as equals with authorities and other stakeholders<sup>1</sup> to promote common objectives, and increase responsiveness to conflicts within the community.
- Involvement in decision-making. Participation can ensure that the different needs and problems of the community are integrated in the project's objectives.
- Empowerment. Community participation may give people the opportunity to devise and initiate strategies to improve their situation (Mitlin and Thompson, 1995: 248; Imperato and Ruster, 1999: I-2).

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<sup>1</sup> In this report *stakeholders* refer to the actors who have an interest in solid waste management or project, like local and national authorities, communities, community-based organisations (CBOs), NGOs, private and micro-enterprises and donor organisations.

In order to obtain above-mentioned benefits of community participation, projects should:

- Involve communities in the planning of the project
- Involve communities in the implementation, operation and maintenance of the project
- Let the whole community share in the benefits of the project
- Include the community's opinion in the evaluation and modification of the project (Whyte, 1986: 7, 8).

It must be borne in mind that community participation depends on the degree of organisation of the community. When a community is not or only to a small degree organised, this can form an obstacle to participation if this obstructs the delegation of certain complex activities, like management of waste collection, that requires a more complex form of organisation.

Therefore, it is necessary to investigate whether a community is organised or if it is possible to strengthen or set up an organisation. However, it should also be investigated if an existing organisation is representative of the community (Moser, 1989: 128; Imperato and Ruster, 1999: III-14). Especially community-based organisations (CBOs) are important. CBOs can be active in many different fields, like sports or cultural activities (Ahmed, 1992: 78; Bulle, 1999: 9). In this report, CBOs will only be used in relation to solid waste management.

The next section elaborates the various ways in which a community can participate in solid waste management.

### **3.2 Community participation in solid waste management**

Since the members of a community have different roles, there are also various ways in which they can participate in solid waste management. At the individual level, residents are responsible as users. This involves actions like storing waste in a proper way in a bag or bin, separate recyclable or organic materials from other waste, offering waste at the right place at the proper time for collection, and cleaning the area around the house (Bulle, 1999: 20; Muller, internal document).

Apart from individual responsibility, people can be collectively responsible and this means participation in more or less organised activities, like meetings, clean-up campaigns, and awareness-raising activities. Furthermore, community participation may involve making material, financial or physical contributions to activities of solid waste management, for instance working as cart operator or sweeper, and paying fees for waste collection (Bulle, 1999: 20).

A step further is actively participating in formulating the project, meaning participation in meetings and expressing opinions and ideas about the objectives and activities of the project, and closely following the project and its progress. The highest level of community participation is community management and this may entail becoming a member of committees, being involved in controlling the project, being accountable to other community members about decisions taken. Often community management is carried out by a smaller group within the community, through for example a newly established committee or an existing community-based organisation (Anschütz, 1996: 14; Bulle, 1999: 20).

Apart from various ways to participate, there are several degrees in participation of different community members. Not all members of the community, like the poorest or most marginalised groups, have equal access to information or are sufficiently represented by community leaders or organisations and this may obstruct the participation of those groups.

Special attention should be paid to the role of women. In many situations women are the first to be affected by a deterioration of the environment and are most willing to participate in projects that improve their living conditions. However, religious barriers, traditions, social hierarchy, low rate of literacy, or the burden of domestic tasks may impede their participation in such projects (Bulle, 1999: 24, 25, 43).

The success of community participation in solid waste management depends on other actors involved, such as the municipality, community-based organisations (CBOs), micro-enterprises, and local leaders. In particular, the municipality plays a vital role since in most countries the local government is responsible for the delivery of basic services, like waste collection and disposal and for the implementation and enforcement of environmental legislation. If, for instance, the municipality does not collect the waste separately, it has no use for the community to separate their waste.

CBOs active in solid waste management aim to improve the solid waste situation of a neighbourhood. They can be involved in various activities such as promoting re-use and recycling of materials, hiring waste collectors, collecting fees for waste removal and making arrangements with local authorities (Van de Klundert and Lardinois, 1995: 12; Pfammatter and Schertenleib, 1996: 5). Micro-enterprises are small enterprises which can be active in recycling or in waste collection at a low cost. The small size makes them flexible and able to adapt waste services to local demand.

Local leaders play another important role in community participation. The responsibilities of community leaders is to encourage people to subscribe for waste collection, to make sure that people pay the fees, to stimulate the separation of waste, and to monitor the performance of the service level. Furthermore, they should act as a negotiator for local authorities, supervise the performance of local authorities and private enterprises, and act as a pressure group to obtain services from the local authorities (Muller, internal document).

The next chapter gives a description of factors that favour the sustainability of community participation.

## CHAPTER 3 SUSTAINABILITY OF COMMUNITY PARTICIPATION

One of the preconditions for solid waste management projects to succeed is community participation. This means that communities are viewed as partners to be involved in all phases of the project cycle (*i.e.* identification, planning and preparation, implementation, monitoring and evaluation, and transfer to local managers) and not just as passive beneficiaries for whom new services are set up. However, community participation during the project does not imply that the community will continue the services set up by the project, like waste collection or recycling, after the facilitating organisations have left. Nevertheless, there are certain factors that can enhance the sustainability of community participation after project completion. This chapter makes an attempt to produce a list of factors that can favour the continuity of community participation and hence of the waste activities initiated by the project. Although the factors will be discussed separately, they are often interrelated.

### 1.3 Factors favouring the sustainability of community participation

#### *1. Communication strategies are essential to generate a broad-based understanding of solid waste issues among community members on the one hand and responsiveness of the stakeholders to the demands of the community on the other*

It is very important that the communities themselves identify the waste problem as their problem and that its solution is for their own benefit. Therefore, communication strategies, like awareness-raising campaigns, are vital to stimulate community members to participate and to keep the community informed about the project. In this way, the sense of local ownership can be enhanced, meaning that the community feels responsible for the services, like waste collection and separation, set up by the project. When community members see that the project is for their own benefit and feel responsible for project services, they will also show an interest in the follow-up of the service and its continuity (Gozun, 1994: 3, 5; Bulle, 1999: 26). Furthermore, communication strategies can be used to assess the ability to pay for services and to create demand for appropriate and achievable levels of service and in this way enlarge the community's willingness to pay. In addition, good communication can ensure that community's expectations of the project or waste service do not exceed what is reasonably achievable and affordable (McCommon *et al.*, 1998: 25).

In order to include the knowledge, expectations, constraints and priorities of the community in the project, it is necessary to have a good communication and information flow between the different stakeholders involved. Communication strategies are a way to receive feedback from the community and a way to identify potential conflicts and constraints. This ensures that the project can respond directly to the needs of the community and address problems in a quick and effective way. Responsiveness will also enhance the sense of local ownership of the project (Haughton, 1999: 54; Imperato and Ruster, 1999: III-36, III-40). It must be realised that the community is not homogeneous and that therefore the social, economic and ethnic heterogeneity of the community must be taken into account.

## ***2. Representative local leaders and CBOs can stimulate community participation and ensure that community needs are taken into account***

By lending their support to a project, community leaders can encourage the community to participate. They can also initiate projects by for instance setting up committees, CBOs and clean-up campaigns. Furthermore, they can act as intermediaries between CBOs, the local authorities and other stakeholders to solve conflicts or constraints (Bulle, 1999: 22, 23, 42). In whatever way local leaders are involved, their representativeness and legitimacy must be assessed. Apart from local leaders, CBOs must also be representative of the community. If local leaders or CBOs do not represent the community or only a small part of it, difficulties will arise in sustaining community participation and conflicts will prevail if rival leaders or CBOs exist. However, existing leaders or CBOs must not be bypassed, even if they are corrupt or not representative, because this can lead to serious complications and opposition. A way to circumvent legitimacy problems is to enable community members to control the activities of the leaders and CBOs by keeping them well informed on the process of the project. Besides legitimacy conflicts, it must be prevented that leaders use the project to reinforce their own position, for this may curb community's participation (Hordijk, 1999: 23; Imperato and Ruster, 1999: III-24).

Furthermore, attention must be paid that the project is not solely carried by one person, since this might endanger the continuity of project activities if there is no one willing to take over the responsibility if this person withdraws. If there is a successor, it is essential that former leaders transfer their knowledge and skills before withdrawing (Zurbrugg and Ahmed, 1999: 6). The Civic Exnora model used to collect waste in Madras, India, is a good example. The different Civic Exnora units are led by people who promoted the idea from the start. All the leaders recognise that leadership must be passed on, but many feel that it is difficult to find persons who want to take over the units. The danger exists that when the first-generation leaders loose their interest, the organisation goes down with them (Anand, 1999: 174).

## ***3. Women play a determining role in waste management and they form important channels of communication***

In many projects, the important role of women is overlooked and often they are not listened to or their needs and circumstances are not sufficiently taken into consideration. In most situations, women are the managers of households and thereby they are responsible for cleanliness within and around the home and for taking care of waste. In some societies, this task also involves paying for waste collection and therefore it is vital to include women in determining the fees for waste services. Apart from domestic tasks, women can be active members of CBOs, can stimulate participation of other women or community members and may be the key interlocutor that projects have among the community (Bulle, 1999; Imperato and Ruster, 1999: III-29, III-30; Scheinberg *et al.*, 1999). In Karachi, two female shopkeepers proved to be important for stimulating community participation, as they enjoyed a good reputation, had good contacts with the community and were enthusiastic supporters of the project (Zurbrugg and Ahmed, 1999: 4). For women to fulfil a key role, projects should address the particular needs of women, the difficulties faced by women to overcome obstacles against their participation, and the problem for women to reconcile project activities with their normal daily activities (Bulle, 1999; Imperato and Ruster, 1999: III-29, III-30).

#### ***4. Community initiatives and CBOs are less durable if they are not, at some point, recognised and supported by the local authority***

In most countries, the municipality is responsible for the delivery of basic services. Since many municipalities fail to provide those services community initiatives and CBOs try to fill this gap. Especially in solid waste management support and recognition from local authorities is imperative, because they have to transport and dispose of waste that has been collected by CBOs or other enterprises. For projects it is therefore important to involve local authorities in the early stages of the project and in the activities of the CBO (McCommon, 1998: 18; Imperato and Ruster, 1999: III-11). Official recognition by the authorities of CBOs can also increase community participation. In Colombo, for example, the community development councils draw up action plans which have been discussed with the municipality and the NGOs. The recognition of the municipality makes it possible to better mobilise residents to take action and solve the solid waste problem.

Although recognition and support is very important, several factors can inhibit active participation of local authorities in projects, like lack of personal, insufficient technical and financial means or absence of a legal framework to implement initiatives (Bulle, 1999: 38, 47, 48).

### **2.3 Factors facilitating the continuation of project services**

#### ***5. Intermediary and consultation organisation to support CBOs in continuing their activities in waste management***

An organisation, like a NGO, which can act as an intermediary or interface between the community and other stakeholders and draws attention to constraints and conflicts, plays a vital role in sustaining activities of CBOs. Furthermore, such organisations ensure that information or complaints flow smoothly from the community to other stakeholders (like local authorities, donor organisations and private enterprises) and they can create a channel for discussion and negotiation. So, a good intermediary can play a fundamental role in conflict resolution and can facilitate community's access to the different stakeholders involved in the project. Moreover, they can increase the legitimacy of CBOs from the local authorities and other stakeholders, and strengthen their negotiation position. Apart from work at the community level, intermediary organisations can also train authorities in participatory techniques and sensitise them towards community needs (McCommon *et al.*, 1998: 17; Imperato and Ruster, 1999: III-3, III-5; Bulle, 1999: 37, 38).

#### ***6. Cooperation between the CBO and the local authority to maintain and operate the service system according to formal agreements with stakeholders***

Cooperation implies creating a partnership between the CBO or micro-enterprise and the municipality based on a clear division of responsibilities and a mutual commitment to carry out the service. In this way, legitimacy conflicts between the CBO or micro-enterprise and the local authority can be prevented and the continuity of the waste service ensured. One form of partnership is to enter into a contract stating tasks in relation to primary and secondary collection and other aspects of waste management. An important aspect is monitoring to see if

the service is operating according to the needs of and agreements made with the community (Serageldin *et al.*, 1994: 22; Bulle, 1999: 38, 48). A pilot project in Cono Norte, a peri-urban area in Lima, clearly reveals the importance of contracts. One of the community's micro-enterprises encountered serious operational problems when the municipality failed to provide secondary waste pick-up from the primary collection point. The situation even got worse when the municipality delayed the transfer of payments to the private enterprises, which households paid to the municipality for private waste collection (see also Annex 2) (McCommon *et al.*, 1998: 19). This example shows the need of written contracts with a clear division of responsibilities and tasks between the community, the CBO or micro-enterprise and the local authority.

### ***7. Financial and operational viability to make community services less dependent on external support***

Whether community services, like waste collection and disposal, are provided by the municipality, CBOs or private enterprises, financial and operational stability are necessary for their continuation. Sufficient financial resources give possibilities to purchase and maintain equipment, to hire and train personnel, to finance awareness campaigns and to channel profits into other waste management activities. One way to make the waste system financially viable and to ensure its continuity, is setting up an effective fee collection system. A precondition is that the fees are appropriate to local income levels and that the waste service is in accordance with the demands of the community or else the willingness to pay will be very low. In Cono Norte, for instance, one of the micro-enterprises provided a more frequent service than households were willing to pay for. Failure to monitor community's needs led to financial problems of this enterprise (see also Annex 2) (McCommon, 1998: 19, 30; Bulle, 1999: 46).

Operational viability includes taking safety measures, like special uniforms and gloves, for personnel and using technology that is appropriate for the service area. Many streets in low-income areas are narrow and unpaved and are therefore inaccessible for large garbage trucks. As an alternative, hand-pushed carts or tricycles can be used to collect waste and to transfer it to secondary collection points. Another problem encountered by many waste collection providers is attracting personnel. The low social status and the low wages of cart operators and sweepers can lead to a lack of motivation and this may form an obstacle for the continuity of the waste service (McCommon, 1998: 21; Bulle, 1999: 46). Apart from financial and operational viability, for CBOs or micro-enterprises an important aspect is formal recognition by the authorities of their status and work.

### ***8. Follow-up support after project implementation to reinforce awareness and new practices and assist when required with operation and management of new organisations***

In order to generate a more profound and enduring impact on the development process, it is important to provide follow-up support after implementation and completion of the project. It is wrong to believe that the community can continue services provided by the project on their own (Imperato and Ruster, 1999: III-12, III-13). Examples of follow-up support are financial advice, technical assistance, training, conflict resolution, environmental education, and monitoring. However, during the project conditions should be created to mobilise community resources in order to sustain the waste service without relying solely on external support.

After describing factors that influence the sustainability of community participation and project activities, the next chapter gives an analysis of some case studies to show the relevance of these factors.



## CHAPTER 4 ANALYSIS OF SUSTAINABILITY FACTORS IN COMMUNITY-BASED PROJECTS

This chapter gives an analysis of three examples of projects with community participation to show the relevance of the factors favouring sustainability of community participation. The first example is a project proposal and although the project is still to be implemented it gives an idea of how the sustainability factors can be taken into account. The second example is a pilot recycling programme in Quito, which shows the problems which can be encountered by a project. The third example is a UWEP pilot project in Bangalore. Since good documentation on this project is available, a more detailed analysis is given to see to which extent the sustainability factors are considered.

### 1.4 A project proposal for community-based urban development in Nigeria

This project proposal for community-based urban development was submitted to the World Bank and after approval it will be implemented from 2000-2005. An analysis of this proposal will be given to see to what extent the sustainability factors are taken into consideration.

As a result of inadequate access to financial resources and inadequate technical and management capacity at the local government, there is no sufficient capacity to provide urban infrastructure and services. Especially low-income neighbourhoods lack basic services, like water supply, sanitation facilities and waste collection. This project aims to develop a replicable and inclusive community-based program for urban development by building effective capacity of communities and local authorities to work in partnerships. By forming a partnership the municipality will be able to prioritise the needs of the communities and to design and implement investments for a package of basic services, like water supply and sanitation, solid waste management, and education facilities.

The objectives of the project are:

- a) To enable *partnerships between communities and governments*, through transparent project information sharing and better and effective communication. This will be done by financing capacity building activities for communities, local institutions and national and local governments to design, implement, monitor and evaluate the project as well as improvements in urban management.
- b) To finance community-based *demand-responsive* investments in poor neighbourhoods and the necessary infrastructure to support those investments.

Sustainability of investments made by the project will depend on:

- (i) ownership of the investments by communities and the local governments;
- (ii) availability of resources for operation and maintenance;
- (iii) the management capacity at the local government levels.

To ensure sustainability, involvement of communities and their local governments is an integral part of project design.

At the community level, local NGOs will play an important role by providing an *interface between communities and local governments* to facilitate the building of partnerships between them. These NGOs will also have to *sensitise local and national governments*

*towards community needs and to train them in participatory techniques for involving communities in project activities.* Furthermore, communities will be assisted in nominating *neighbourhood representatives that can work in partnership with their local governments in reflecting community priorities* and they will be assisted in *developing appropriate management structures to contribute to operations and maintenance and revenue collection mechanisms.*

At the local government level, *capacity-building programs* will be set up to develop skills for physical and financial planning, computerisation, contract management, the development of maintenance programs, overall financial management, revenue mobilisation, and monitoring. Furthermore, intermediary NGOs will assist municipalities in developing *communication techniques that are flexible and able to target poor communities.* These activities will enable local authorities to develop partnerships with communities, to better prepare community-based projects, to manage contracts, and to develop appropriate operations and maintenance arrangements.

At the national level, each state will establish a State Project Management Support Unit (SPMSU) which will be responsible for e.g. *providing technical support* to local governments, evaluating project impacts, disseminating lessons learned, and developing policies to reduce urban poverty in their states. In addition, the SPMSU will undertake an effective *project information campaign* to stimulate interest in the project from other local governments in the state and screen project proposals for compliance with project objectives and approve them. However, local authorities will have the prime responsibility for facilitation and implementation of the project (World Bank: *s.a.*).

This project proposal takes into account most factors mentioned in the third chapter. Examples are the intermediary role of NGOs between communities and authorities to facilitate partnerships, communication strategies to provide information to the community and to ensure demand responsiveness of activities, and capacity-building and resources for operation and maintenance of project services. However, what is lacking is attention to the special needs, priorities and role of women. In conclusion, it can be said that by taking into account most factors, the sustainability of community participation and project activities will be enhanced. However, since the project is still to be implemented, it remains to be seen to what extent the objectives of the project will be fulfilled and the community is really involved.

## **2.4 A pilot recycling programme in Quito, Ecuador**

The problems encountered by the pilot recycling programme in Quito show the importance of some of the factors in sustaining community participation. In 1993, the municipality initiated a pilot project with the objective to extend waste collection to several lower and middle-class neighbourhoods which lacked services. This was done by micro-enterprises that provided separate collection on different days of organic, recyclable and non-recyclable waste. The task of the households was to separate their waste according to these categories and to offer it on the appropriate day. The revenues from the sale of recyclable materials went to funds to support neighbourhood improvements.

Neighbourhood committees identified residents to organise the micro-enterprises and in each neighbourhood CBOs worked together with the micro-enterprises to implement the project. These neighbourhood committees decided on how to use the money obtained from the sale of recyclables. Although men formed the majority of these neighbourhood committees and held the more powerful positions, women carried out most of the committees' daily activities and maintained the relationship between the committee and the municipality (Hernández *et al.*, 1999: 145, 147, 154).

The recycling programme was a great success right from the start. In particular, the neighbourhood associations were very positive since they had been fighting for waste collection services for years. They not only motivated the community members to participate but also initiated activities to clean the neighbourhood. However, in the second year of project implementation, interest in recycling began to diminish. Although some households continued separation, waste was often not as carefully separated as the programme required and waste collectors themselves had to sort out the waste. Despite the fact that waste collectors reminded the households of programme guidelines, the situation did not improve and waste collectors could clearly identify which households were regular recyclers and which not. Furthermore, they observed that households returned to pre-programme practices and disposed of their waste themselves. Besides, there were stories about factions in the neighbourhood associations and that people who did not separate their waste were supporters of neighbourhood leaders who were not or no longer involved in the project or CBO. Finally, some households questioned whether the funds were managed properly and there were complaints about the frequency of waste collection (Hernández *et al.*, 1999: 148).

This project shows clearly the importance of awareness-raising campaigns and a two-way communication channel. Some residents were suspicious about what happened with the money generated from recyclables and others were reluctant to give waste with monetary value to collectors. Education about the benefits of recycling and about the different categories in which waste had to be separated, combined with active involvement of community members in the way funds are used, could contribute to better performance and continuity of the waste service. Another factor is the representativeness and legitimacy of the CBOs and local leaders. Some people did not participate (anymore) because of factions in the neighbourhood organisations or because they supported other leaders than those involved in the project.

### **3.4 A pilot project on community participation in solid waste management in Bangalore, India<sup>2</sup>**

In Bangalore, as in many other cities in the developing world, the great amount of uncollected waste is the testimony of the incapacity of local authorities to provide urban services like waste collection. Due to the failure of municipal waste collection and disposal, many NGOs and CBOs are active in the field of solid waste management. To improve waste management a pilot project has been set up as part of the UWEP programme, and the project is implemented

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<sup>2</sup> The analysis is based on the monitoring reports on the first two sectors of the ward (viz. sector one with 278 houses and sector two with 578 houses) where the project was implemented. Unfortunately, there was no data available on other sectors. Additional information is derived from other reports, such as the project presentation document, baseline reports and progress reports.

by the Centre for Environmental Education (CEE) in collaboration with UWEP/WASTE. The ward that has been chosen as the project site is ward fourteen, Nagapura.

#### **4.3.1 Description of the project site**

Nagapura has a population of 40,000 to 50,000 inhabitants and is comprised of a middle and upper class area with about 8000 households and a low-income area with approximately 800 households. The ward is mostly residential with some major commercial centres, which are the major waste generators. About 15 to 20 tons of waste per day is generated. Schemes for door to door collection have been present for the last few years. One of the schemes is run by the CEE, which provides waste collection to 430 houses and employs six waste retrievers that operate three tricycles. The waste collectors earn additional money from the sale of recyclable materials such as glass, paper, and plastic. The organic waste is composted in pits in a nearby park on land that has been provided by the municipality. CEE runs also another project that involves collection and composting of waste from 130 households. Another waste collection scheme for 200 houses is run by the organisation of the local councillor, but this does not involve separation or composting. Furthermore there is a scheme for door to door collection run by the municipality, which covers 200 households.

#### **4.3.2 Project objective and strategies**

The existing waste collection initiatives do not cover the whole ward and only one scheme involves composting. The overall aim of the UWEP/CEE project is to bring together all stakeholders in order to manage the solid waste generated in the ward in an integrated way and to develop, implement and evaluate a community managed environmentally friendly and viable solid waste management system. This requires several additional objectives, such as education, awareness raising and training of the different waste generators and service providers, improvements in waste service systems, community involvement throughout all the phases of the project and assistance in the selection of landfills and environmentally safe disposal systems.

The project site has been divided into thirteen sectors and the intention is to proceed with the project sector per sector. The first step in each sector is the formation of a waste management committee that represents about 500 households or other establishments. This committee is formed by residents and has the task to run the waste collection scheme, setting the fees and to hold meetings periodically to review contributions of households, financial aspects and other matters concerning the project. If the sector already has a door to door collection service, the intention is to make the service more efficient and to link it to the overall municipal service of transportation and waste disposal.

#### **4.3.3 Analysis of the project in relation to sustainability factors**

##### *Communication strategies and responsiveness*

Several steps are followed by the implementing agency in the communication strategy. A door to door survey is held to assess the willingness of residents to participate in the solid waste management program. Student volunteers go door to door to give explanations on the project, on source separation, on the expectations from residents (like putting out the

separated waste at the appropriate time) and to enrol residents for the waste management committee. Furthermore, meetings were held with residents, health inspectors and garbage contractors and a workshop was organised for all stakeholders, like residents, traders, students, and offices, in cooperation with the municipality.

In spite of the fact that two rounds of door to door motivation and one awareness programme through street theatre have been completed, the participation in financial contributions or separation of waste in the first section where the project has been implemented is only 28 to 36 percent. The reason of this low level of participation is attributed to the fact that street rubbish bins are nearby, where waste can be left and therefore there is a hesitation to pay for door to door service.

This example shows that communication strategies should not only be used to give information to the neighbourhood, but also to get feedback. In this manner the project can be responsive to the needs from residents and priorities and constraints of the community in project activities.

#### *Representativeness of CBOs and local leaders*

At first, the project was to be implemented in Malleswaram, ward seven. The proposal for Malleswaram was developed by a CBO, which had a very loose and informal structure and within the CBO the volunteers were of different backgrounds with different reasoning and mentality and this caused suspicion between each other. The CBO was not really representative of the community and therefore the community was suspicious of NGO motivations and did not fully cooperate. Due to these problems with the organisation it was decided to shift to Nagapura, ward fourteen. However, it is not clear from reports whether the representativeness of the CBOs active in Nagapura is assessed. Especially the low-income area is not or only to a small degree represented. Most activities focus on the upper and middle-income area of the ward and in the reports no special attention is paid to the needs of the low-income area.

#### *Role of women*

Women have been playing a very active role. They are involved in waste management committees, participate actively at workshops and meetings and play a large role in motivating other members of the community. Of the three waste management committees formed till now, about 60 percent of the members is female. One of the committees has a woman as president and she has taken a lot of interest in motivating residents and facilitating decisions regarding waste collection.

The role of women is thus well taken into account, however the question is whether women from the low-income area also participate.

#### *Recognition and support from the local authority*

Over the last few years the municipality has become increasingly aware of the role of communities and their organisations in solid waste management. For instance, the local authority provides public land for composting activities and provides waste collection equipment free of charge. However, there is no legislation recognising the role of communities and micro-enterprises and there are no formal procedures by which they can apply for financing solid waste management activities. For instance, two private entrepreneurs operating in the ward have not been able to get institutional support from the municipality due to political interference.

At the level of the ward, the local councillor of Nagapura is active in solid waste management through his own organisation and he is willing to cooperate with CEE and other CBOs to

expand waste collection to the whole ward. An issue which can be interpreted as a lack of governmental support or cooperation is the issue of the street rubbish bins that caused the low participation in sector one. The implementing agency has prevailed upon both the health officer and local councillor to have the rubbish bins removed. However, before these bins could be removed there is a need to make the door to door collection and transportation more efficient.

#### *Intermediary and consultation organisation*

The implementing agency CEE fulfils the role of intermediary and has contact with all the stakeholders like the waste management committees, the residents, the CBOs and the local authority. However, from the reports it is not clear what kind of activities CEE actually undertakes to fulfil this role.

#### *Cooperation between CBOs and local authority to maintain the waste service*

Although the aim of the project is to bring together all the stakeholders, no mention is made of creating partnerships between CBOs, micro-enterprises and local authorities. Nonetheless, partnerships are very important to define the roles and responsibilities, to give CBOs a formal status and to prevent legitimacy conflicts. For example, the success of waste collection by CBOs depends heavily on the service provided by the municipality. The municipality is responsible to transport waste from primary collection points and to dispose of the waste in an environmentally friendly manner. The municipality and the implementing agency have discussed the timings and routings for collection to synchronise primary waste collection with the arrival of the municipal transport vehicle. Furthermore, to see if the waste schemes of the project are operating well, street committees with community volunteers have been set up to monitor and evaluate the performance of the waste service.

So, agreements between the different parties have been made, but these are not formalised in a contract or partnership.

#### *Financial and operational viability*

Participating residents pay a monthly fee, which is set by the waste management committees. From these fees the salaries of the collectors are paid and surplus money is used for maintenance of equipment. Despite the fact that a survey was held on willingness to pay, the participation of residents in the two sectors is rather low. In a survey conducted in sector one, from the 186 residents interviewed, 135 indicated that they were willing to pay. However, in reality in this sector only 36 percent of the residents pay the monthly fee. In sector two the participation is higher, namely 50 percent.

To enlarge operational viability the waste collectors have been trained by project staff on separation of waste at source, safety measures for handling waste, attitudes towards citizens et cetera. The authorities, NGOs or other agencies have provided most of the equipment for waste collection.

#### *Follow-up support*

The objective of this pilot project is to bring together all stakeholders, such as residents, CBOs, local authority, commercial establishments, to manage the solid waste of the ward in an integrated way and to learn from this experience to make an attempt to replicate it city-wide. However, in none of the reports mention is made of providing follow-up support after the project is implemented or completed. For instance, it is not clear if and which measures are taken if the participation of residents in paying collection fees and separating waste appears to be low.

#### 4.3.4 Conclusion

In conclusion it can be said that most sustainability factors are taken into account, but it is difficult to state anything on the sustainability of community participation after project completion. Regarding community participation, it can be stated that apart from the community members enrolled in the waste management committees, community participation goes no further than paying fees, separating waste and offering waste at the appropriate time. Despite door to door awareness campaigns and a survey on willingness to pay, participation of households is rather low, both in waste management committees as in paying fees.

Due to lack of information, it is not possible to say which factors contribute to the low level of participation. Is there a lack of support and cooperation from the municipality, are the waste management committees and CBOs not representative enough, or are there other factors which inhibit a higher level of community participation? The overall question is why do some people pay for door to door collection and others not. What happens with the waste of the people who do not pay? If this waste is also collected, it will endanger the motivation of the ones that do pay and hence the sustainability of the door to door waste collection scheme.

Before the project, several waste collection schemes from NGOs, CBOs and the municipality were present, but these initiatives did not cover the whole ward. The aim of the project is to provide the whole ward with waste collection in an integrated way. The approach is to divide the ward into thirteen sectors and implement the project sector per sector. The question is how this approach can lead to integrated solid waste management for the whole ward. Another question is in what way the waste collection schemes present before the project are involved.

## CONCLUSION

Many cities in developing countries suffer from environmental problems due to rapid urbanisation. The environmental problems are aggravated by the fact that local authorities are not capable to deliver basic services, such as water supply, infrastructure and solid waste management. The last few decades, many projects and other initiatives have been set up to provide especially low-income areas with basic services. For such projects to have a continuing impact, community participation is a precondition and this entails involving the community at different stages and degrees of intensity in the project cycle. In solid waste management, for example, community members can participate in different ways, such as paying collection fees, offering waste at the appropriate time and separating recyclable materials. Furthermore, community members can be involved in awareness-raising activities, participate in meetings to influence the process of the project or be part of committees that manage waste services.

Certain factors favour the sustainability of community participation. Communication strategies, such as awareness raising campaigns, are essential to generate a broad-based understanding of solid waste issues among community members. In addition, communication strategies can enhance the responsiveness of stakeholders like NGOs or local authorities to the needs of the community. The case studies showed the importance of this factor. A good communication strategy in the recycling programme in Quito for instance could have prevented the suspicious attitude of what happened with the money generated from the sale of recyclables.

Important stimulators for community participation are local leaders and CBOs. They can ensure that community needs are taken into account. However, to be able to stimulate the community, leaders and CBOs must be representative. From the case studies it appeared that the representativeness is a significant aspect. In the pilot project in Bangalore it was decided to shift from ward seven to ward fourteen, because the CBO in ward seven suffered from conflicts and was not really representative. In Quito some people did not participate anymore because they supported other leaders than those involved in the project.

A special role in waste management is played by women. In many projects women are often overlooked, while in many cases they are the ones who have to take care of waste and therefore are most willing to participate. In Quito, for example, women have been playing a very active role and carry out most of the daily activities in the neighbourhood committees.

Another significant factor is recognition and support of community initiatives and CBOs by the municipality. The municipality is responsible for waste collection and disposal and if for instance the municipality does not collect waste separately community recycling initiatives will be less effective. In Bangalore, the participation of the first sector where the project was implemented appeared to be low because the municipality failed to remove the collective street rubbish bins and the residents were therefore hesitant to pay for door to door collection set up by the project.

Apart from factors facilitating the sustainability of community participation, there are factors that favour the continuation and durability of services set up by the project. An intermediary organisation, like a NGO, can support CBOs or other enterprises that deliver waste collection. Such an organisation can facilitate the access of communities and CBOs to other stakeholder or help solving constraints. In the project proposal of community-based urban development in

Nigeria, special attention is paid to intermediary organisations. Local NGOs will act as an interface between communities and local authorities to facilitate partnerships between them.

Cooperation between CBOs and the local authority, by for example entering into a contract or partnership, is very important to maintain and operate the waste service. In this way, the responsibilities can be clearly divided and efficiency of the waste collection improved. For example in Bangalore, agreements have been made between the municipality and the implementing agency about primary and secondary waste collection.

For the waste service to be sustainable it must be financially and operationally viable. Viability includes setting up a fee collection system, purchasing and maintaining equipment, and hiring and training personnel. In Nigeria to ensure financial and operational viability, capacity-building programmes will be set up to develop skills for waste management at the municipal level and technical support is provided to local authorities.

In some cases, follow-up support is needed after project implementation or completion. This support may consist of environmental education, technical assistance, monitoring et cetera. In Quito, follow-up support in awareness raising could have improved the participation in waste separation.

### ***Recommendations for further research***

It is stressed that the above list of factors favouring the sustainability of community participation is not complete and further research must be done to verify the importance and relevance of these factors. It is suggested to investigate the relevance of these factors by conducting research on the progress of CBOs that have been involved in waste management projects and to see what they have been doing after project completion. Which problems do they encounter, is the community still participating and if not what has been done to improve participation, is the waste service functioning sustainable? These kind of questions can be of value to assess the relevance of the sustainability factors and to come up with more factors. However, it must be realised that every project context and community is different and that some factors which may be relevant in one situation are not important in another.

Apart from factors at the level of the community, there are factors at the municipal level and factors related to project management that are of significance. At the municipal level, a review of for instance the legal and institutional framework can reveal obstacles, like lack of environmental regulation, for project implementation or continuation of community participation. Furthermore, the effect of project management on the continuity of community participation should be assessed. Appropriate time frame, achievable objectives and adaptive planning can effect community participation in a positive way. If for example the objectives are set to high and no results are achieved, the effect can be that the community is discouraged and does not participate anymore.

Besides these factors, it is recommended to pay attention to other external factors, like severe climatic conditions or change in political situation, which can inhibit the sustainability of community participation and project services.

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This annex gives a short description of the content of Internet sites visited by this report. Furthermore, their relevance is assessed on the basis of their information on community participation, case studies or solid waste management.

[www.bestpractices.org](http://www.bestpractices.org)

This site contains the database of the Best Practices, some are relevant but to read the whole document an access code is needed.

[www.ehproject.org](http://www.ehproject.org)

A lot of publications which can be downloaded. Under *Applied studies* and *Activity reports* there are project descriptions and analyses dealing mainly with health and sanitation.

[www.irc.nl](http://www.irc.nl)

Interesting site, but mainly deals with rural water supply and sanitation. However, one programme is of particular interest, namely **GENINI** ([www.irc.nl/projects/genini/index.html](http://www.irc.nl/projects/genini/index.html)) (Participation, Gender and Demand Responsiveness: Links with Sustainability and Impact of Water Supply and Sanitation Investment). It is a one-year participatory assessment study in five continents as part of a five-year gender initiative of the World Bank's Water and Sanitation Program (WSP). The assessment uses participatory assessment tools at the community and institutional levels. It tests the assumptions that water and sanitation services are better sustained under the following conditions:

- they meet the demands of both women and men;
- men and women have a voice and choice in what services they will support and in the ways they will support them;
- gender sensitive approaches in service establishment give women and men choices and voices;
- staff that practices gender sensitive participation have better support by their institutions than staff not practicing this approach (see Annex 2 for a detail description of results).

[www.iswa.org](http://www.iswa.org)

Site of the International Solid Waste Association, is not relevant since it mainly deals with the technical aspects of waste.

[www.melissa.org](http://www.melissa.org)

This site deals with managing the environment locally in Sub Saharan Africa. The entry *Solid waste* gives a description of the organisation CWG (Collaborative Working Group), news, conferences and reports of past workshops. The entry *Publications* gives some case studies on sustainable cities. The search system is not very useful.

[www.sandec.org](http://www.sandec.org)

This site deals with water and sanitation in developing countries, but under the entry *R&D projects* attention is paid to municipal solid waste management in low-income urban areas. However, the descriptions of the case studies are very brief and not useful. Through WASAN Net, a global network of institutions and organisations active in the fields of Water Supply, Sanitation and Solid Waste Management in developing countries, interesting links can be found.

[www.skat.ch](http://www.skat.ch)

This is the site of the Swiss centre for development cooperation in technology and management. Although they are involved in solid waste management, it is not a relevant site since no case studies are given or publications can be downloaded (however, there are some publications for sale).

[www.undp.org](http://www.undp.org)

This site contains a lot of relevant publications, which can be downloaded. By searching on waste and community participation, project descriptions and general literature can be found. However, most founded documents are not relevant. (See Annex 2 for relevant examples).

[www.unchs.org](http://www.unchs.org)

Is not very relevant. Through the option *Programmes*, programmes can be found like sustainable cities, community development, community management and best practices.

[www.worldbank.org](http://www.worldbank.org)

This is a very useful site, with a lot of options and topics (like participation, environment). It is also possible to download documents and project descriptions via *publications* through *on line library* and then with search (see Annex 2 for an interesting project proposal for Nigeria). For concepts on participation and the World Bank Participation Sourcebook, go to *topic & regions* and then to *participation*. Appendix II of the Sourcebook gives an overview of working papers, like Participation in water and sanitation and Designing community-based development (are not very relevant, since they just give a general description and do not deal with solid waste management).

[www.wsp.org](http://www.wsp.org)

This is the site of the Water & Sanitation Program (WSP) of the World Bank. It focuses on: rural water supply and sanitation, participation & gender and urban environmental sanitation. There is information on a lot of projects and topics (like CBOs), but none deal with solid waste management or sustainability of community participation. (See Annex 2 for a project in Peru on water supply and sanitation).

[www.wsscc.org/gesi/unicef](http://www.wsscc.org/gesi/unicef)

The site of Water Supply & Sanitation Collaborative Council is not very relevant, but the link to Global Environmental Sanitation Initiative gives some case studies (see Annex 2).

This Annex gives a description of the case studies found on the Internet. For each case study the relevance is assessed and important lessons learned from these cases are given. The first section deals with case studies related to solid waste management and the second section with case studies on other fields of urban environmental improvement.

### 2.1 Case studies related to solid waste management

#### **Urban sanitation in Nigeria: solid waste management in Ibadan**

([www.wsscc.org/gesi/unicef/nigeria3.html](http://www.wsscc.org/gesi/unicef/nigeria3.html)) Unicef Workshop on environmental sanitation and hygiene, New York, June 10-13, 1998

*It is only a short description, but the lessons are relevant.*

This project was initiated to improve urban sanitation and waste management, which had to be community driven and managed.

Strategy: interaction with government and communities on key interventions; development of action plans; establishment of core-groups to provide leadership, technical support and administrative coordination; establishing a cost sharing principle; and participation.

Lessons: the need for pro-active financial and political support, and that women and children are proud/committed stakeholders.

Challenges: connect partners to ensure replication, build capacity through on the job training, fund technology R&D, involve the private sector, fund on a cost sharing basis the installation of waste composting plants, and empower community-based entrepreneurship through revolving funds.

#### **Peru: community management of solid waste collection and disposal**

([www.dec.org/pdf\\_docs/PNACD826.pdf](http://www.dec.org/pdf_docs/PNACD826.pdf)) In: Providing urban environmental services for the poor: lessons learned from 3 pilot projects.

*This case study shows the importance of some preconditions, like education and contracts, of sustaining project services.*

The project's objective was to implement a low-cost peri-urban solid waste management program in Cono Norte, Lima. Two small enterprises were established with effective systems for waste collection. These successes showed the benefits in privatising services and involving the communities in recycling. Educational campaigns had some successes in changing behaviour related to solid waste at the community level. Once educated, households were more inclined to pay for waste collection and to separate waste and dispose of it in containers. Behavioural changes proved to be one of the keys in promoting local acceptance of and payments for waste collection services.

However, coverage was less than expected. This can be partly contributed to difficulties in concluding contracting agreements and securing payment for collection service from municipalities.

**Urban sanitation in Brazil: garbage and citizenship: an administrative urban environment experience with a focus on social issues**

([www.wsscc.org/gesi/unicef/brazil.html](http://www.wsscc.org/gesi/unicef/brazil.html)) Unicef Workshop on environmental sanitation and hygiene, New York, June 10-13, 1998

*It is only a short description, but the lessons are relevant.*

The project was set up to improve the situation of garbage picking families.

Activities: technical support to seminars, producing materials, and information gathering.

Objective: to create an administrative model for urban solid waste management, which takes into account the inter-sectoral nature of the problem and that considers the relationships between various actors involved and is responsive to local needs.

Lessons: the project should be formulated with community participation using the growing amount of community organisations, and with municipal and state entities, so that it is understood to belong to the city; also there is a need for political support.

**Selective solid waste collection and recycling in Recife, Brazil**

Cavalcanti Arrais, S. ([www.undp.org/ppp/library/files/caval01.doc](http://www.undp.org/ppp/library/files/caval01.doc))

*This is a relevant example of integrated solid waste management.*

Similar to most Brazilian cities Recife has serious financial problems. The municipal institutions therefore turn to social structures and community approaches as alternatives to public services. The Programme of Selective Collection and Recycling of Solid Waste, initiated in June 1993, is a basic instrument for city cleaning, and is incorporated in three broader development programmes of the Municipality of Recife. The programme aims at behavioural change for reducing the production of solid waste, encourages and promotes the commercialisation of recyclable material and stimulates the generation of income. The results in turn help reduce health risks and the municipal costs of urban cleaning.

The programme implements a low cost solid waste collection and recycling programme. It supports the informal collection and commercialisation of recyclable products. Participants are scientific researchers, central local and regional government, NGOs, CBOs, the formal and informal private sector, professional associations and women and men in the neighbourhoods.

Through environmental and hygiene education, people learn to separate recyclable materials at the source and to donate them to groups which collect, sort and sell them for a living. These groups work in cooperatives or other community-based organisations. By organising themselves in cooperatives they can improve their legal status and working conditions. The project promotes more hygienic collection and sorting methods in the working places per sector. Thereafter, the focus is on strengthening the associations and their contacts with the industries and liberating them from the middlemen. Gender sensitive hygiene promotion and environmental education activities help reduce urban environment contamination and facilitate operation and maintenance.

Positive effects of the dump-pickers project are an increased number of project participants, reduced direct contacts with contaminated garbage, a reduction in the number of dump sites and positive effects on the urban environment and expenditures related to waste collection.

## **Yemen-Solid Waste/Environment Project**

([www.worldbank.org/pics/pid/ye42913.txt](http://www.worldbank.org/pics/pid/ye42913.txt))

*This is a project proposal for the World Bank, not very relevant since it must still be implemented.*

Urban and economic growth have led to weak urban services and, until now, the system for service delivery has been highly centralised. A basic environment law exists, but the detailed regulations and institutional capacity for its application are still being developed. The municipal branch offices of the Ministry of Housing and Construction (MHC) are responsible for solid waste management. Waste is generally collected only from the market areas and main streets. It accumulates in side streets, mixed at times with sewage effluent. Dumpsites are largely unmanaged and waste is widely scattered across the landscape.

The project will support improved solid waste collection in 15 to 20 medium and small towns in Yemen by:

- c) Undertaking social assessment to develop the appropriate and locally adapted modality of the 'fee-for-service' principle;
- d) Strengthening solid waste collection and disposal services;
- e) Providing appropriate equipment; and
- f) Contracting out collection services in a phased manner. At the municipal level, community groups will be established, with staff from the branch office of MHC, the district officer and local leaders, to organise waste and fee collection.

The project would take advantage of two key lessons from ongoing operations: (a) community involvement is key to success of operations; and (b) operations should be adapted to the absorptive capacity of Yemeni institutions; capacity building should thus be appropriately designed.

The main risks concern (a) government commitment to community participation in solid waste management; and (b) weak institutional coordination for the environmental institution-strengthening component. The project will ascertain government commitment to participation during preparation, and assess the potential for institutional cooperation.

Sustainability would be a key element in development of the solid waste management component, with local communities gradually taking over full financial responsibility for operation and maintenance of solid waste management. Environmental management would be adapted to Yemen's institutional absorptive capacity.

## **2.2 Case studies related to urban environmental improvement**

### **Nigeria: Community Based Urban Development**

([www.worldbank.org/pics/pid/ng69901.txt](http://www.worldbank.org/pics/pid/ng69901.txt))

*Although it is a project proposal, and the project must still be implemented, relevant factors for sustaining community participation (in italic) are mentioned.*

Objectives:

- a) to enable partnerships between communities and governments, through transparent project information sharing and better and effective communication.

- b) to undertake replicable approaches to the provision of basic services in a demand responsive and affordable way in project sites.
- c) to move local governments away from a financial culture of total dependency on grant financing for capital infrastructure.

At the community level, *communities will be assisted in nominating neighbourhood representatives that can work in partnership with their local governments in reflecting community priorities.*

At the intermediary level: NGOs must provide an *interface between communities and local governments and facilitate the building of partnerships between them.* Apart from undertaking work at the community level, these NGOs will also stimulate local and national governments towards community needs and train them in participatory techniques for involving communities in project activities. Intermediary NGOs will assist local governments in developing *communication techniques that are flexible and able to target poor communities.* This will enable local authorities to develop partnerships with their constituents, to better prepare community-based projects, manage contracts, and develop appropriate operations and maintenance arrangements.

Sustainability of investments made by the project will depend on (i) *ownership of the investments by communities and the local governments;* (ii) *availability of resources for operation and maintenance;* (iii) the management capacity at the local government levels. *Involvement of communities and their local governments is an integral part of project design, to ensure sustainability.*

#### **El Alto: a peri-urban challenge in Latin America**

([www.wsp.org/english/urban-elalto.html](http://www.wsp.org/english/urban-elalto.html)) Chung, L.

*This case study is not very relevant, since it only is a short description and it deals with water and sanitation.*

The objective of the project is to develop a model for private sector participation in collaboration with local stakeholders, most particularly the community and local government, for the provision of water and sanitation services to peri-urban areas. This was done by a consultative mechanism involving all sector partners.

#### **Haiti: creation of an independent water and environmental sanitation district**

In: Providing urban environmental services for the poor: lessons learned from 3 pilot projects ([www.dec.org/pdf\\_docs/PNACD826.pdf](http://www.dec.org/pdf_docs/PNACD826.pdf))

*This case study is relevant because of its focus on community participation and CBOs.*

The Environmental Health Project (EHP) worked in partnership with a Haitian NGO to establish an autonomous company to manage the water and environmental services of an informal settlement outside Port-au-Prince. Features of the plan to operate the water supply system:

- To establish an independent community-based organisation to manage the water system. This CBO was given the authority to operate the system, to set rates, to retain its own revenues and to make its own investment decisions.
- To set up an organisation of community committees to manage the water and sanitation system at the neighbourhood level and to assist in mobilising community support.

- Creation of demonstration projects for a community-managed solid waste management system.
- Implementation of pilot demonstration projects focusing on key technologies or new neighbourhood management systems.

Fees for water supply were successfully implemented and by the end of the project the CBO was self-supporting. The district has strong community representation in its board of directors, which ensured community support for protection of the water system in the long term. However, these successes are threatened by the dependence on water supply of an external party.

### **Community water supply and sanitation conference, May 5-8, 1998**

([www.wsp.org/english/conference/](http://www.wsp.org/english/conference/)) The World Bank

*There are only short descriptions of case studies and conference proceedings, which mainly deal with rural water supply and sanitation, but the lessons are important.*

In general, there is a need to shift from supply-oriented to demand-driven services.

**Lesson 1:** A designated community organisation (responsible for rural water supply) is necessary, but it must be representative, have authority and capacity and it must be accountable for managing services.

**Lesson 2:** There is a wide range of institutional options from which the community can choose for managing, operating and maintaining its services.

### **Participatory Learning and Action (PLA) Initiative**

(<http://www.irc.nl/projects/genini/plaresults.html>)

*Although this analysis deals with water supply and sanitation projects, the results are very interesting (both regarding sustainability of services and effective use of services).*

In follow-up to earlier co-operation on women in development and gender issues, the IRC and Water Sanitation Program (WSP) have in the period 1998–1999 carried out a major field study. Aim was to learn from rural communities what common factors might explain the fact that they have managed to sustain their rural water supply services for 3 to over 25 years.

The PLA team defined “sustained water supply service” as a service that according to its users provides enough water of an acceptable quality for at least domestic use through a regular and reliable service. Breakdowns are low and repairs rapid (within 48 hours) and local financing covers at least the regular costs of operation, maintenance and repairs.

On *sustained service* the analysis showed the following.

1. *A higher level of participation in establishing a community-managed rural water supply service is significantly associated with a better sustained water supply service.*  
Participation in this context meant that the community takes on the maintenance and management of the service. Skilled work in operation, maintenance and management is paid for and is done by local men and women.
2. *A higher demand for a water supply service as expressed through initial payments in cash and/or kind is negatively related to the sustainability of the service.* This finding indicates that not the initial payment is associated with a better sustained water supply service, but other factors like community participation in maintenance and management, good

governance in local management, user satisfaction with the service and its direct and indirect benefits.

3. *Good governance at the community level during the project cycle is positively correlated with a more sustained supply.* Good governance consisted of the following factors:
  - The local management organisation involved monitors the contributions to construction and deals with defaulters;
  - Women participate in monitoring and control;
  - Capacities of both male and female community members are developed through training;
  - Accounts are shared with the community at large (so, females and males).
4. *The more satisfied the users are, the better the service is sustained.* Women as well as men scored their satisfaction with the service not only in terms of the product but also in terms of wider benefits. They rated their satisfaction with these benefits against what they have contributed and still contribute in cash and kind.
5. *Services financed by bilateral donors have a significantly higher association with quality of sustaining a water service than otherwise financed services.*
6. *Systems that are younger correlate with a better quality service and upkeep.*
7. *The more sensitive and supportive the implementing agencies are towards participation, gender and poverty issues, the higher the sustainability of services.*

Factors contributing to effective use of water supply services:

1. *Services that score better on gender and poverty sensitiveness in the communities also score better on effective use.* Gender and poverty made no significant difference with respect to sustained services, however. This seems to indicate that services which do not regard gender and the poor, may perform well technically and financially, but leave an important segment of the population without service. Both general access and use are important—though not the only—factors for achieving a positive impact on public health.
2. *The more the project is demand-responsive, the better the access to and use of services.* A comprehensive choice and voice for male and female users turned out to be very important. Services where all users rather than some had a choice, and services where users had a choice in a wider range of local decisions, had significantly higher scores on access to and use of improved water supplies than services where local choices were more restricted in scope and democracy.
3. *Services that are older, and services that are more complex, also had a higher score for effective use.* On service age the result is the reverse from what was found for the sustained services. It seems likely that the explaining factor is the higher service levels of many of the older projects. This is also suggested by the positive relationship between scheme complexity and better use. Quite a number of communities have upgraded the service over its lifetime, involving a raise in service level and/or expansion of the distribution, but with the older part of the system technically not improved.
4. *The effective use of service facilities occurred despite the institutional environment of the executing project agencies.* In fact the relationship was negative, but the implication is that services are effectively used even if the institutional project environment is not conducive or supportive, as long as the community environment fosters effective use.