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Community Initiatives in Operation and Maintenance of Urban Services

South Asia Region

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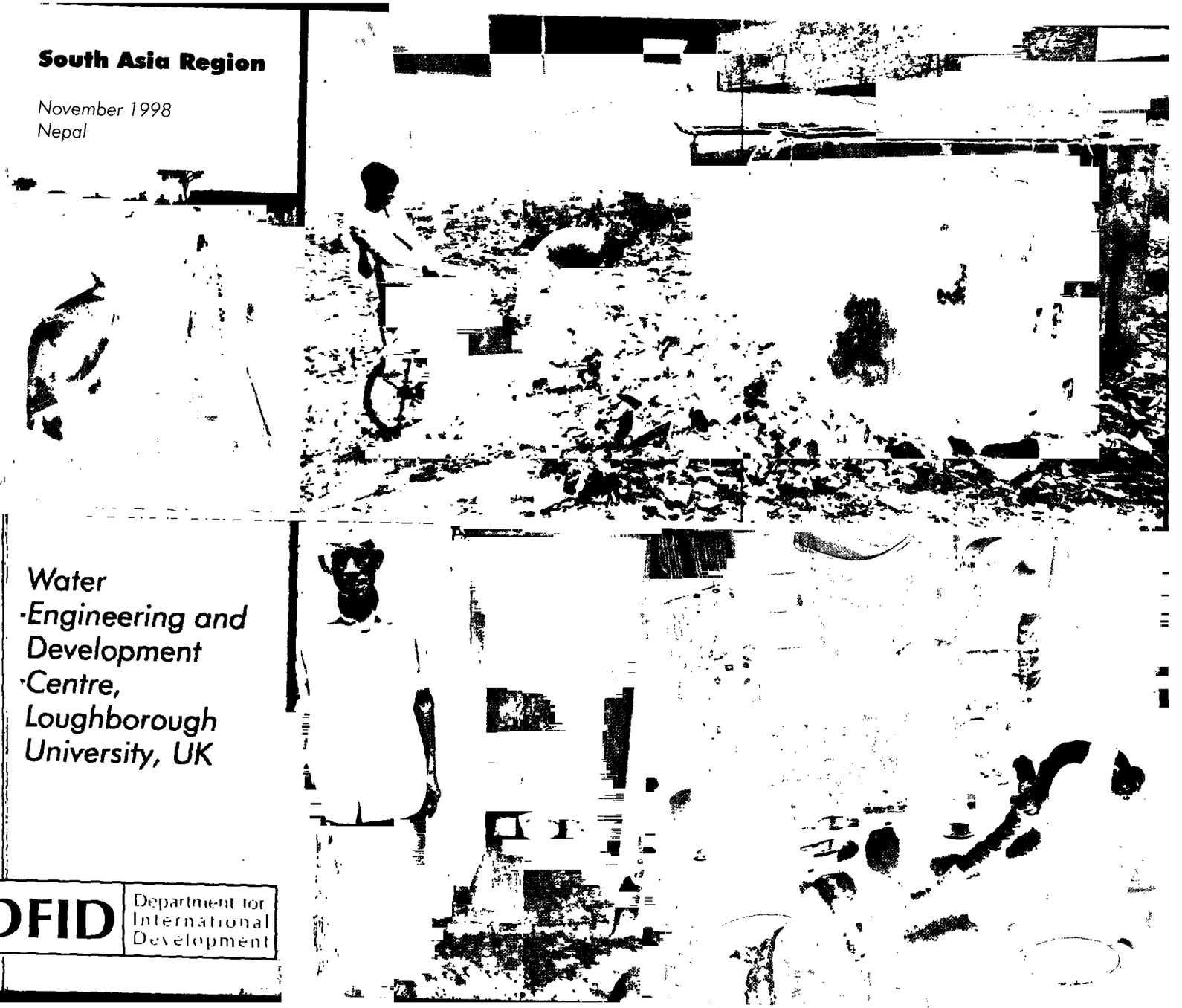
Nepal



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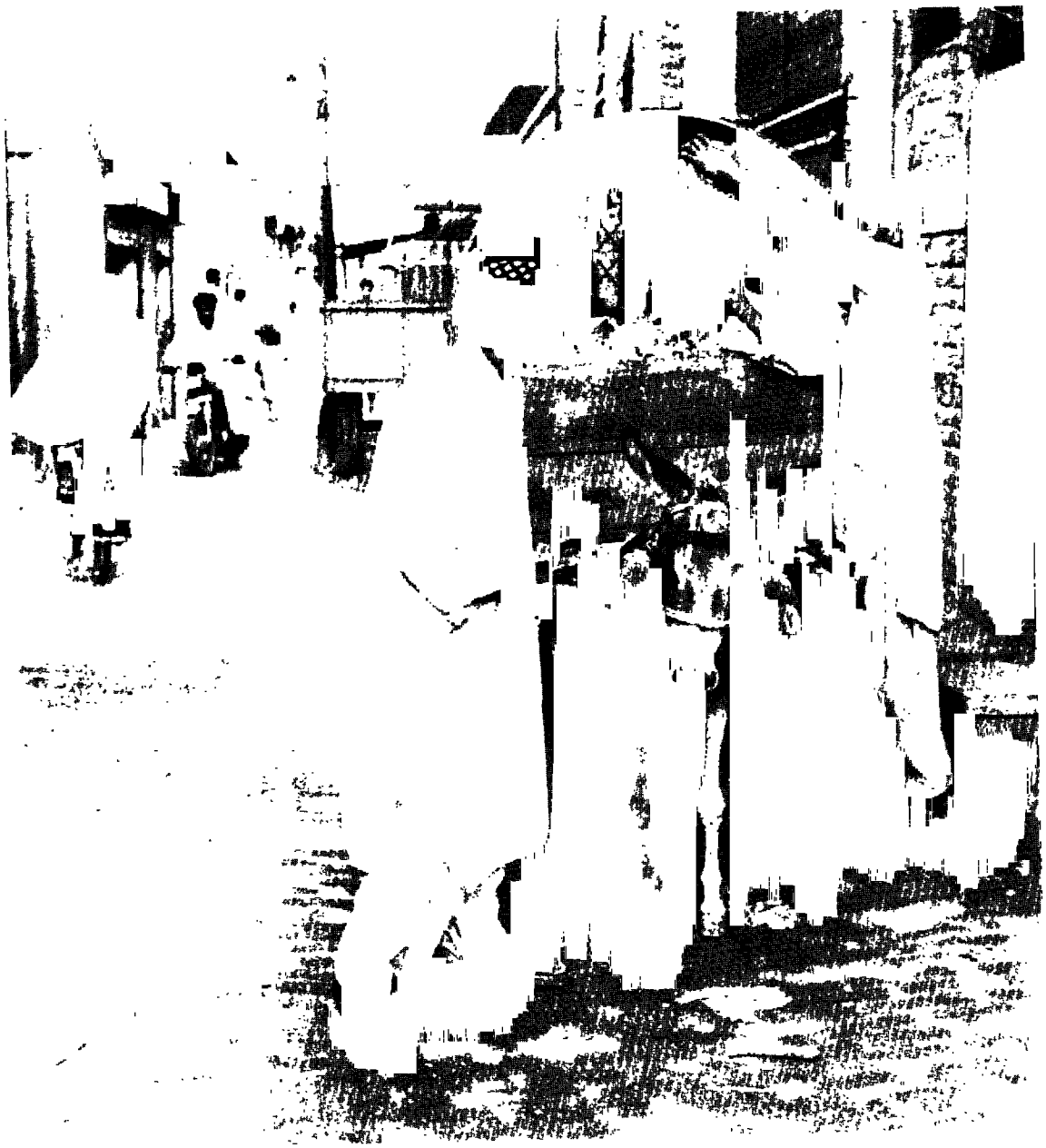

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FOREWORD

Background

The successful provision of municipal services, including water and sanitation, to poor people living in South Asia's cities and towns is a growing challenge. Far from improving coverage and raising standards of living, conventional approaches to service delivery have failed to keep pace with increased demand. Investment in inappropriate facilities, coupled with inadequate arrangements for their operation and maintenance, have led to a situation of waste, where infrastructure rapidly falls to pieces. Service coverage has consistently fallen rather than risen.

In response to this state of affairs, new approaches to service provision widely recognize the role of consumers, even poor consumers, in decision-making and financing the provision of such services. Importantly, a lot of new investments are made within a framework which assumes that the users of these services will maintain and operate them – at least at the local level. Thus, for example, it is often assumed that neighborhood groups will take on the management of local, community or lane level drainage, sewerage, solid waste management and water supply services. In reality, however, these assumptions are very bold, considering the endemic failures of the existing 'professional' structures for operating such services. In contrast to the rural sector, urban services can only rarely be managed by communities acting in isolation from existing (city level) management structures. In almost every case, there is a need for community management of services to be coordinated with city level management. This added dimension to the problems facing community groups is poorly understood, yet many of the most important factors which promote successful community management probably relate to this need for coordination with the city level, or indeed with the city level management structures themselves, rather than to local organizations and their dynamics.

What, then, are the factors at community, city and intermediate levels, which are likely to promote the successful operation and maintenance of services at the local level? This is one of the major questions which is being explored by the Water and Sanitation Program for South Asia as part of its program of learning in the urban water and sanitation sector.

As part of this program of learning, the Water and Sanitation Program hosted a workshop in November 1998 in Kathmandu. The workshop set out to explore some successful, and some not so successful, cases of community management of urban infrastructure. The idea was to move away from theoretical arguments about the merits of these approaches, and to focus on older investments, where experience over time provided more concrete evidence about the modalities of community management of urban services in the region. It was hoped that, by so doing, the discussions would focus on practical interventions which could improve the prospects of successful long term operation and maintenance of services.

The Case Studies

The workshop revolved around the analysis of 11 case studies. The cases were chosen to reflect a range of experiences (both positive and negative), a range of scales of operation, a range of service types (sewerage, toilets, solid waste management, water) and a range of implementation arrangements. They were also chosen from across the region to provide some comparative potential between different institutional setups at the municipal level. They do not represent the most well known, nor the most successful projects, as these have often been over-analyzed. Instead, cases were selected in response to the interest expressed by the project staff or partners in participating in the workshop. The cases, written up by project staff or partners and summarized in this report, are:

Bangladesh	**Municipal Solid Waste Management Project** – An NGO-municipal partnership which is now attempting to go to scale at the city level **Community-owned and Managed Waterpoints** – an innovation in Dhaka where communities take on the management of water services in informal communities with assistance from NGOs
India	**Nallah Community Improvement Project** – A small scale community planning exercise as part of a future investment project **Cuttack Urban Services Improvement Project** – Provision of a wide range of services through community planning
Nepal	**Urban Development through Local Efforts** – A major civic partnership project with external financial support and internal management **Dhulikel Water Supply Project** – An autonomous community-based water management organization
Pakistan	**Faisalabad Area Upgrading Project** – A multi-sectoral donor investment project with community planning **Mujahid Colony Improvement** – A community-city partnership for sanitation and solid waste
Sri Lanka	**Clean Settlement Project** – A major investment project with community innovations **Low-income Urban Housing Sub-program** – Learning through project processes **Community Managed Sewerage** – A community managed 'spin-off' from a major investment project

This Report

This report contains a summary of the findings of the workshop, brief summaries of the case studies used, and information about the workshop process and outcomes. Readers

who are interested in obtaining more information on the case studies or the workshop itself, are invited to contact participants or the Water and Sanitation Program respectively.

The clear messages from the workshop all relate to the need to consider operation and maintenance strategies during every phase of an investment. It is not enough to make assumptions about long term operation and maintenance – the requirements need to be explicitly addressed from conception and planning onwards. In summary, the workshop concluded that long term community management of services can be promoted only if initial investments are made within a framework which:

- promotes the use of simple, affordable, appropriate technology, and maintains quality;
- incorporates community efforts into operational procedures;
- provides services people want and are willing to pay for;
- provides access to financial services; and
- improves operation and maintenance capacity at municipal level.

In order for the bulk of investment to achieve this, the workshop also highlighted the clear need for development of a supportive policy environment and the need for major institutional reform.

This report explores these conclusions in some detail and provides some small concrete examples of successes in the region. We hope that it would be of use to practitioners in the field who are committed to the task of improving the design of investment programs to promote the construction of suitable and sustainable urban services in poor communities around the world.

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ABBREVIATIONS AND ACRONYMS

CBO	Community-based Organizations
CDC	Community Development Corporation
CUSIP	Cuttack Urban Services Improvement Project
DFID	Department for International Development
DMC	District Municipal Corporation
DWASA	Dhaka Water and Supply Authority
FAUP	Faisalabad Area Upgrading Project
JICA	Japanese International Cooperation Agency
KCC	Khulna City Corporation
MPCO	Multi Purpose Community Organization
NGO	Non-governmental Organization
NHDA	National Housing Development Authority
OPP-RTI	Orangi Pilot Project-Research and Training Institute
PAC	Project Advisory Committee
PMU	project management unit
PRA	participatory rural appraisal
PUA	participatory urban appraisal
SKAA	Sindhi Katchi Abadis Authority
TOP	Terms of Partnership
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Program
WMC	Waste Management Committee

INTRODUCTION

Why is operation and maintenance important?

- In many low-income countries, urban services suffer a two-fold problem: not only is coverage low, but the services that exist function poorly – if at all – due to a failure of providers or users to maintain them. Scarce financial resources are wasted where investment is followed by rapid obsolescence.
- The reasons why things go wrong are many and varied and include lack of cost recovery, but a more fundamental failure is a lack of attention at the design stage to how services will be cared for after commissioning.
- Few would disagree that the planning and design of urban infrastructure should be done with operation and maintenance in mind, yet in many parts of the subcontinent this is not done. Instead, there may be an implicit assumption that the municipality will maintain services (though they cannot) or that the users will do it (though users are not consulted); alternatively, a service may be treated as a 'maintenance-free' piece of infrastructure, with no provision at all for recurrent costs.
- Even where careful planning is done, the burden of maintenance is a heavy one for municipal authorities and many cannot meet the demand. Moreover, many cities are seeing a massive growth in informal or unofficial settlements, often in peri-urban areas, and these may be excluded from the right to government services. The question of how else services can be secured and maintained is, therefore, a vital one.

Why are communities important?

- Government alone cannot meet all maintenance needs, so there is potentially much to gain from harnessing the resources of other parties – not least the users themselves, who may know how to provide services effectively at street level and can mobilize their own resources to supplement what the government provides. Furthermore, it is only through dialogue with users that the government can find out the type of service people want and are willing to pay for. Users should, therefore, be involved in service delivery from the start.
- Community participation should not be seen as an alternative to government services, however, as there is a limit to what the users can do themselves. A community could oversee the regular cleaning of a street drain, for example, but could not manage trunk sewers and treatment works.
- The overall message, then, is to integrate users into the planning and service delivery process. This implies linking local planning to city planning, and linking the formal and informal sectors.

Why is the debate worth having?

◆ There are no easy solutions for the effective operation and maintenance of urban services. What is clear, however, is that the urban environment is deteriorating. This highlights the need to search harder for approaches that work.

◆ Unfortunately, linking municipal services to other agencies or community initiatives can be complicated and requires both commitment and managerial competence. For example, it may involve the formation of additional organizational structures to mediate between provider and users and to supervise community tasks. It can be difficult to establish these arrangements and even harder to harmonize them with municipal systems and practices.

◆ Irrespective of participation by CBOs, NGOs or the private sector it is government that is at the heart of both the problems and the solutions. Any proposed new approach will, therefore, be of value only if it can respond to – or work in spite of – a typical municipal environment with its political agendas and problems of weak management, financial crises, low motivation and lack of professional skills. Of these, apathy can be one of the hardest problems to overcome. Where a municipal authority is unwilling to recognize the need to improve services or to grant users a say in service delivery, it is difficult to make any progress at all.

◆ Community management may offer at least part of the way forward, though it is clearly not an easy option and may be only one of a range of actions required. Generally, there is growing awareness of the need for more flexible service arrangements and partnerships whereby all players make their contribution: service providers, users, NGOs and the private sector. Specific solutions will, of course, vary from place to place.

It is against this backdrop that the Kathmandu meeting took place. By examining case studies from around the subcontinent, it explored the many factors that promote or hinder community management of urban services and sought to identify elements of good practice that should be adopted throughout the sector.

About the Meeting

The focus of the meeting was on the following question:

With reference to urban infrastructure, how can community management of operation and maintenance be achieved and sustained?

This was answered through a series of structured small-group discussions which used the

case studies as their main point of reference. The meeting culminated with agreement on a number of key actions which municipal authorities and other players should take to support and encourage community management.

The meeting was attended by representatives of municipal authorities, government departments, donor organizations and NGOs from Nepal, India, Pakistan, Bangladesh and Sri Lanka. Many of the participants represented projects featured in the case studies, thereby ensuring that the discussion drew on a broad range of practical experience from around the region.

Structure of this Report

The purpose of this report is to disseminate the main findings from the discussion and to promote further debate on the issue. Section Two explores the key conclusions and recommendations but a summary of the whole process plus the points raised in discussion are provided in Section Four and the Appendices. The case studies are summarized in Section Three; readers wishing to contact any of the agencies involved will find contact details in the Appendix.

What is 'community management' in the urban context?

While the concept of community management is well-established in the rural water sector, it is less commonly applied to the operation and maintenance of urban services. It is, therefore, useful to explain the term as understood in the Kathmandu meeting.

While community management of rural services is regarded as a largely self-contained activity, there are very few situations where users alone could (or should) take on responsibility for the maintenance of all urban infrastructure. Instead, the term is used more broadly here to describe a situation whereby users have a prominent role in the management of services at household or lane level (that is, 'tertiary level'). This is a common theme in the case studies, and while there are examples of users taking over a specific service town-wide (though not city-wide), these are not common.

At tertiary level, community management can take many forms. Users may do the maintenance work themselves, but they could also play a managerial role, raising funds for maintenance and paying the utility or a third party to do it for them (see Swayambhu and Dhaka case studies).

Some would argue that payment of service charges to a utility also represents a form of community management. The essential point is that users – typically as an organized group – take on responsibility for maintenance, ideally in such a way that their inputs harmonize with municipal services at the ward and city level. Thus they fill the gap left by the municipality, which rarely has the resources to provide services such as door-to-door waste collection or the cleaning of minor drains. This approach is embodied in the concept of 'internal' and 'external' development:

Internal development: refers to tertiary services, which users could maintain themselves.
External development: refers to secondary and primary services, usually vested in government agencies or their contractors.

Community Contracting

This term, related but different to community management, also featured in the case studies and discussion (see case studies from Sri Lanka). It refers to a situation whereby the service provider, instead of hiring a private contractor or using its own workforce for construction or maintenance, issues a contract to the users themselves, usually an organized group (for example, for the construction or cleaning of a lane sewer). Community contracting can have a number of benefits:

- it harnesses local knowledge;
- it puts resources back in to the community; and
- it may improve quality control as users have a vested interest in the service.

The figures here illustrate important aspects of community contracting.

As with community management, users do not necessarily carry out the work themselves. The left-hand triangle indicates the roles they may play: contractor (doing the work); engineer (supervising and monitoring); or promoter (commissioning a third party).

The right-hand triangle represents three concerns in infrastructure contracts: time, quality and cost, all of which may affect the decision to opt for community contracting. Typically, community contractors complete works more slowly than a commercial operator, but may do so at a lower cost and to a higher standard. Moreover, involving the community in this way has social benefits and may help to promote community management in the long term.

Promoter

Contractor **Engineer**

Time

Quality **Cost**

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. The need for a supportive policy environment

New approaches based on community management are very difficult to promote locally when they are at odds with government policy or established practice; the problem is even worse when local politicians continue to promise free services. This highlights the need for a conducive policy environment that establishes clearly-defined roles for service providers and users, and leads to consistency in the messages delivered to communities from both government and non-government sources. Currently, there are very few places in the region where such policy exists (though Sri Lanka seems to have made some encouraging progress).

Policy reform should, therefore, be an early goal of attempts to promote community initiatives in operation and maintenance on a large scale.

2. The need for institutional reform

The many deficiencies of municipal institutions are well known and it is doubtful that real progress can be made within the confines of existing municipal culture, custom and practice, all of which present obstacles to the development of effective services. There is strong evidence that community management of operation and maintenance cannot be facilitated effectively without major institutional reform.

Detailed recommendations arising from the meeting are set out on the following pages. There were however, two themes emerging from the discussion which have a bearing on all of the issues raised.

Technical standards play a central role in the working of many departments, and staff are expected to follow them rather than use professional judgement, even where they lead to ineffective services; they may be disciplined for not doing so. Conversely, there are situations where standards (especially quality standards) are ignored completely.

Many standards used in the region are colonial relics that used to be changed regularly to suit the needs of the day. Unfortunately, this no longer happens and many have not been changed for decades. If communities are to play a role in the maintenance of urban services, norms and standards need to be revised and updated to encourage the adoption of affordable, appropriate technology that can be maintained with ease, at low cost.

Government agencies need to re-think the purpose of technical standards. If they do not give us effective, manageable infrastructure then they should be changed. Contrary to popular belief, there is scope for modifying standards or making local variances, but many agencies will not do it for fear of reprisals should things go wrong. This highlights a need for action at the policy level.

RECOMMENDATIONS

1. Use simple, affordable, appropriate technology and maintain quality

Users cannot play a direct role in the operation and maintenance of services unless they can meet the technical demands at their level, and this implies a need for simplicity. In fact, simplicity is important even where there is no community involvement, as municipalities also lack the technical skills and resources needed to maintain expensive or complex infrastructure.

This message is a new one, but it has so far not been adopted widely in the region – in government circles at least. One of the main obstacles is the institutional and regulatory framework under which government agencies operate. Design standards and norms are a particular problem, as many of them are hopelessly outdated and can result in expensive but ineffective services. For example, if sewers are laid to standard depths in unofficial settlements it may be impossible for residents to make connections from the shallow drains that they have already laid. The end result is wasted investment on both sides.

Another widespread problem is poor construction quality, which reduces the operating life of infrastructure and increases breakdowns. The burden of maintenance is difficult for users where a service functions badly at best and needs frequent repair.

A 'Community-friendly' Approach to Technology

In Colombo's Low-income Urban Housing project it was found that conventional norms and standards were inappropriate due to problems of space, population density, funding, social habits and the marginal nature of land. Revised standards were, therefore adopted. For water supply, realistic consumption rates enabled the use of smaller pipe diameters, reducing network costs.

Shallow and small-bore sewers were also introduced. This not only reduced costs but made community maintenance possible.

Making it Happen

1. This recommendation implies a need to design with operation and maintenance in mind. If maintenance is to be done by users, the design process should involve them and be flexible, avoiding a rigid adherence to norms or standards that would cause problems in the future. It should also allow for the adoption of local operation and maintenance solutions, which may lead to a number of different systems operating within the same town.
2. Beyond the design stage, workable guidelines should be provided to users if they are to take on at least some of the responsibility for operation and maintenance.
3. Though some variation from norms is theoretically possible at the municipal level, few authorities have the vision or confidence to do it (though there are exceptions; see Sri Lanka case studies). Action is, therefore, needed at the policy level to promote research and consultation with a view to adopting more helpful norms and standards.

Risks

The difficulty with this recommendation is that municipal custom and practice can be firmly ingrained and the resistance to change strong. In most places there is very little pressure on municipalities to adopt a more rational approach to technical design or even think about maintenance implications at the planning stage. The 'worry about it later' attitude that they have is not easy to change.

While simplicity should be favored in infrastructure design, it is also important to

think about the effects of technology choice on the wider environment. For example, shallow sewers may provide an effective means of removing sewage from a group of houses, but discharge onto open ground or into a water course merely moves the problem from one part of the town to another. Environmental problems should not be ignored.

2. Incorporate community efforts into operational procedures

Even without municipal support, many poor communities carry out some maintenance tasks such as drain cleaning. Some also make capital investments in local infrastructure such as shared drains – a common practice in Pakistan. Rarely, however, does government recognize this by designing secondary and trunk services to harmonize with community-built infrastructure or by encouraging shared operational roles and responsibilities.

This recommendation implies linking the formal and informal sectors in a coherent service delivery process, from policy and planning through to the maintenance phase. The effect would be to formally recognize the community as institutional partners in service delivery. At the same time, it would establish that the community has responsibilities; all does not rest with the government.

Making it Happen

1. At the planning stage, consultation with communities is essential to establish exactly what they are willing and able to do and to define roles and responsibilities, both of user groups and the managing agency. It may also be helpful to develop procedural guidelines covering these roles and how exactly they will be carried out.

2. A large proportion of urban residents live in unofficial settlements and a key policy instrument would be the de-linking of land tenure from the right to services, as users are discouraged from investing in services when they know that they could be evicted at any time. This is not to imply that all land could, or should, be made tenable; there will always be some sites such as precarious river banks that realistically could never be upgraded. Many settlements are, however, on suitable land that has been occupied for years and will continue to be so.

(India's forthcoming National Slum Development Policy is set to take the bold step of granting citizens a right to services unless the municipality declares their settlement 'non-tenable'.)

Risks

Ideally, the simplest way to establish the user-provider relationship is by users becoming paying customers. This is only effective, however, where the provider is accountable and responsive to consumer demand. Unfortunately, municipal apathy is the norm. Most service providers

Community Role in Faisalabad

Under the Faisalabad Area Upgrading Project, teams promote the formation of multi-purpose community organizations to facilitate tertiary services in close partnership with the authorities. This gives users a decision-making role including technology choice within a limited range of options.

are reluctant to expose themselves to the criticism that may come from dialogue with users and display a general antipathy towards the urban poor, often blaming them for the failure of existing services. (In Lucknow, the monitoring of services by the community was abandoned after it became clear that the municipality would not respond to any problems identified).

This being so, user involvement in services may have to be brought about by an intermediary NGO or CBO.

3. Provide services people want and are willing to pay for

People will pay for services and use them responsibly if they value what is provided to them. Again, it is not a new message but there are so far very few examples of its adoption by municipalities in the region.

Making it Happen

1. Appropriate, flexible market research is needed, including participatory demand assessment. There is no foolproof method for assessing demand. One method is contingent valuation, whereby people are asked what they would pay for various hypothetical levels of service. Though increasingly popular this can be complex and expensive to carry out in a meaningful way. Alternatives are to use intermediaries (typically NGOs) to carry out community consultation, or simply to adopt a price and level of service, implement it, then assess users' reaction and adjust accordingly.

It is implicit in this that planning is adopted as a tool of municipal management. This includes assessing which service options the municipality can realistically offer, the recurrent costs and human resource requirements associated with them, and the revenue needed to make them viable in the long term. People can only decide on their willingness to pay if they know what services would cost.

2. Generate demand through community mobilization. Demand for a particular service may not currently exist, or may be unexpressed, especially where there are no structures for communication between service providers and users. This is often the case with household latrines and it may be necessary to generate demand through promotional campaigns using effective extension staff.

Responding to Demand in Bangladesh

A participatory urban appraisal in Khulna revealed demand for an improved solid waste collection service. Following this, the NGO Prodipan established a manual door-to-door service, with collectors taking waste to secondary points for removal by the city corporation. There are now 55,000 people served by the scheme, which is funded partly by user payments. These have risen from Tk 2 per household per month to Tk 5-10 and the aim is eventually to raise them to Tk 20 so that the scheme makes a small profit; at this point it should become replicable by other NGOs or the private sector.

Risks

Assessing demand can create unrealistic expectations of improvement when there is little real prospect of this happening. In particular, it implies choice when this may

not be possible, especially where services are networked. Technical factors, cost, and the delivery capacity of the service provider – all limit the choices possible.

A more fundamental problem is that the concept of demand-responsiveness is alien to government. Its adoption would therefore require radical change in an institutional culture rooted in supply-driven approaches, with little regard for users.

Even if service providers *were* motivated to adopt this strategy, would they have the management and extension skills necessary? These are rare commodities in government; many agencies struggle to provide even the most basic supply-driven services. Would they know how to assess demand and redesign services accordingly? Could they even make accurate costing?

The privatization of services (or at least contracting out) is often proposed as a solution to this and other failures of government. It is not, however, an easy option as many contractors perform no better than the government – especially if they are not supervised and monitored. In Cuttack, for example, the corporation contracted out the operation of public toilets, with disastrous results.

4. Provide access to financial services

When cash is scarce, people are unlikely to pay operation and maintenance charges for a service unless they regard it as a top priority. (Many pay exorbitant rates for water from private vendors, for example). Access to affordable personal finance could, therefore, do much to unlock demand and improve cost recovery, helping ensure the long-term viability of services.

Financial institutions can also play the role of honest broker at corporate level when investment costs are shared between service provider and users. They make the provider accountable and help create confidence on both sides.

Making it Happen

In some parts of the region (India, for example) there are already well-established institutions specializing in financial support to low-income urban groups for infrastructure and housing. In other cases it may be necessary to establish and support tailor-made financial institutions within investment projects and programs. Two types of service may be needed at the community level:

- microcredit to enable user payments; and
- an intermediary to provide a guarantee to the provider.

Ideally, both roles will be provided by the same agency such as an NGO or microfinance institution. This may either fund loans itself or act as guarantor to a financial institution, possibly using donor or central government funds. It may also channel demand for community management of shared facilities such as water points.

Risks

The difficulty in arranging credit is overcoming the lender's fear of non-repayment, be they a commercial institution, government or external donor. Donors in particular may be reluctant to invest in schemes that pose an obvious risk of losing the money.

5. Improve operation and maintenance capacity at municipal level

There are potential benefits of adopting this recommendation but two are of particular importance:

- fewer breakdowns and increased life-span of infrastructure through better municipal maintenance ('build then replace' becomes 'build then maintain then replace'); and
- better technical support to communities in carrying out their operation and maintenance responsibilities.

Making it Happen

The means of capacity-building will vary from place to place but it may be helpful for municipalities to do some or all of the following:

1. Involve councillors in the process, so that they appreciate what is involved in operation and maintenance and can promote it from an informed position.

2. Have the right people in the right place. In other words, deploy appropriately-skilled staff where they are needed both for technical functions and support to communities. This may require the assignment of some staff to extension roles, that is, to interact directly with the community.

3. Increase physical capacity by improved maintenance of plant and equipment, plus new investment where necessary.

4. Set appropriate targets for staff performance, based on output. Monitor performance closely.

5. Provide ongoing training in operation and maintenance for all stakeholders, and update it as necessary.

6. Adopt enforceable rules and regulations for infrastructure operation and maintenance. To this end, agree with all stakeholders about the roles of each party.

Risks

Perhaps the biggest obstacle here is the low priority which municipalities give to maintenance; it is often ignored in budgeting and staff deployment.

Corruption is a related problem, due not only to disappearing funds but also because the opportunities for 'commission' make new construction far more attractive to officials than the maintenance of what already exists.

Even where there is a genuine concern for developing operation and maintenance capacity, a municipality may be hampered by a lack of technical and financial resources – both within the organization and locally. Capacity-building, therefore, has to be a gradual process.

Interestingly, none of the case studies placed a strong emphasis on building municipal capacity for operation and maintenance. This is a neglected area.

Community Management of Water points in Dhaka

NGOs supported by WaterAid have successfully negotiated with Dhaka Water and Sewerage Authority (DWASA) for user groups to manage waterpoints and tubewells as co-operative businesses. The NGOs provide loans for the establishment of waterpoints which user groups repay by selling water. The NGOs also give a guarantee to DWASA that the community will pay their bills, and pay a security deposit. The scheme has been very successful.

CASE STUDIES

Bangladesh

Municipal Solid Waste Management Project, Khulna

Location	:	Khulna
Agency	:	Khulna City Corporation and Prodipan (NGO)
Project duration	:	1997 – 2000 (ongoing)

Project Description

This project, which is implemented jointly by Khulna City Corporation (KCC) and the NGO Prodipan, currently operates in six wards of the city, serving some 55,000 people. It has three objectives:

1. to develop a community-based solid waste collection system;

2. to devise ways for Khulna City Corporation and other municipalities to formalize such initiatives as a regular mode of service; and

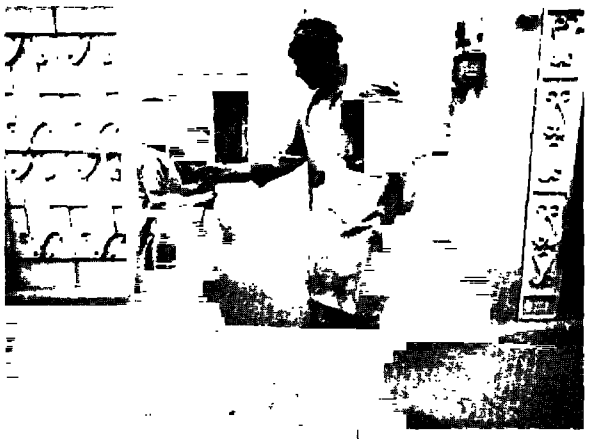
3. to develop the current project into a large investment project.

The project began with a participatory urban appraisal (PUA) involving the community, KCC and municipal solid waste management staff. The purpose of the exercise was to assess the perceived sanitation needs of the community and their willingness to pay for better services, and to formulate a sustainable plan of action. The project interventions, therefore, draw strength from people's perception of waste management problems and their active participation in addressing them, within the legal framework of KCC.

In essence, the project involves simple, door-to-door collection of domestic waste by rickshaw vans and pushcarts and transfer to secondary points for removal by the municipal service. Recently, small garbage bins were introduced in some slums and blocks of flats (apartments).

The project is under the overall guidance and supervision of Prodipan, which has deployed two managers and 19 community organizers. Every participating community has a Waste Management Committee (WMC) which meets monthly to review progress and resolve problems, a van pusher and two collectors. At the city level, there is a Project Advisory Committee (PAC) comprising KCC personnel, ward commissioners, users and other interested parties, chaired by the Mayor's representative. This meets quarterly to review and improve the project.

User payments started at Tk 2 per household per month and have risen to Tk 5-10, which covers about 60 percent of collection cost. Staff salaries, hardware and other operational costs are met by a grant. The aim is eventually to raise the payment to Tk 20 to cover the total expenditure plus a marginal profit, at which point the scheme may become replicable by a CBO or the private sector. The transaction cost for NGO intermediation and management is a temporary input and has very little effect on



the future implementation process.

Lessons from the Project

People's participation in operating and managing a project of this nature depends mostly on their motivation and understanding of its importance. This project is founded on the community's own concern for better solid waste management.

If a regular, quality service is ensured, people will not only participate but bear the cost.

Another strength of the project is that it has achieved a working partnership between the informal sector (in the form of WMC) and the official municipal service, with each party doing what they are best at.

Community-owned and Managed Waterpoints and Tubewells in Dhaka Slums

Location	:	Dhaka
Agency	:	WaterAid and seven urban NGO partners: DSK, BAWPA, ARBAN, ASD, Phulki, Prodipan and PSTC
Project duration	:	Since 1996 (ongoing)

Project Description

In this project WaterAid, an international NGO, supports seven local partner NGOs in Dhaka to help user groups secure their own waterpoints, which they manage as cooperative businesses. The model was first developed by one of the partner NGOs, DSK, and later adopted by WaterAid as the foundation for their urban country program in Bangladesh.

Under the scheme, user groups take a loan from a partner NGO (usually about US $1,000 for a waterpoint or US $375 for a tubewell), form a committee to manage the facility, then sell water to local residents. The groups decide their own pricing structures and sell water by the pot or via daily/monthly access. Each facility serves a portion of a slum community, usually the core group and some casual users.

Partner NGOs facilitate the process, give technical support and in the case of a waterpoint negotiate a legal connection to the city water mains. They also provide a guarantee to Dhaka Water and Sanitation Authority (DWASA) that the community will pay their water bills, and pay a security deposit (from the loan); this circumvents the requirement for the client to have property rights. DWASA also stipulates that written permission to construct the waterpoint must be obtained from the landowner; as most land in Dhaka is owned by the government this means that the NGO partner must apply to the relevant body – usually Dhaka City Corporation.

The implications for operation and

maintenance are that the group which takes the loan, is responsible for running the facility and raising enough revenue to repay it and cover operating expenses. The NGO, however, is accountable to the water utility, so it is actively involved in supporting the management committee.

Technology

Waterpoints consist of an underground storage reservoir connected to the water mains, fitted with a meter and covered by a concrete slab on which are mounted one or two simple suction pumps. This allows a single connection (usually reserved for individual householders) to be used by up to 500 people. Storage means that water is available round the clock, unlike the DWASA supply.

Each waterpoint is supervised by a full-time caretaker who collects revenue from users. A meter means that usage can be checked against the DWASA bill.

Management

The partner NGO provides the committee with training and support. Most also collect funds from the site daily to prevent accumulation of revenue. NGOs currently manage the revenue and make the payments to the water utility. The long-term goal is that the committees will manage their own revenue, maintain bank accounts, pay caretaker salaries and water bills and manage any operating surplus. This is proving difficult while the committees are still new and inexperienced.

The management of tubewells is similar, with a committee that collects funds (usually monthly) and pays a small remuneration to a part-time caretaker.

DSK provides technical support to other partner NGOs. WaterAid provides ongoing technical support and training for partner NGOs in participatory techniques for mobilization, baseline surveys and hygiene education.

Financing

WaterAid finances the NGO partners to mobilize communities, carry out hygiene education, and make the loans to communities; repayments are used as a revolving fund. The capital cost of facilities is recovered during a 30-month period (six months grace followed by 24 monthly installments). On average, the capital costs account for about 50 percent of direct project costs, the rest being spent on NGO partner staff, mobilization, partner overheads etc (excluding WaterAid's own overheads).

Typical user bills for a waterpoint range from Tk 1,000 to 2,000 per month (US $20 to 40).

Caretaker salaries are about Tk 500 to 750 per month (US $10 to 16) and loan repayments Tk 1,300 to 1,700 (US $27 to 35) per month. The total monthly operation and maintenance costs are therefore in the order of about US $75, about US $0.75 per family per month. Many waterpoints collect more than this. A family collecting three 20-liter pots a day at a waterpoint pay Tk 45 per month (US $1.00). At a waterpoint with many users this will result in a surplus. On the other hand, at some waterpoints with few users the revenue collected is not enough to cover the fixed costs.

Loan repayments make up almost 50 percent of the recurrent costs for the first two years. Thereafter, waterpoint committees will have the option of reducing their prices. Some would like to maintain current rates and use the surplus for other community projects. It may be more equitable to reduce water charges. Large surpluses are in any case dangerous, being targets for theft and misuse.

For tubewells, the monthly cost per family is roughly US $1.25, excluding repair costs to the pump and platform. Repair costs are difficult to estimate.

Lessons from the Project

Establishing sustainable community management is not easy. On many waterpoints it will be a long time before the partner NGOs can withdraw from supporting day-to-day management. The reasons are as follows:

- mastaans (landlords, who exert considerable control over slum dwellers' lives) may try to interfere with waterpoints, insist on a cut of the revenue, or take them over altogether;
- waterpoint committees may be weak and unable to take on all their responsibilities;
- disputes may arise over the management of funds or completion of tasks;
- committee members may be tempted into agreements with corrupt meter readers;
- committee members may simply be dishonest and steal revenue;
- at present, the partner NGO is legally liable for bills. It is not clear whether the committee would need to have legal status of some kind to enable the waterpoint to be transferred to them; and
- committees with a large clientele are tempted more often than not to run surpluses rather than reduce the price of water. There is some concern that a few committees see the waterpoint purely as a money-making venture, and have lost sight of the original objective.

Other Interesting Points

- 'Per pot' methods of payment are preferred over 'per month' or 'per day' charges as they are easy to administer and generate more revenue. There is some indication that this may be depressing water use in poorer families.
- While the cost of water is generally reduced, for some, water still remains unaffordable. Closure of illegal connections around the waterpoints is required for the system to work but there is a risk of exclusion of the very poor.
- An important strategy is to increase the number of waterpoints in a given area, thus introducing competition, which should lower the price of water. The optimum number of users to ensure financial sustainablity needs be maintained.
- Dhaka City Corporation may become increasingly reluctant to give approval for new waterpoints; lobbying of DCC has to be undertaken by NGO partners and donors.

India

Nallah Community Improvement Project, Lucknow

Location	:	Lucknow
Agency	:	DFID Water and Environmental Sanitation Group
Project duration	:	September 1995 – March 1999

Project Description

This infrastructure project, funded by the British government's Department for International Development (DFID), comprised the following components: community mobilization, capacity building, collaborative infrastructure procurement and collaborative operation and maintenance. The project focused primarily on the community (via user groups) and secondly, on service providers (municipal agencies). Technology provided under the project is listed below; these options were developed over a period of time through action research.

Sanitation: Pour flush latrines and household waste water connected to small bore shallow sewers

Drainage/pathways: Kerb and channel drains and brick paved pathways

Solid waste: Community bins (RCC), house-to-house collection with rickshaw, trolley/ handcart, and local-level disposal arrangements

Water supply: India Mark II handpumps and piped water supply

The process of infrastructure procurement progressed through distinct stages:

mobilization ➤ development of technical options ➤ discussion ➤ community action plan formulation ➤ approval ➤ execution ➤ operation and maintenance

Capacity building was provided at three different levels: for agencies (technical and management); NGOs (communication/ PRA and technical); and community (supervision, monitoring and operation and maintenance).

At the time of writing, operation and maintenance arrangements had not been finalized. The intention, however, was for neighborhood services to be managed under collaborative arrangements between municipal agencies and CBOs, with users entirely responsible for household services such as latrines and primary storage of waste.

In the case of household latrines, users were offered a menu of choices of service level, with the cost to individual households fixed using a calculation that took into account construction cost and the fees levied by the municipality for registration, supervision and development charges. Subsidies were limited to a maximum of Rs 2,000 per household.

Lessons from the Project

Though the operation and maintenance phase had not begun at the time of writing,

Option No	Household Latrine Options	Unit Cost (Rs)	Household Contribution (Rs)
Without superstructure and connected to sewer			
1S	Single new PFL* for individual household	2260	635
2S	Single new PFL, shared by two households	3260	375
3S	PFL upgrade	1500	375
4S	Service latrine upgrade	1728	375
With superstructure and connected to sewer			
5S	Single new PFL for individual household	3960	2335
6S	Single new PFL for individual household	4960	780
7S	PFL upgrade	3200	1575
8S	Service latrine upgrade	3428	1803

** Pour flush latrine*

experience from other local settlements during implementation of a larger program had produced some important lessons:

- The project piloted community-based solid waste management in one slum. With help from project field workers, the community identified solid waste management as an easy first step and hired a sweeper to make door-to-door collections and deposit the waste at a designated dumpsite from which the municipality removed it for disposal. Each household contributed Rs 10 per month to keep the system going. Unfortunately, the system lasted while there was a promise of infrastructure investments from the project but collapsed once the settlement was dropped.
- The project experimented with community-based monitoring of environmental services through record-keeping on their level and quality. This generated interest and debate within the community but in the absence of institutional commitment to respond to the data, the community discontinued the practice.

Cuttack Urban Services Improvement Project (CUSIP)

Location	:	Cuttack
Agency	:	DFID Urban Poverty Group
Project duration	:	Since 1994 (main phase since 1998), end 2002

Project Description

CUSIP is funded by the British government aid program and operates through a project management unit (PMU) in Cuttack, India. The PMU has inter-sectoral teams with staff from engineering, community development and health and has close links with the municipality. In the preliminary phase (five slums), CBOs were the focus of consultation with the community regarding infrastructure and health-related interventions. A more participative process of community action planning has now been developed. CUSIP provides integrated infrastructure in slums: water, sanitation, paving, drainage, solid waste bins, lighting and small community halls. There will also be some investment in city-wide infrastructure.

Capital costs are funded through a grant; there is no cost recovery. The municipality is responsible for maintenance, while

reticulated water supply is maintained by the State Public Health Engineering Department.

Technology

For each slum, an outline budget was developed, based largely on government norms such as the number of users per standpost. There are a few kilometers of sewerage in Cuttack which has recently been rehabilitated and is now functioning; some adjacent slums will link in to this, but the majority will be served by unsewered sanitation.

Community Contracting

Community contracts provided a mechanism for channeling development funds through the local community. It was an important learning experience for both communities and CUSIP, with much enthusiasm shown by some communities once the concept had been tried out. In some cases a profit was made, and in others problems arose in keeping to the cost estimate.

Capacity Building

CUSIP has provided a lot of informal technical support to groups undertaking community contracts. A detailed training agenda is currently under preparation and is likely to have components for community groups, municipal officials and councillors.

Operation and Maintenance Experience

A detailed operation and maintenance strategy that involves municipality-community partnering is being developed, with municipal wards as the focal point. This follows a situation analysis which studied *user perceptions* of services in six slums. The surveys showed variable levels of satisfaction and also showed that users have no clear understanding of who is responsible for what.

Latrines

The standard government solution for 'slums' tends to be the provision of communal latrines. In Cuttack, the municipality operates and maintains 30 and they are very effectively run due to the permanent presence of male and female cleaners. Interestingly, in the early 1990s operation was contracted out to a private concern; their performance was abysmal, and the municipality re-took control. However, the municipality could not provide additional sweepers for new latrines in slums. As a result, on-plot facilities were proposed where feasible, with shared latrines where there is a clearly defined and restricted user group. It proved impossible to find sufficient space for eight-seater latrines, and as a consequence, shared latrines were developed in two areas almost by default. Recent inspection indicated that these shared latrines were working very well, and were being cleaned by the users.

Chatra Bazaar

Misuse and lack of care for facilities is a problem in a number of the areas studied; a notable exception is Chatra Bazaar, where average family income is about Rs 1,000 per month. The Lutheran World

Service has worked here for several years and the community is highly motivated. Residents have carried out the following:

- minor repairs to handpumps;
- collecting money for tubewell maintenance;
- replacement of standpost tap;
- tiling of standpost apron;
- contributions totaling Rs 300 per month to engage sweeper for communal latrine;
- road sweeping in front of houses;
- replacement of some street light bulbs;
- community hall: cleaning, whitewashing and maintenance fee contributions;
- maintenance of plantation area and sale of produce;
- financing the construction of three small temples; and
- maintenance of existing temple.

The community hall and small temple have proved to be focal points for many activities. Residents have also built a small 'community house' through their own efforts and rent it out at Rs 70 per month. They also hire a sweeper to clean their latrine daily.

Lessons from the Project

1. The project has demonstrated the importance of determining consumer perceptions. Users in urban poor communities perceive and are concerned with the quality of the overall service regardless of who is responsible for it at different times. The planning process and subsequent monitoring and evaluation should, therefore, address overall service provision, not just construction.

2. User perceptions are linked to expectations, which are partly shaped by discussions with project staff at the planning stage. The improvements possible within CUSIP are clearly limited but they nevertheless reflect local priorities.

3. The findings on sanitation reveal a more complex picture than can be explained simply through operation and maintenance issues. Latrine use needs to be promoted actively as an alternative to traditional open defecation, especially by children.

4. The use of a private contractor for the maintenance of public toilets clearly failed here, but the reasons need to be understood; with good contract management, such an approach may be suitable in other cases.

5. Community groups pay directly for some services, for example by hiring a sweeper. These residents are managing a service; poor people do not have to do everything themselves. Community management can thus take many forms.

Nepal

Urban Development through Local Efforts: Swayambhu Infrastructure Improvement Project

Location	:	Swayambhu
Agency	:	Deutsche Gesellshaft für Technische Zusammenarbeit (GTZ) GmbH
Project duration	:	1993 – 1998

Project Description

The objective of the project was to improve the infrastructure (water, sanitation, drainage, sewerage and solid waste management) within Swayambhunath area, a pilgrimage site and one of the world heritage sites of the Kathmandu Valley.

Before the scheme began there were 22 NGOs operating in the area; the project was initiated with the formation of a Federation of these NGOs and users. The Federation was consulted from inception and led all necessary discussions during the design and implementation stages. The Federation was eventually legalized and given formal control of the completed infrastructure system.

Total project cost was approximately US $2,05,000 and this was borne by GTZ/ udle. The collection of user contributions was not viable as most of the users are tourists, not residents. However, every person involved in the process provided voluntary labor.

Capacity building for the Federation took three forms:

- technical support from the Department of Archeology and Nepal Water Supply Corporation as required;
- exposure to a project run by a user's committee, and subsequent backup; and
- training for volunteers (self-help user groups) in community organizations and development and exposure visits to other towns.

The Federation felt that this was adequate to build its ability and confidence to operate and maintain the new infrastructure.

Operation and Maintenance Experience

There was no problem in 'transferring' responsibility to the Federation since it was responsible from the start. Moreover, it was assured technical support from government agencies as and when required. Due to the use of labor-intensive technology, the Federation has had no difficulty with operation and maintenance, which is handled by a number of sub-committees.

The operation and maintenance cost is approximately NRs 53,300 (US $890) per month, which is being met in full by the Federation, largely by charging an entrance fee to the town. The Federation now aims to contribute 40 percent of the total construction cost of an alternative water

supply, which they are developing with assistance from udle.

Lessons from the Project

The establishment of a Federation of NGOs with different operating interests within the site is an achievement. Though they were consulted at all stages of the project, many hurdles were experienced and corrections had to be made in the design and execution of the project which resulted in some delays and an increase in the cost.

From the donor's point of view, it was important to accept delays and even (moderate) cost increases because they were an investment that allowed Federation members to learn the implications of the problems that some had created by undue obstructions, plan changes, lengthy discussions, etc. This strategy of permitting 'implementation crises' and leaving the responsibility for their solution to the Federation rather than 'helping' or 'pushing' proved very effective for long-term sustainability.

Involving the Federation in the process helped them become familiar with the system, and prepared them for operation and maintenance.

Transferring responsibility to NGOs means trusting and motivating them; as a result they can undertake new tasks as a challenge. For example, the public toilet in Swayambhu is one of the best maintained in Nepal.

Dhulikel Water Supply Project

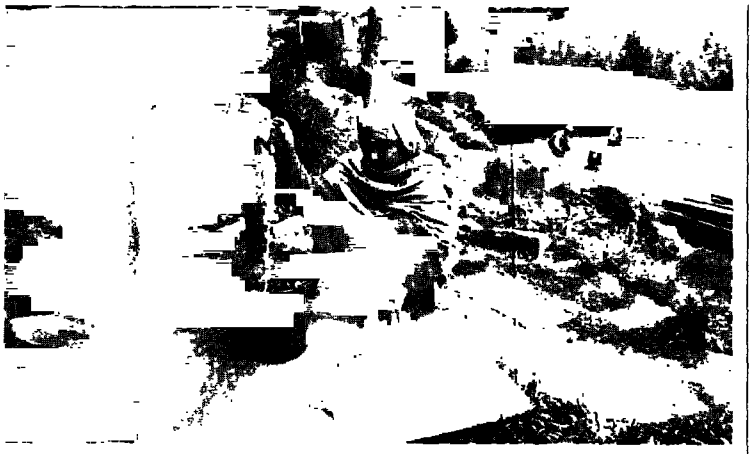
Location	:	Dhulikel
Agency	:	Dhulikel Water Users' Committee/GTZ
Project duration	:	1981 – 1982

Project Description

The objectives of the project were to provide safe drinking water to the people of Dhulikel municipality, raise the general health status of the people and enable them to utilize the time saved in fetching water for other constructive and income-generating activities. Another implicit objective was to promote tourism; Dhulikel is a potential tourist area but needs good hotels and restaurants, and that requires an adequate water supply.

The project developed a gravity flow system with a stream intake at Kharkhola (14 km from town), a sedimentation tank, two units of roughing filters, two units of slow sand filters, a reservoir of 500 m^3

capacity, a chlorination unit, and two truss bridges across the streams and along the pipe alignment. Local materials such as stones, bricks and sand were used as far as possible.



At the design stage users were responsible for identifying potential water sources and planning the laying of the pipes. This included resolving any disputes likely to arise while pipe laying. Users were also responsible for securing external support and succeeded in gaining assistance from Germany.

The Department of Water Supply and Sewerage was responsible for constructing all components with close collaboration of the community. During construction, an ad hoc water users' committee was formed with eight members and achieved the following:

- helped resolve disputes in pipe laying;
- provided land for civil structures;
- mobilized the community to support the implementing agency; and
- raised more than NRs 3,00,000.00 in community contributions for an operation and maintenance fund.

Users were invited to attend the various workshops organized by the Department of Water Supply and Sewerage which provided them the orientation about the project and the training to carry out operations and maintenance of the project. They were also imparted health education to conduct sanitation campaigns within the project area and thus, to raise sanitation awareness among users.

Operation and Maintenance Experience

Maintaining the system has not been difficult because it is technically very simple, and public support for operation and maintenance is strong.

The water users' committee is now constituted through a democratic election and currently has 11 members, one of them female. It has increased water tariff rates which would not have been possible if the project had been run by the government. The committee currently has assets of NRs 5 million cash which is being used in various activities necessary for the maintenance of the system.

Lessons from the Project

The success of this project is attributable to:

- the felt need of the people;
- homogeneity of the community (more than 90 percent are from Newar Community);
- simple technology; and
- committed community leader.

Other municipalities in Nepal are now trying to implement similar projects.

Pakistan

Faisalabad Area Upgrading Project (FAUP)

Location	:	Faisalabad
Agency	:	Project Management Unit, Faisalabad Development Authority
Project duration	:	1994 – 2002 (ongoing)

Project Description

FAUP is a multi-dimensional project covering all aspects of life. It was conceived as a process project and the role of the community was defined at every stage – that is, starting from the need identification, prioritizing, designing, implementation to post-construction maintenance. Field offices have been established in all four project areas with teams comprising social organizers (male and female) and sub-engineers. These teams facilitate the formation of Multi Purpose Community Organizations (MPCO), which are the focus of community liaison throughout the project from needs identification to implementation stage.

The project works on the principle that users can develop and maintain tertiary services themselves but cannot do this for secondary and primary services, which remain the responsibility of line agencies. For all projects at tertiary level, users contribute 50 percent of the cost that could either be in cash or kind.

FAUP works with communities as partners in development through MPCOs, thereby giving users a decision-making role in a wide range of activities. The project is flexible and can accommodate users' choice of technology within a defined framework: to avoid a major departure from government rules, the choices are limited to options used in similar projects elsewhere in Pakistan.

Operation and Maintenance Experience

The efficacy of the MPCOs in managing tertiary services is yet to be proven since the project has not yet moved in to the operation and maintenance stage. The pilot phase is, however, completed and discussions are underway with a view to developing formal Terms of Partnership (TOP) stating the agreed roles of each party.

The prospects for community management of the infrastructure are being enhanced in three ways:

1. users are being encouraged to contribute towards their MPCO account on a regular basis, so as to establish a fund for the operation and maintenance of various services developed by them;

2. bearing in mind that these are poor communities, the MPCOs are being encouraged to explore sources of funding; and

3. the MPCOs are developing strong links with the service providers.

Since the communities participate from the inception stage through its implementation, therefore this process provides sufficient understanding of the requirements to keep the services in operation.

While executing the development projects, the technical aspects of the project are shared with the implementing committees drawn from the communities. During this stage the training on technical aspects is also given to activists from the community.

Lessons from the Project

The project has demonstrated that communities, once properly mobilized and involved in the whole process of project planning and implementation, are able to contribute towards both the capital and recurrent costs of urban services at tertiary level. Full community involvement in the process also offers promise for complete and regular recovery of user charges.

Mujahid Colony Improvement, Karachi

Location	:	Karachi
Agency	:	Sindhi Katchi Abadis Authority (SKAA)
Project duration	:	1996 – 1997

Project Description

This project involved the construction of neighborhood sewers in an informal settlement (katchi abadi) in Karachi. A notable feature was the granting of legal tenure to residents; revenue from the leases enabled infrastructure development.

SKAA undertook the construction of sewers, with monitoring by the Orangi Pilot Project-Research and Training Institute (OPP-RTI), an NGO with much experience in this field. The community supervised construction with technical training and support from OPP and SKAA engineers, and completion certificates were provided by the community and OPP-RTI.

Selected activists and residents took on the following responsibilities:

- community mobilization;
- working with SKAA engineers for implementation of the project;
- coordinating between SKAA and the community to communicate plans and motivate the people;
- organizing community members and

assigning responsibilities to check that work was done according to specifications; and

- ensuring maintenance is carried out.

Beyond the neighborhood level, the Karachi Water and Sewerage Board remain responsible for collection and final disposal of effluents through their own trunk sewers laid and maintained by them. Solid waste management at neighborhood level remains the responsibility of SKAA and the District Municipal Corporation (DMC).

Lease charges from households cover the cost of land, development of infrastructure and administration. One-third of the amount collected is used for infrastructure development and no additional funds are collected from the community. Incentives for the community to participate come not only from the granting of legal tenure but the promise of a development project after regularization of a minimum of 40 percent of dwellers in a given katchi abadi. Lease recovery has now financed the provision of water supply, sanitation and solid waste management in Mujahid Colony.

Operation and Maintenance Experience

An informal understanding has been reached with the community that they will take care of operation and minor maintenance up to the neighborhood level in order to make the project sustainable. SKAA provides necessary tools and plants for this along with technical guidance as and when required to the community, but the maintenance cost is borne by the users. This strategy has also been successfully adopted in other squatter settlements/katchi abadis.

Lessons from the Project

Appropriate training gave users the opportunity to participate as partners with government and carry out a wide range of tasks successfully.

The project has shown that the government can implement low-cost, self-financed development works more efficiently with the involvement of local CBOs/activists and technically experienced NGOs.

Sri Lanka

Clean Settlement Project, Colombo

Location	:	Colombo
Agency	:	Colombo Metropolitan Region; Ministry of Housing and Urban Development
Project duration	:	1995 – 1998

Project Description

The Clean Settlement Project aimed to improve housing conditions of under-served urban communities who constitute roughly 50 percent of the population of Colombo. Institutions involved included the project unit, local authorities, supply agencies, CBOs and NGOs. The last two were given a prominent role right from the planning stage. Some of the CBOs were formed specially for the project by supporting the NGOs.

Two key features of the project were:

1. It developed infrastructure and services in response to specific requests from CBOs; these were submitted through supporting NGOs that had initiated the process through consultation. To help users make informed choices on services, design guides and estimates were provided where possible, for example, toilets. The project unit, in conjunction with relevant service agencies, worked on technical design aspects of viable schemes and prepared them for final approval by a technical committee.

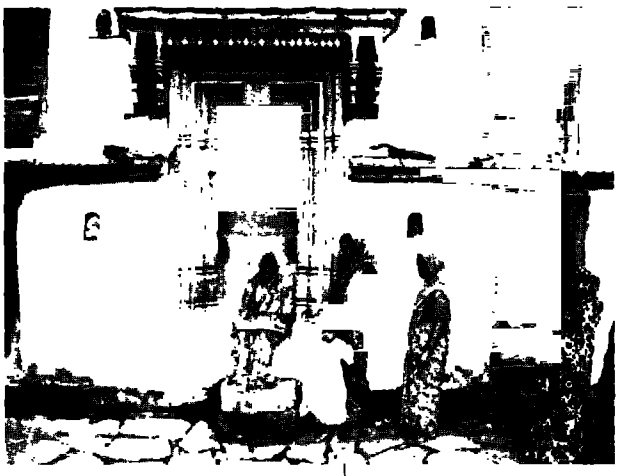
2. It adopted a flexible approach to technical standards. The settlements were in low-lying areas where the use of standard slopes would have resulted in neighborhood drains being set lower than the main drains into which they would flow. Mild slopes were, therefore, used.

Users had to make an up-front 20 percent cash contribution towards the capital costs of on-site infrastructure. In addition, they were encouraged to take on responsibility for maintenance of services at the household and neighborhood levels. The local authority remained responsible for trunk services and disposal, both directly and by contracting out.

The services developed included community centers, water supply, drainage, roads, solid waste collection and the provision of household toilets. In the latter case, residents built their own facilities using a 30 percent subsidy from the project, with technical support and monitoring from project staff. Training for residents was provided through workshops, technical sessions and regular consultative meetings.

Operation and Maintenance Experience

Unfortunately, the gentle slopes of the drains resulted in regular stagnation of water. To deal with this, the CBOs organized rotas for regular cleaning by the residents.



They also maintained close liaison with the local authorities, who were called from time to time to deal with difficult problems such as major drain blockages. A partnership was developed between the official agency and informal organizations.

Skilled workers living in the settlements proved to be very effective in explaining aspects of operation and maintenance to other residents.

Lessons from the Project

Successful operation and maintenance depends largely on the motivation of the CBOs not only to attend to repairs as the need arises, but to deal with any wrongdoing by residents.

Low-income Urban Housing Sub-program (Infrastructure Component)

Location	:	Colombo and five other urban areas
Agency	:	National Housing Development Authority
Project duration	:	1987 – 1994

Project Description

This project formed part of a much larger program to improve the quality of life of the urban poor by bringing them into the purview of the mainstream municipal system. This was done by granting legal tenure rights and other rights enjoyed by urban society as a whole.

A two-stage approach was adopted: firstly, provision of a loan and technical assistance for housing upgradation; secondly, community involvement in infrastructure development and management within the settlement via community contracting. In each settlement, a Community Development Council (CDC) constructed the infrastructure through a community contract with technical assistance from the National Housing Development Authority (NHDA). Responsibilities were shared as follows:

Families: Construction and operation and maintenance of household facilities.

CDC: Identification of infrastructure needs, prioritizing, selection, construction and management of on-site facilities.

NHDA: Design, technical assistance during construction, funding.

Local authority: Management of off-site facilities and technical support for on-site facilities.

Cost recovery and voluntary labor were not expected for capital investments, thereby bringing poor consumers in line with more affluent sectors of society. The government funded construction while dissemination of information, training and technical assistance were funded by foreign donors.

Capacity Building

The following capacity building activities were undertaken:

- A series of workshops dealing with: prioritizing infrastructure needs; identification of technical options; agreement on roles and responsibilities; operation and maintenance arrangements; and technical information;
- community members of the construction committee were given training in management of community contracts (including preparation of financial statements);
- community members engaged in contracts acquired skills under the supervision of NHDA staff;
- pre-schools, Sunday Schools and in some cases vocational training classes were established in community centers within the settlements; and
- training of youth and women for income generation activities was undertaken with donor assistance.

Technical Norms and Standards

The consultative process showed that norms for conventional technologies were inappropriate for low-income areas due to lack of space, population density, the marginal nature of land, social habits and lack of funds for construction/operation and maintenance. Therefore, revised norms were developed. For example:

Water Supply

- Revised per capita consumption rates for low-income families with fewer taps per house and alternative options for bathing (common wells, etc) – this enabled use of reduced pipe diameters, lowering network costs; and
- use of underground water pumps in houses in low pressure areas, for off-peak water collection.

Sewage Disposal

- Introduction of double pit latrines with a special pit arrangement to reduce the space required;
- introduction of shallow and small bore sewer systems which reduced overall sewer network costs and enabled local maintenance; and
- common septic tanks with biological filters for unsewered areas permitting introduction of 'on-site sewer networks' to unsewered areas.

Management Arrangements

Domestic installations were looked after by users, thereby improving response time.

On-plot installations such as manholes and septic tanks were also maintained by households, with cooperation from the CDC or using the services of the local authority or infrastructure agency. For example, the local authority emptied septic tanks within housing plots on request from the householder via the CDCs. (Gully emptiers were provided to local authorities by NHDA with financial assistance from UNDP and UNICEF).

Management of on-site installations such as pipe networks or common septic tanks was the responsibility of the CDC. They could request assistance from the local authority or respective infrastructure agency in case of a major repair.

Management of off-site installations lay with local authorities, which could request assistance from specialist agencies such as the National Water Supply and Drainage Board.

Operation and maintenance costs falling under CDCs were generated through a 15 percent profit from each community contract. CDCs could also collect funds from members to meet any shortfall. Local authorities generated funds for services through the collection of property taxes.

Operation and Maintenance Experience

A number of factors influenced operation and maintenance outcomes:

- The shift from communal to household installations using simple, inexpensive technology was very effective; when external assistance was required, it was available, usually within the community.
- Inadequate technical know-how within local authorities was a constraint and proved unable to maintain some facilities effectively, such as septic tanks with biological filters.
- In one case, cultural preferences affected operation and maintenance; users of twin pit latrines rejected the manual removal of decomposed excreta and used municipal scavengers instead.
- Periodic support services were available from the local authority (septic tank emptying, etc). However, over time people discovered unofficial means of obtaining local authority services much cheaper. Eventually the intervention of local politicians and weakened CDC structures led to the transfer of most on-site operations and maintenance responsibilities to local authorities.

Community-managed Sewerage, Colombo

Location	:	Colombo
Agency	:	SEVANATHA; Gajabapura Bo-sevana CDC
Project duration	:	1993 – 1996

Project Description

This project involved the upgrading of an urban slum not far from Colombo city center. Its major physical achievement was the construction of a local sewer network, into which people connected household toilets funded at their own expense. The project was facilitated by the NGO SEVANATHA, but implemented under the supervision of the local Community Development Council, a formally recognized CBO. A network of women's savings groups in Gajabapura, known collectively as the 'Women's Bank,' also played an active role.

The project began with a consultative workshop that identified local environmental problems and possible solutions, and produced a community action plan. The CDC took on responsibility for implementing this plan, with SEVANATHA serving as facilitator and a link with government and other agencies. Key project features included:

- strengthening the CBOs to take on their managerial and mobilization roles. The CDC became the community's main link to government, NGOs and other institutions – it functioned as the community's voice;
- the identification of short and long term objectives for solving local environmental problems. Short term works included repairs to communal toilets, taps and drains, which were done by community labor. Long term improvements were implemented as a partnership between the community and external support agencies. These were major works for which the community needed funds, technical support and effective organizational structures. They included sewer construction, house building and also the installation of household amenities; and
- a distinction between internal and external development. It was a guiding principle of the project that users could, and should, develop and maintain household and lane-level infrastructure at their own expense, with government responsible for secondary and primary services.

For development of the local sewer network (and some septic tanks), the National Housing Development Authority provided technical drawings and estimates, and SEVANATHA raised external funds from an international donor. Implementation was overseen by the CDCs with support and advice from both the NGO and government departments.

SEVANATHA laid great emphasis on training and human resource development so that the CDC could manage the project. Teams of residents provided unskilled labor, while skilled persons were hired by the CDCs for sewer construction.

SEVANATHA simplified the technical drawings and prepared guidelines in the local language so that residents could supervise and monitor construction work in their area.

Residents paid the full cost of household toilets and also contributed about 20 percent of the construction costs for sewers and septic tanks. After the sewer system was completed, operation and maintenance training was given to key community members and family responsibilities were publicized. SEVANATHA then handed over the system for community management.

Operation and Maintenance Experience

A network of local CBOs now organize operation and maintenance in the settlement and hold regular meetings for this purpose. Small items are dealt with on an ad hoc basis but for major works, the CDC is involved. For example, when the septic tanks needed emptying after two years, the community collected funds to pay for the service, and the CDC arranged for the municipality to do it. There have, however, been problems:

- People have proved unwilling to pay into an operation and maintenance fund held by the CDC, partly due to previous mistrust and partly because they have already contributed to capital costs.
- Some people still believe it is the government's job to bear the maintenance costs – many community leaders openly criticize the idea of community-based operation and maintenance.
- Community leaders who put a lot of effort in promoting the project are starting to raise the question of payment for their efforts.
- There is no government policy in favor of community-based operation and maintenance and local politicians still make promises of free services, undermining the work of the project.
- The lack of an agency to enforce local bylaws threatens the sustainability of the sewer network.

Despite these difficulties, the CDC is still functioning well three years after project completion, and the Women's Bank has grown into a bigger, more established CBO with a significant role in organizing operation and maintenance.

Lessons from the Project

- The key factor in successful community-based management is behavior change. Motivating the community and developing an effective partnership before implementation is important.
- Residents' perceptions of environmental problems are different to those of planners. People will only participate in environmental management if they envisage immediate local benefits.
- A strong CBO is a needed for success.
- There are valuable human resources within urban poor communities, which should be harnessed to help improve the local environment.
- Cost recovery is difficult in the absence of a policy and legal framework. Government commitment and support is essential.

PROCEEDINGS

The timetable for the two-day meeting is given in Appendix One. The participants followed a logical process of analysis based on the case studies, and tried to answer the central question of the meeting: 'with reference to urban infrastructure, how can community management be achieved and sustained?' A brief explanation of the process is given below.

Day One

The task of the working groups was to review case studies and from them, identify:

- positive factors that promote community management;
- negative factors (constraints) that hinder community management.

These were considered at three levels: within the project itself (design and management issues); at town level; and in the wider environment (for example, policy issues). The points identified were displayed on cards; negative points on the left, positive ones on the right (see Appendix Two).

At the end of Day One, the issues that participants considered to be the most important were synthesized into a 'master list' for further analysis on Day Two. They were under four broad headings:

1. Demand and Finance
2. Partnerships, Municipal Management and Technical Approaches
3. Institutional Environment
4. Community Dynamics

Day Two

Following an open forum, participants chose one of the above themes they wished to explore further in a working group. Interestingly, no one opted for community dynamics; the remainder of the meeting, therefore, focused on issues under headings one to three using the cards produced on Day One. The task for each working group was as follows:

- With each card written/rewritten as a positive action statement, rank them vertically from the most important to the least important in terms of their impact on effective operation and maintenance.
- For each action, identify the effect on operation and maintenance; how to make it happen; and the risks (that is, what success depends on).

With all group presentations completed, the participants finally voted individually for those actions which they considered to be:

1. important and feasible in the short term;
2. important but difficult in the short term;
3. a priority area for more research; and
4. not agreed.

The conclusions and recommendations in Section Two of this report arise from these discussions and the vote.

KEY ISSUES AT END OF DAY ONE

PARTNERSHIPS , MUNICIPAL MANAGEMENT AND TECHNICAL APPROACHES		DEMAND AND FINANCE	INSTITUTIONAL ENVIRONMENT	COMMUNITY DYNAMICS
Pressure on corporation to perform	Interaction between stakeholders	Existing informal services are very expensive	Political commitment	Active participation of women
Don't neglect elected members	Partnerships/ linkages	Felt need and willingness to pay for quality service	Legal aspects - tenure - status	Good leadership
Utility/city want to reduce unaccounted for services	City planning not linked to local planning	Users can exercise choice	De-link tenure from service provision	Financial transparency and sense of control
Low attention to sanitation	No link between community decisions and financial decisions	Positive role for local entrepreneurs	Ordinances.' policies that confer rights to services	Motivation for sound finances
Lack of O&M capacity at municipal level		Cost recovery - treat rich and poor on same basis	Should slum dwellers be provided with services at all?	Who does the facilitation?
Monopoly of state agencies		Financing (institutional/ revenue)	Institutionalize adopted standards/ contracts	Set targets for community takeover
		Need financial institutions to fund community investment	Accept that poor people are part of the city	Allow O&M arrangements to evolve
	Gradual devpt. of consensus – seeing is believing	Opportunity for profit/income	Obstruction by mastaans/mafia	Good arrangements for technical support
	Clarity on municipal and community roles	Municipal services may not be first priority	Free services are linked to political patronage	Poor leadership
	Flexible with formal procedures		Absence of legal framework	Corruption (in community and government)
	Community contracting also puts dept at ease		Perception that government should provide free services	Temporary management structures
	Model (demonstration)			Donor/NGO-led: sustainability?
	Rigid project agendas			Individuals may see financial incentive to grab control

Note: *Shaded cards represent constraints.* *O&M: Operation and Maintenance*

RECOMMENDATIONS AT END OF DAY TWO

1. Demand and Finance

ACTION STATEMENTS	EFFECT ON OPERATION AND MAINTENANCE	HOW TO MAKE IT HAPPEN	RISKS	
Provide services people want and are willing to pay for	They will pay and use responsibly	Appropriate flexible market research (particp dem assmnt)	Creates unrealistic expectations!	
		Community mobilization generating demand	Creates unrealistic expectations!	More difficult to achieve for sewerage
		Provide transparent info on costs and services	Creates unrealistic expectations!	Resistance to change
Provide access to financial services	People can pay	Establish and support tailor-made financial instns within projects	Losing the money!	
		Use existing savings and credit mechanisms and credit history	Losing the money!	Fixed ideas about non-productive loans
		Use donor central funds to guarantee credit providers	Losing the money!	Unattractive to donors (no flag planting!)
Seek and use appropriate management options	Establishes incentives to maintain the service			
Make the poor legitimate clients	Utility has equal incentives to serve poor and maintain service			
Ensure revenue covers life cycle costs	Will ensure sustainable operation and maintenance finance			
Set tariff at correct management level	Tariff more likely to be correct for the situation			

Most Important

Least Important

2. Partnerships, Municipal Management and Technical Approaches

	ACTION STATEMENTS	EFFECT ON O&M	HOW TO MAKE IT HAPPEN	RISKS		
Most Important	**Integrate local O&M needs with city O&M services**	Poor local communities have O&M services	Annual operation and maintenance plans prepared by communities	Always negotiate the O&M service with agent	No CBO in place to prepare plan	Monopoly of State agency
			Prepare capital budgets/plans from recurring budgets/ plans	MoU between stakeholders at nodal level	Lack of influence over service	
	Improve O&M capacity at municipal level	From build-replace to build-maintain-replace	Involve councillors in capacity-building program	Continuous training workshops on O&M for all stakeholders	Lack of resources for capacity-building	
		Better technical O&M support to communities	Create structures to represent local needs	Increase equipment capacity (introduce modern equipment)	Corruption within system	
			Put the right people in the right place	Enforceable rules and regulations in place for O&M	Lack of motivation/ priority for O&M within municipality	
			Encourage output-oriented performance measurement			
	Use simple, appropriate technology and maintain standards	Ease of O&M facilitating community participation				
		Reduction in operation and maintenance costs and time	Research, consultation and arrive at appropriate norms	Guidelines on O&M for all technology provided to communities	**Unknown long-term implications of new technologies**	**'Worry about it later' mentality**
			Design with operation and maintenance in mind	Select the best option with community participation	**Environmental problems ignored**	
			Local O&M solutions encouraged	Allow flexibility for modifications to design		
	Allow flexibility so that project procedures can change		Introduce new curriculum in engineering and training institutions		**Unacceptability in terms of conservative standards**	
Least Important	*Use community contracting to put departments at ease*					
	Break down monopoly of state agencies					

O&M: Operation and Maintenance

3. Institutional Environment

ACTION STATEMENTS	EFFECT ON O&M	HOW TO MAKE IT HAPPEN		RISKS
Uniform policy statement and understanding	Enable replication of O&M (community managed)	Consultative process in policy formulation	Identify good practices	No political commitment
		Flexible local arrangements encouraged	Piloting institutional arrangements	Policy perceived as rigid
		Compile information on community investment		
Enabling legal framework recognizing rights	Empower communities to manage certain services	Ordinances/policies which confer right to services	Facilitate willingness to pay	**Free services are linked to political patronage**
Operational procedures incorporating community efforts	Better informal-formal linkages	De-link tenure from service provision	Consultation with communities	**Municipal apathy**
		Develop procedural guidelines	Institutionalize community as full partners	
		Define roles and responsibilities		
Harness the resources of the informal sector	Larger service capacity	Understand the informal sector	Negotiate new rules	Difficulty in dealing with a fragmented informal sector
Disseminate learning on good practices	Enables choice	Professional/private/ CBO/NGO/municipal networks		
	Reduces cost			

Most Important

Least Important

PARTICIPANTS

	NAME	DESIGNATION	ORGANIZATION
BANGLADESH			
1	Mr Munir Alam Chowdhury	Project Coordinator, MSWM	Prodipan, Khulna
2	Mr Fazal Abu Mansoor	Chief Executive Officer	Khulna City Corporation
3	Dr Diablok Singha	Executive Director	DSK
4	Ms Clarissa Brocklehurst	Country Representative	WaterAid
5	Mr Mofazzal Hoque		WHO, Dhaka
INDIA			
6	Ms Jayshreeben Vyas	Managing Director	SEWA Bank
7	Mr Simon Kenny	First Secretary	DFID-India
8	Mr Ed Farrand		DFID-India
9	Mr Pravin More	Consultant	DFID-India
NEPAL			
10	Mr Arun Ranjitkar	Deputy Director-General	DWSS
11	Mr Hans Sprujit	Chief, Water and Sanitation Section	UNICEF
12	Mr Jan Speets	Environmental Advisor	WHO
13	Mr Som Raj Acharya	Consultant	UNICEF
14	Ms Evelyn Bolt	Project Coordinator	IRC
15	Dr Ernst B. Reichenbach	Program Coordinator	Urban Development Through Local Efforts
16	Mr N.K. Mishra	Chief Sanitation Officer	
17	Mr Krishna Rana	Chief	CHRDU
18	Mr Kiran Ulak		Municipality of Kathmandu
19	Mr Keshav Stapith	Mayor	Municipality of Kathmandu
20	Mr Prem Suwal	Mayor	Municipality of Bhaktapur
21	Mr R. Gautam	Engineer	Municipality of Lalitpur
22	Mr N.M. Pradhan	Sr. Deputy General Manager	Nepal Water Supply Corporation

	NAME	DESIGNATION	ORGANIZATION
PAKISTAN			
23	Mr Atatullah Khan	Addl Project Director	FAUP
24	Mr Abdul Khaliq	Executive Engineer	Sindh Katchi Abadis Authority
25	Mr Bakhtiyar	Assistant Director	Community Infrastructure Project
SRI LANKA			
26	Mr G.A.P.H. Ganepola	Deputy General Manager	National Housing Development Association
27	Mr Dayananda	Deputy Director	Clean Settlement Project, Colombo
28	Mr K.A. Jayaratne	President	Sevanatha, Sri Lanka
WEDC			
29	Dr Mohammed Sohail	Research Manager	WEDC
30	Dr Andrew Cotton	Director-Urban Programs	WEDC
PROGRAM			
31	Ms Barbara Evans	Regional Urban Specialist	WSP – SA
32	Ms Sara Azfar	UES-Specialist	WSP – SA, Pakistan
33	Mr K.M. Minnatullah	Sr Program Officer	WSP – SA
34	Mr S. Sharma	Communications Officer	WSP – SA
35	Mr Haroon Rashid	Water and Sanitation Specialist	WSP – SA, Bangladesh
36	Ms Fiona Fanthome	Consultant	WSP – SA
37	Mr Jeremy Colin	Facilitator	

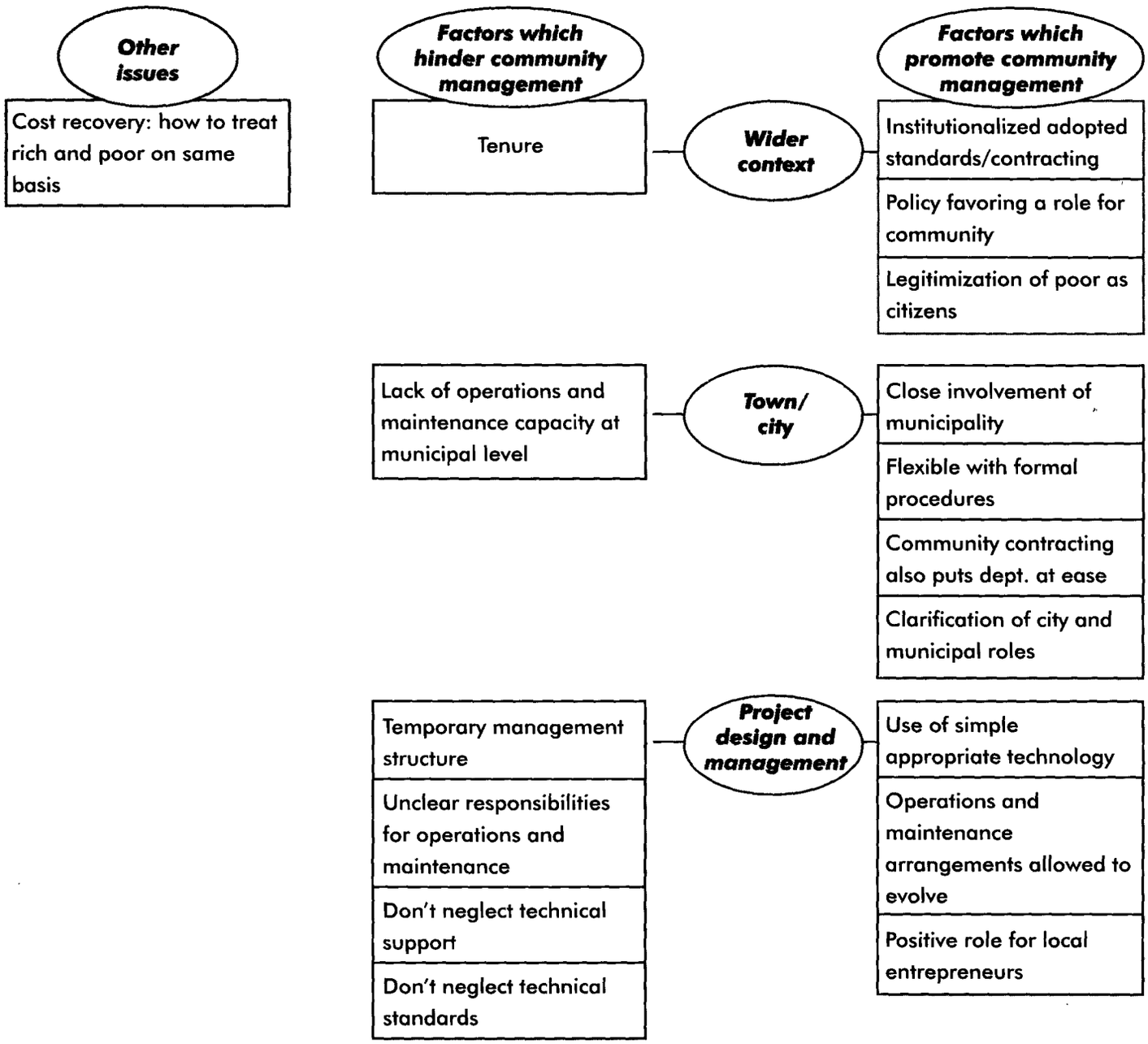
APPENDIX ONE

Timetable

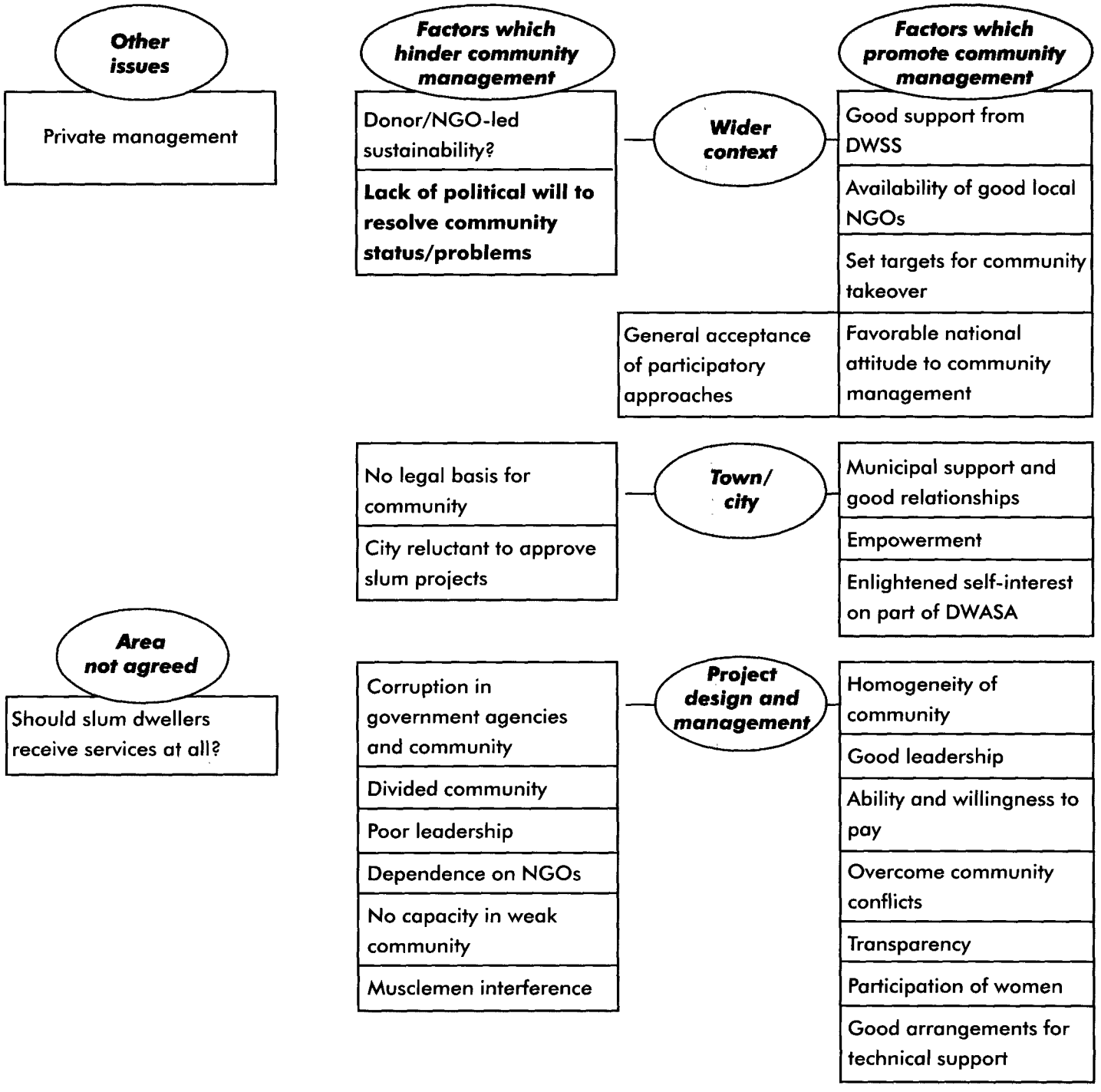
	Day One		Day Two
09.00	**Introduction**	08.30	**Review of Day One**
	Welcome		
	Four Walls Exercise	08 40	**Open Forum**
	Personal Introductions/Icebreaker		Discussion/elaboration on specific
	Objectives and Process Overview		Case studies as requested by group
	ViPP Rules		
		09.30	**Formation of Working Group** (2)
10.00	**WEDC Presentation**		To explore themes and issues arising from
	Followed by questions/discussion		Day One
10.30	TEA	**10.00**	TEA
11.00	**Community Management?**	10.30	**Working Groups (2) contd...**
11.15	**Formation of Working Group** (1)	12.00	**Plenary Presentations and Discussion**
11.30	**Working Group Discussion**		
13.00	LUNCH	**13.00**	LUNCH
		14.00	**Responses**
14.00	**Plenary Presentation and Discussion**	14.30	**Reaching Consensus**
15.00	TEA	**15.00**	TEA
15.30	**Responses**	15.15	**Final Recommendations**
	a) WEDC		
	b) SEWA	15.30	**Closing Remarks**
16.00	**Review**		
16.30	**Close**		

APPENDIX TWO

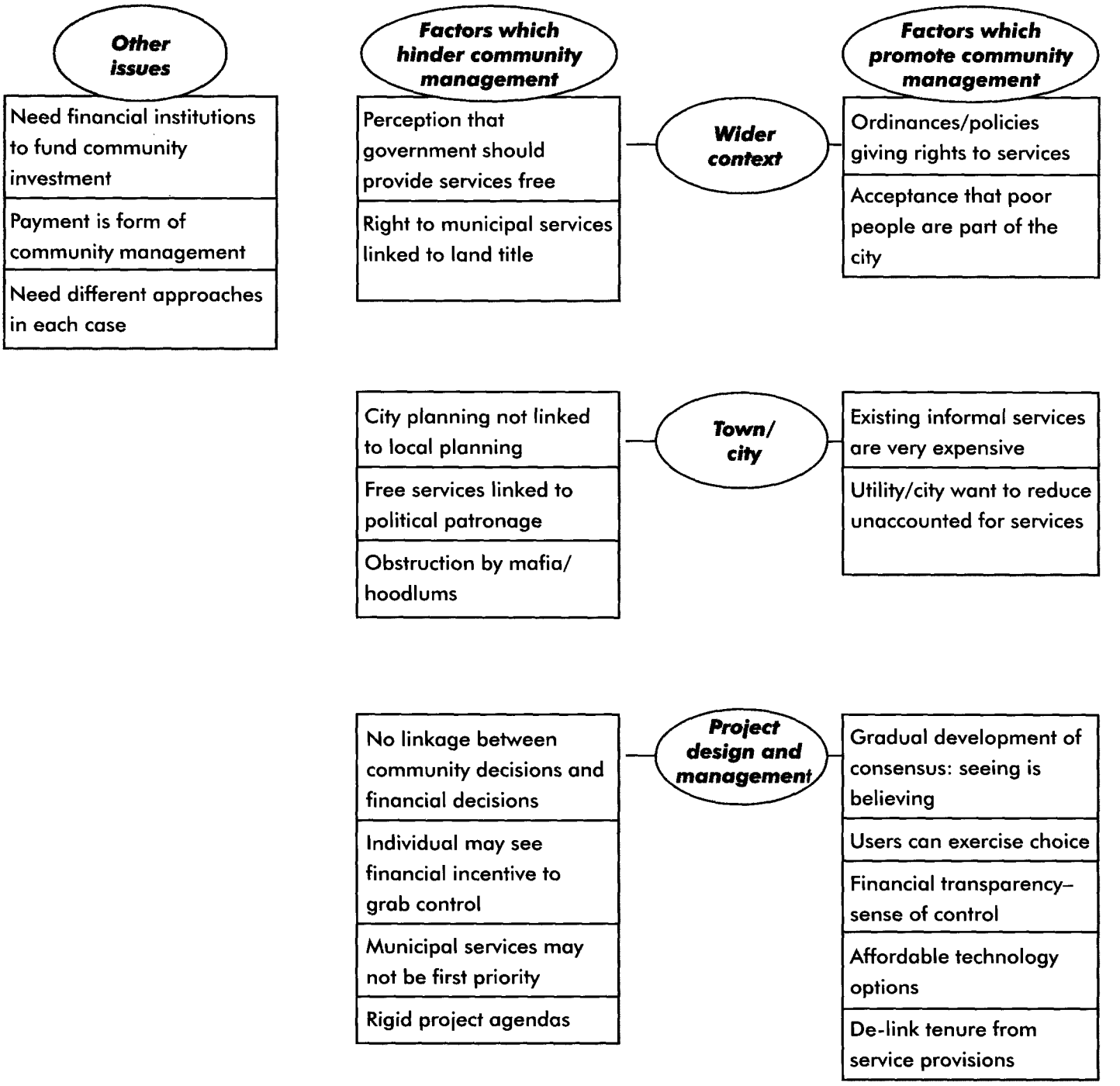
Results of Discussions on Day One: Group 1



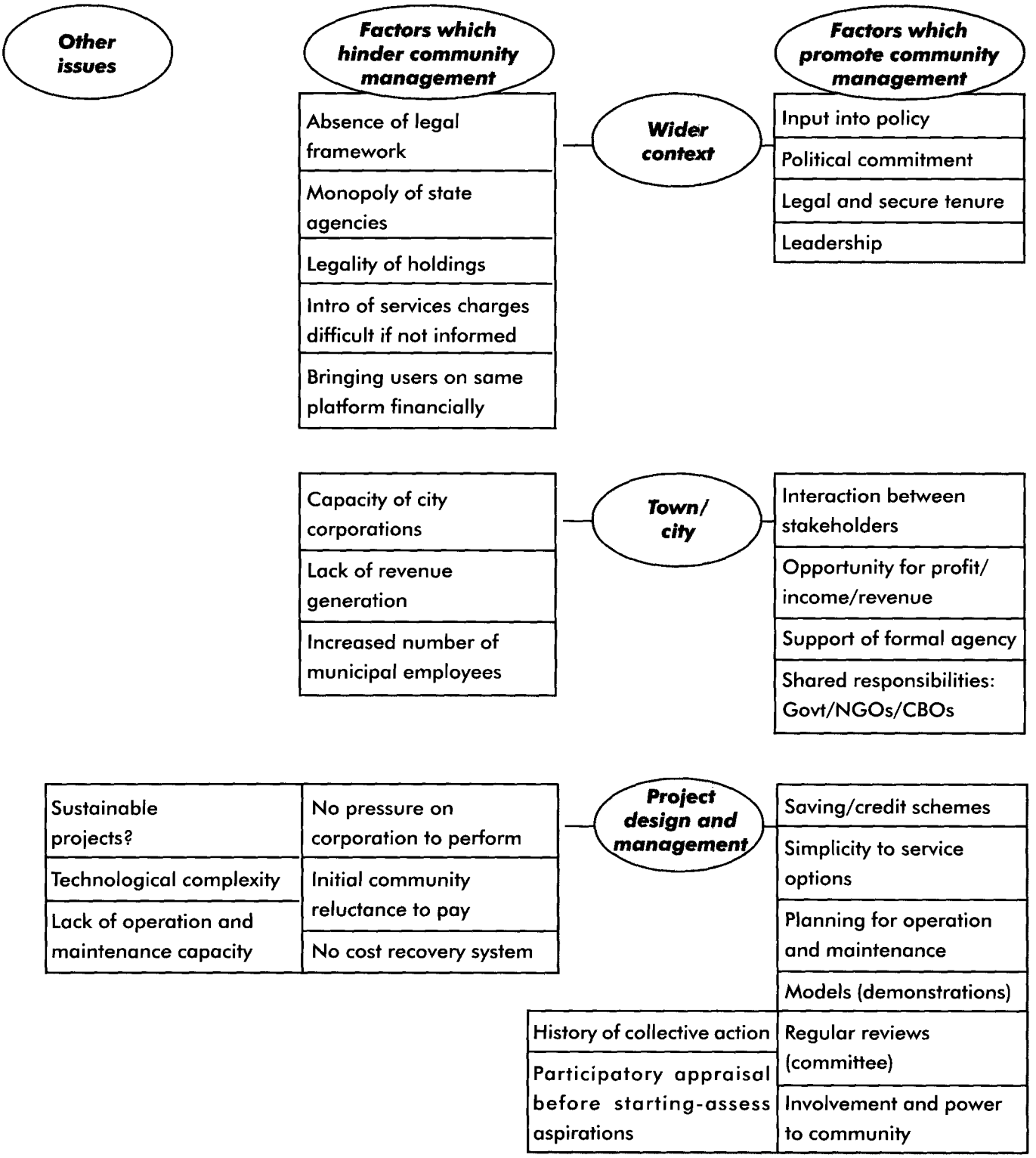
Results of Discussions on Day One: Group 2



Results of Discussions on Day One: Group 3



Results of Discussions on Day One: Group 4



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