



Water, Sanitation and Hygiene

Household-Centred Environmental Sanitation

Implementing the Bellagio Principles in Urban Environmental Sanitation

**Provisional Guideline
for Decision-Makers**



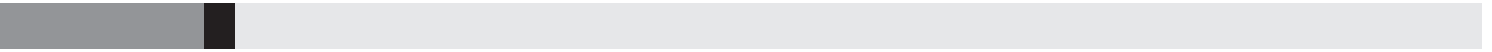


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Abbreviations

EAWAG	Swiss Federal Institute of Aquatic Science and Technology
ES	Environmental Sanitation
ESWG	Environmental Sanitation Working Group
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit GmbH
HCES	Household Centred Environmental Sanitation
HRD	Human Resource Development
IAP	Indoor Air Pollution
IRC	International Water and Sanitation Centre
IWRM	Integrated Water Resource Management
MDG	Millennium Development Goal
MEF	Monitoring, Evaluation and Feedback
NGO	Non Governmental Organisation
O&M	Operation and Maintenance
PHAST	Participatory Hygiene and Sanitation Transformation
PRS	Poverty Reduction Strategy
PSC	Project Support Communications
PSP	Private Sector Participation
SANDEC	Department of Water Supply and Sanitation in Developing Countries (within EAWAG)
SSHE	School Sanitation and Hygiene Education
UESS	Urban Environmental Sanitation Services
WEDC	Water, Engineering and Development Centre
WHO	World Health Organisation
WSP	Water and Sanitation Programme
WSSCC	Water Supply and Sanitation Collaborative Council
WSSD	World Summit on Sustainable Development

Why this Guideline?

The large majority of the world population without access to adequate water, sanitation, drainage and solid waste disposal services provides strong evidence that conventional approaches to Environmental Sanitation are unable to make a significant dent in the service backlog which still exists in most of the developing world. The need to challenge conventional thinking in environmental sanitation is increasingly recognised even in industrialised countries. In February 2000, a group of experts from a wide range of international organisations involved in environmental sanitation met in Bellagio, Italy, and proposed some guiding principles as the underpinning basis for future planning and implementation of environmental sanitation services. These “Bellagio Principles” were subsequently endorsed by the members of the Water Supply and Sanitation Collaborative Council during its 5th Global Forum in Iguazu, Brazil in November 2000.

In search for an approach based on the Bellagio Principles and likely to reach the overall goal of “water and sanitation for all within a framework which balances the needs of people with those of the environment to support a healthy life on Earth”, the Environmental Sanitation Working Group of the WSSCC conceived the Household-Centred Environmental Sanitation (HCES) approach. The HCES approach is a radical departure from past central planning approaches as it places the household and its neighbourhood at the core of the planning process. The approach responds directly to needs and demands of the users but attempts to avoid problems resulting from purely “bottom-up” or “top-down” approaches. It offers the promise of overcoming the shortcomings of unsustainable planning and resource management practices of conventional approaches.

This Guideline for Decision-Makers has been developed to provide first guidance on how to implement the Bellagio Principles by applying the HCES approach. Assistance is given to those willing to include and test this new approach in their urban environmental sanitation service programmes. Since practical experience with the HCES approach is lacking, this Guideline is neither comprehensive nor final, but will have to be developed further on the basis of extensive field experience.

This document has been prepared in close collaboration between SANDEC, Kalbermatten Associates and the Secretariat of the WSSCC. Contributions by colleagues from IRC, GTZ, WEDC, and WSP as well as the support from the Swiss National Centre of Competence in Research North-South (NCCR North-South) are gratefully acknowledged.

Roland Schertenleib (EAWAG/SANDEC)
Co-ordinator of the WSSCC Partnership
on Environmental Sanitation

Household-Centred Environmental Sanitation: Implementing the Bellagio Principles in Urban Environmental Sanitation

Provisional Guideline for Decision-Makers

Executive Summary

Origin of HCES: The International Drinking Water and Sanitation Decade, for all its achievements, made limited impact on improving water supply and sanitation services for the urban poor. Improvements in urban sanitation services were often neglected in favour of water supply provision. A key lesson from the Decade is the need to respond to consumer demand to achieve sustainable and effective change.

In an effort to address the neglect of sanitation, and improve guidance on such a 'demand-responsive approach' to those planning and implementing sanitation programmes, the Water Supply and Sanitation Collaborative Council (WSSCC) created an Environmental Sanitation Working Group (ESWG). During a workshop in 1999 the ESWG developed an approach to address environmental sanitation services called the Household-Centred Environmental Sanitation (HCES) approach. The HCES approach is a radical departure from past central planning approaches as it places the household and its neighbourhood or the community at the core of the planning process. This approach was subsequently adopted and synthesized into the Bellagio Principles by a representative expert working group.

Objective of HCES: The objective of the HCES approach is to create and maintain conditions whereby:

- **People lead healthy and productive lives;** and
- **The natural environment is protected and enhanced.**

Implementation of this approach contributes to the goal of providing sustainable sanitation services to all, with a framework which balances the needs of people with those of the environment, in order to support healthy life on earth.

Rationale for the Guideline: This provisional Guideline has been developed to provide guidance on how to 'operationalise' these Bellagio Principles in relation to urban environmental sanitation service (UESS)¹ provision.

The Guideline does not provide a general manual on how to prepare or implement UESS programmes; it is assumed that the target audience of the Guideline has a basic knowledge of matters relating to urban services. However, adoption of the HCES approach to UESS programmes requires a change in the approaches that have previously been used.

It is expected that, at least initially, application of the HCES approach will be done for only parts of a city, to gain experience and test the technique, before it is applied more broadly.

Target audiences:

Principle Audience

- Elected and appointed city/small town municipal planners and officials, such as mayors, and the sector specialists who serve them, who are interested in applying these ideas within the areas for which they are responsible, and who need guidance on how to do so.

Secondary Audience

- Decision-makers and other stakeholders at regional or national level whose support is essential in creating an enabling environment for the application of HCES.
- Personnel from NGOs, advocacy and community organisations who are interested in participating in HCES trials, and want to understand the concepts and process.

¹Urban Environmental Sanitation Services (UESS), consists of water supply, sanitation, storm drainage and solid waste management. A fuller explanation is included in the Introduction, under Scope of UESS.

Of note is that:

- Different forms of site-specific instructional and promotional material will need to be developed² to meet the needs of other key stakeholders, such as participating households, neighbourhood/-community organisations and leaders, small contractors, etc.
- Experience in initial trials of the HCES approach will probably lead to modifications in this Guideline.
- Even though the households/neighbourhood are at the core of the planning process, this does not mean that the most appropriate solution will always be at the household level.

Special characteristics of HCES: The HCES approach attempts to avoid the problems resulting from either 'top-down' or 'bottom-up' approaches, by employing elements of both in an integrated framework that is also characterised by being:

- multi-sector: accounting for water supply, sanitation, storm drainage and solid waste management

- multi-actor: emphasizing the participation of all stakeholders, beginning at the household/neighbourhood or community level, in planning and implementing UESS.

In addition, the approach is based on:

- household 'effective' demand, leading to sustainable, balanced services
- the concept of 'zones', and solving problems within the 'zone' nearest to where the problems arise
- the use of a 'circular model', which emphasizes resource conservation and reuse to reduce waste disposal, in place of the traditional linear model of unrestricted supply and subsequent disposal.

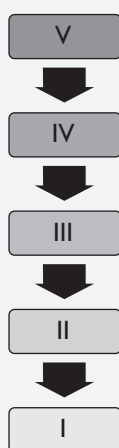
Structure of the Guideline:

The provisional Guideline is structured into four sections:

- (a) Introduction to HCES and UESS:** Following the Executive Summary, the first section provides a broad **introduction** to components of UESS, the HCES

Household-Centred Environmental Sanitation Model (HCES Model)

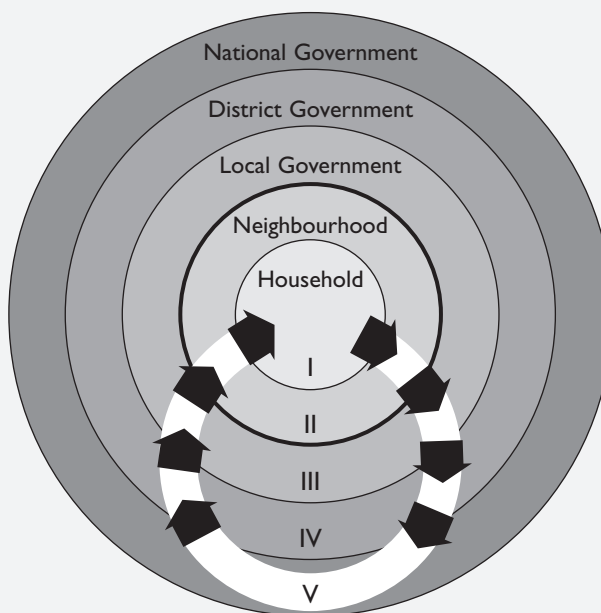
Decision-Making in the Past



Legend:

- I Household
- II Community/Neighbourhood
- III Local Government
- IV District Government
- V National Government

Decision-Making in the Future



²Published information, manuals and Guidelines for specific audiences and topics should be used as much as possible.

approach and the application of the HCES approach to UESS.

(b) Introduction to the Guideline: The second section introduces the Guideline – how and when to use the Guideline, its target audience and the intended development of the provisional Guideline into location-specific application.

(c) Enabling Environment: The HCES approach is a non-traditional approach that, to succeed, requires a new 'enabling environment'. The third section considers the conditions of an enabling environment and how these conditions should be addressed. It is to guide the municipal authorities and other decision makers in how to secure an enabling environment.

(d) 10-Step Process: The fourth section provides a practical approach in a 10-step process for developing neighbourhood/catchment UESS programmes using HCES approaches, integrating these into the broader municipal environmental services programme, and implementing them. This process is designed to help municipal authorities and sector professionals supporting them to deliver a successful HCES-based programme.

Introduction to HCES and UESS

Background

Vision 21 of the Water Supply and Sanitation Collaborative Council (WSSCC) looks towards a clean and healthy world, in which every person has safe and adequate water and sanitation and is living in a hygienic environment. It sets indicative targets for improving access to hygienic sanitation facilities and safe water within a given time frame. The international community has committed itself to improving the environmental conditions of the urban poor, by adopting and endorsing these targets in relation to environmental sanitation improvement:

- The Millennium Development Goal (MDG) of ensuring environmental sustainability has adopted the target of significantly improving the lives of 100 million slum dwellers, by 2020.
- In 2003, at the World Summit on Sustainable Development (WSSD), the international sanitation target to halve the proportion of people without access to basic sanitation by 2015, was adopted.

With rapid urbanisation of low- and middle-income countries, the population in such areas is set to double in less than 30 years (*Source: UN Millennium Project, 2003*). The inadequacy of existing sanitation and water services, together with such rapid population growth, is resulting in environmental degradation and an increased threat to public health.

Adequate water and environmental sanitation services are necessary to support urban stability, enabling social balance, economic growth, development and the improvement of public services for the urban centres. However, throughout the past few decades, efforts to improve the living conditions and services among those lacking basic amenities have tended to emphasise the provision of potable water. The other, equally vital, components of environmental sanitation provision have invariably been considered less important. The results for the urban poor are deplorable:

- 25% to 50% of the world's urban population (0.5-1 billion people) do not have access to safe sanitation (*Source: WHO & UNICEF, 2004, UN-HABITAT, 2003*).
- While, on average, cities achieve 60-70% municipal solid waste collection, low-income areas of these

same cities still struggle to achieve a collection rate of 30% (Source: Dr S M Ali, WEDC, personal communication, February 2004).

- The poor live in areas most vulnerable to flooding or landslides. Although no one knows the true figures of how many people are flooded in their homes as a result of such events, in the order of 100,000 people classed as being “low-income” are recorded to have been killed by floods in the period 1973-2003. Many times more are affected (Source: CRED, 2003).

Reasons for the neglect of these environmental sanitation components include:

- Lack of political will
- Low prestige and recognition
- Ineffective promotion and low public awareness
- Poor policy, at all levels
- Poor institutional frameworks
- Inadequate and poorly-used resources
- Neglect of consumer preferences
- Inappropriate approaches

Some of the lessons learned from past efforts to improve environmental sanitation services are:

- Sustainable services can be achieved, but require a change in approach.
- Progress and continuing success depend on initiating and responding to consumer demand. This means planning, designing and implementing in consultation with stakeholders at all levels, and with their participation. The result is a far greater chance of effective and sustainable services.
- Integration between the provision of water supply and arrangements for disposal of wastewater; and between excreta and wastewater management, solid waste management, and storm water drainage is essential.
- The health impacts from improving the quality of a water supply can be significantly enhanced by the integration of sanitation and hygiene improvements – almost doubling the effectiveness in reducing the risk of diarrhoea (Source: Curtis, 2003).
- The pressure of humanity on a fragile water resource base, and the corresponding need for environmental protection and freshwater savings, requires that wastewater and wastes be recycled and used as resources.

- Organic residues have the potential to be re-used and can add to economic productivity.
- Research into new models of sanitation is being considered in both developed and developing world contexts.

The change from a ‘Top-down’ to ‘Bottom-up’ approach

For a long time, planning of water and sanitation service provision consisted of what came to be known as a ‘Top-Down’ approach. Needs were determined by well-meaning officials at central, regional, district or municipal levels, based on their own perceptions. Those to be provided with services were ‘Target Beneficiaries’ without much, if any, say in matters of service level or determination of priorities.

Beneficiaries became unwilling partners in this approach, declining to pay for services or neglecting to maintain facilities. These realities were a stark outcome of the International Drinking Water and Sanitation Decade (the Decade), and a key lesson became the need to respond to consumer demand to achieve sustainable progress. As thinking changed, beneficiaries came to be seen as consumers of services and therefore active participants in the decision-making process.

This change in thinking, to respond to consumer demand, has become popularly known as the ‘Bottom-up’ approach.

HCES – its origin, approach and objectives

Origin of HCES:

During the Decade, progress made in the water and sanitation sector was too slow to address the increasing needs of the urban poor. Progress in achieving sanitation service improvements to the urban poor was particularly neglected.

In an effort to address this neglect, and to improve guidance to those planning and implementing sanitation programmes, the Water Supply and Sanitation Collaborative Council (WSSCC) created an Environmental Sanitation Working Group (ESWG).

The working group identified that:

- effective solutions to environmental sanitation problems can be implemented, with existing technologies, systems and approaches correctly applied;
- holistic and integrated planning of sanitation services needs to be sufficiently recognised;
- to promote user ownership of services, decisions should be taken at a level as close as possible to the source of the problem, in consultation with the people most directly affected (*Source: Kalbermatten et al, 1999*).

The HCES Approach:

At a workshop in Switzerland in 1999, the ESWG developed an approach to address environmental sanitation services called the Household Centred Environmental Sanitation (HCES) approach.

The HCES approach recommends that:

- People and their quality of life should be at the centre of any environmental sanitation system
- All environmental sanitation systems must be designed in such a way as to balance economic and environmental goods
- Solutions of environmental sanitation problems should take place as close as possible to the place where they occur
- 'Wastes', whether solid or liquid, should be regarded as resources
- Environmental sanitation systems should be 'circular' – designed in such a way as to minimise inputs and reduce outputs
- Problems relating to environmental sanitation should be handled within an integrated framework, and this framework should itself be part of a wider system of integrated water resources, waste management and food production
- The HCES approach was subsequently adopted by a representative expert working group that synthesised the approach into the Bellagio Principles (for the Bellagio Principles, see Annex I).

Objectives of HCES:

The goal of applying the HCES approach to urban envi-

ronmental sanitation services (UESS) is to provide stakeholders at every level, but particularly at the household and neighbourhood level, with the opportunity to participate in the planning, implementation and operation of UESS. By doing so, it aims to create sustainable systems of UESS delivery that will help ensure that:

- People lead healthy and productive lives;
- The natural environment is protected and restored; and
- The conservation and reuse of resources is encouraged, contributing to local-level economic activities.

Implementation of the HCES approach will contribute significantly to the universal goal of UESS, which is to provide sustainable services to everyone, within a framework which balances the needs of people with those of the environment, in order to support healthy life on earth.

Achievement of this goal in turn contributes to a range of international goals and targets, including ensuring environmental sustainability (MDG Goal #7), improving the lives of slum dwellers (MDG target #11) and improving access to basic sanitation (the WSSD sanitation target).

Scope of UESS

Essential services to ensure that inhabitants are healthy and able to live in decent conditions are: provision of a sufficient and safe water supply; the sanitary disposal of wastewater and human wastes; the proper management of solid wastes; and effective storm water drainage. A consensus has begun to emerge among sector professionals that the concept of sanitation (wastewater and excreta disposal) should be broadened to environmental sanitation (ES, comprising sanitation, storm water and municipal solid waste management).

For the purposes of developing urban environmental sanitation services (UESS – the focus of this Guideline), it is important to broaden the services considered to include water supply, as sustainable environmental sanitation services cannot be planned and implemented in isolation from water supply.

Definitions of environmental sanitation often include reference to air quality and hygiene education.

- **Air quality** is affected by waste management and energy use. Burning of municipal solid waste contributes to general (outdoor) air pollution. Where

solid waste management services are poor; waste may be burned in close proximity to, or directly in, households. The burning of such waste (sometimes used as low-grade fuels for household energy) can contribute to levels of indoor air pollution (IAP), which in turn is a factor in acute respiratory disease (Source: Budds et al, 2001). Energy use (including the burning of waste) is often a household issue for the poor. A recent study has concluded that a more integrated approach to household issues of energy, water and sanitation could prove more beneficial to the householder (Source: Rouse, 2003). Energy use that depletes natural resources, such as forests, has implications for environmental degradation, which in turn impacts on water resources and flood management. At present, however, air quality is generally not related to UES services, as it is managed under different institutions and requires quite different remedies.

- **Hygiene education** is integral to environmental sanitation. Health improvements arising from improved sanitation and water services are greatly enhanced – and in some cases only achieved – with the support of change in people’s behaviour (Source: Cairncross and Kolsky, 2003). Hygiene education seeks to support sustainable behaviour improvements through increased awareness and knowledge. Hygiene education should therefore be integrated into environmental sanitation planning to maximise benefits. Successful approaches include Participatory Hygiene and Sanitation Transformation (PHAST), School Sanitation and Hygiene Education (SSHE)³; but whether it needs to be separately discussed as a ‘service’ is debatable.

Special Characteristics of HCES

HCES is a multi-sector, multi-actor approach to delivering integrated urban environmental services. It is designed to respond to household needs and priorities, since the household is the level at which decisions on investments (or its use) are made and where behaviour change begins.

- *Its strength* is that it offers the possibility of providing economic and non-economic benefits, an integrated, affordable and sustainable package of services meeting the users’ priorities.

- A special *challenge* is that it requires collaboration and coordination between multiple agencies which may have different capabilities and little commitment to working together. Therefore HCES should only be considered where there is a strong political commitment to the sustained effort essential to success.

The HCES approach attempts to avoid the problems resulting from either ‘top-down’ or ‘bottom-up’ approaches, by employing both within an integrated framework. The HCES approach tries to combine the benefits and reduce the negative aspects of both approaches by focusing planning on household demand and by including all stakeholders in the process, from planning to implementation. The following two paragraphs illustrate some of the aspects of this different approach during the initial stages of programme development and during implementation; similar actions will be required during the remainder of the programme, which are discussed in later sections of this Guideline.

Determining needs (the bottom-up part of the HCES approach):

Municipal officials (mayors and planners) play the key role in this process. They will:

- Establish a dialogue with householders, neighbourhood/community leaders and organisations, investors (probably with the help of formal and informal community leaders) which gives these users a voice in determining service needs.
- Assist householders and neighbourhood/community leaders and organisations to determine the service level and the sequence of UESS improvements which they consider appropriate and sustainable.
- Help householders and other users to select from a range of options that are most cost-effective (that is, they provide the greatest benefits while remaining affordable to the users), and which also fit the available institutional capacity (which is likely to be some combination of the individual capacities of the municipality, the private sector, NGOs and similar organisations, community groups, and the users themselves).
- Different technologies may be advocated in different parts of the city

³ Further details of PHAST, SSHE and other hygiene education approaches are available from sources such as the IRC International Water and Sanitation Centre (www.irc.nl). Examples and lessons from initiatives are available from WaterAid (www.wateraid.co.uk).

Ensuring support (the top down part of the HCES approach):

Municipal officials will:

- Determine how the proposed programme fits within the municipality's overall UESS strategic plan, if one exists, or
- Prepare a draft strategic plan for UESS development, if none exists.
- Examine how the proposed programme fits into overall regional/national policies and strategies (or, if there is no coordinated UESS strategy, into the strategies for individual sub-sectors).
- Examine the capacity of various UESS sub-sector agencies and private sector organisations to provide support to the programme.
- Determine public and private sector organisations' ability and willingness to cooperate in the planning and implementation of a comprehensive UESS programme and, if necessary, implement measures designed to overcome obstacles to cooperation.

More generally, the municipality will have to play a very active role in:

- Identifying the key institutions affecting policies and strategies,
- Informing these institutions about its proposals and the need for close collaboration, if full benefits are to be secured, and
- Working to broker cooperative agreements to create an enabling environment supporting its HCES programme.

The 'top-down' part of HCES is complementary to the 'bottom-up' role and must not be allowed to dominate it! The results of the overall change in approach from a 'top-down' to a HCES approach have been mixed, because successful implementation requires a paradigm shift in conventional planners and service providers, and this has rarely occurred.

The HCES concept of 'Zones'

One of the most serious defects of current UESS planning is that problems are not addressed close enough to the point at which they originate. Problems relating to a given service are taken to be the responsibility of an area (or organisation within that area) that is further away. In this way problems are 'exported' to others; for example to other people in the same urban area, to those in more remote urban areas, or to those living outside of the urban settlement.

The HCES approach attempts to remedy this situation by insisting that problems are solved as near to the point where they occur as possible. This is done by establishing a series of 'zones' within an area: the household, the neighbourhood, the community, a political subdivision such as a city ward (if appropriate), the city itself, and ultimately the wider environment (such as a river basin catchment or some other larger regional area).

Problems relating to the management of environmental sanitation services; for example, sewage, solid waste or storm runoff, can then be addressed at the smallest appropriate zone (initially the household). Only if a problem cannot be solved in this smaller zone (or if it is more cost-effective to deal with it on a larger scale), and the larger zone agrees, is the problem 'exported' to the next largest zone. Even when it is agreed that the problems can be exported, the smaller zone has to negotiate with the larger zone and reach agreement on key parameters. Such parameters include; volume and strength of sewage, peak flow and flow duration of storm discharges, and the nature and amount of solid wastes. Appropriate financial arrangements (such as discharge fees) may then have to be agreed between the zones.

A significant benefit of adopting a zoned approach is the householders' opportunity to have a voice in the decision-making (and therefore complaint) processes of the practices of larger organisations. For this benefit to be achieved however requires consultation, information sharing and on-going dialogue between the stakeholders involved.

Example: A scenario of zoning municipal solid waste management

In a given town, solid waste is generated daily by the population.⁽¹⁾ In many areas of the town, the solid waste is informally dumped and occasionally burned within the neighbourhood. In a few areas, municipal lorries collect solid waste from households and take it to a disposal site. Any sorting of waste at different stages in the process takes place on an informal basis.

Taking a HCES approach would look at the likely ways in which solid waste can be managed within each 'zone', from the household through to the disposal site (the environment beyond the town boundary), to benefit the overall system of solid waste management. This may result in an approach such as that suggested here:

Zone 1: the household. Householders are encouraged to store their household solid waste correctly and safely (through promotion of household bins) and separate into waste for recycling, waste for composting and waste for disposal. Initiatives may also encourage households to practice household composting, where this is appropriate to their living conditions (i.e. a sufficiently-sized garden). Any other awareness campaigns to reduce the level of waste generated need to be addressed at this household level.

Zone 2: the neighbourhood. A scheme is started for house-to-house collection of segregated waste. Households pay a contribution for this service at the neighbourhood level.

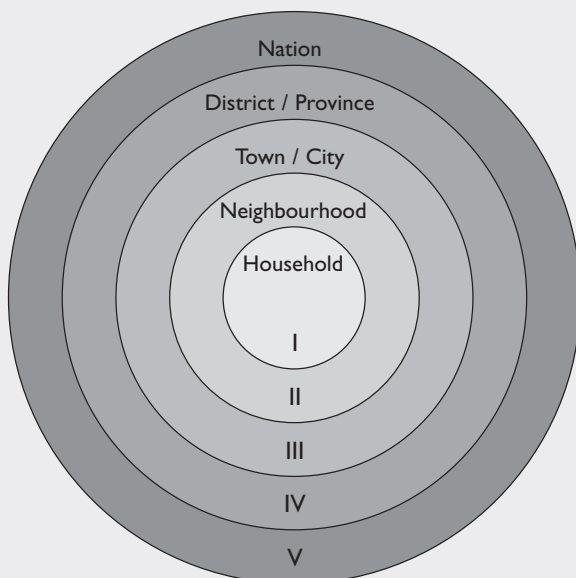
Waste is taken to appropriate ward-level storage units for disposal, or to neighbourhood-level handling units for recycling or composting. Schemes are established (or existing schemes formalized) to provide a viable market for recycled waste and compost.⁽²⁾

Zone 3: the ward. Waste storage units and small transfer stations may be provided by the municipality in each ward, for waste that is to be transported to the disposal site.

Zone 4: the town. A town-wide transport service collects waste from ward-level collection and transfer points to take waste to the disposal site. In some instances, these services may also collect recyclable items for wider distribution.

Zone 5: the area surrounding the town. The municipality manages a disposal site on the periphery of the town.⁽³⁾ This now receives much reduced levels of domestic waste, as a proportion of previously disposed waste is recycled or composted.⁽⁴⁾ In addition, farmers practicing peri-urban agriculture benefit from improved access to composting materials through the neighbourhood composting schemes. The recycling industry may also be located in this area, providing additional employment.

The HCES Model of 'Zones'



Notes:

(1) This scenario only considers the waste produced from residential areas of the town. In reality industrial waste would also be managed and therefore needs to be considered in any changes in approach.

(2) It is assumed that sufficient volumes of recycled goods and compost are generated from the neighbourhood initiatives to support such a scheme. Economies of scale are key to the success of such initiatives.

(3) Many waste disposal sites are located within poor peri-urban areas. The presence of these sites can adversely affect the health and environmental security of the urban poor living in such areas. The approach suggested above would have to consider the current location and operation of the disposal site, and take appropriate steps to ensure any change in practice does not have an adverse affect on the urban poor.

(4) Many people derive their livelihood from working with waste. They tend to be poor and vulnerable, working within the informal sector. The development of waste collection and disposal services must ensure that these stakeholders are consulted – so that plans and changes address how their livelihoods can be protected, or substituted with new opportunities.

'Circular Systems'

Water supply and sanitation services have traditionally been based on the use of a 'linear' model: fresh water is imported into a zone and exported as wastewater after it has been used. Growing populations and increasing per capita consumption have led to an increase in the availability of fresh water and an increase in the pollution of receiving waters. Environmental degradation and greater danger to human health results, despite ever-increasing efforts at wastewater treatment.

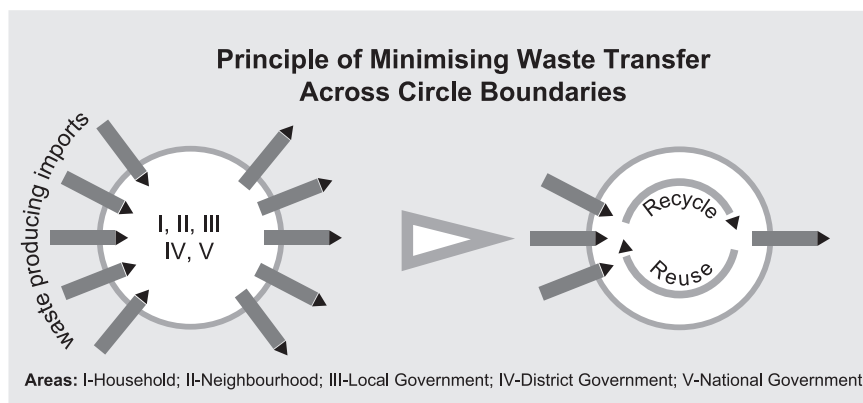
'Circular systems' are based on maximizing the reuse and recycling of appropriately treated human wastes and wastewater. This in turn reduces the need for ever-increasing water abstraction and the discharge of treated, partially-treated or untreated wastes, to receiving waters. Reusing wastes (including the utilisation of rainwater, which would otherwise have to be treated as a waste and disposed of through the storm drainage system) also provides the opportunity for local production of food and horticultural products by individual homeowners, community cooperatives and commercial ventures in urban agriculture.

Circular systems have an important role to play in achieving affordable and sustainable systems, and the HCES

approach should promote them wherever possible. Often this is a matter of finding ways to assist and improve what is already being done informally (for example, reuse of sewage and biosolids, rainwater harvesting, aquaculture, and various types of urban agriculture are already common in most developing countries), with special emphasis on better safeguards to public health.

In contrast to wastewater, much more progress has been achieved in changing conventional approaches to municipal solid waste management. Although more waste is being generated as a result of expanded and modernised economies, vigorous efforts to promote recycling have reduced resource use and lessened the impacts. These changes in approach have also led to many economic activities at local level, providing employment to low-income people.

A particularly attractive feature of the circular system is its potential to make waste reuse, and thus environmental sanitation, an income-earning activity. The profit motive may accomplish, or at least help to achieve, what decades of attempts at hygiene education have not yet accomplished: providing the incentive to make sanitation an investment priority at all levels of government, to the benefit of both human health and the environment.



Introduction to the Guideline

How and when to use the Guideline

The Guideline is intended to be used throughout the project cycle of urban environmental sanitation service provision. For maximum benefit, the approach identified in the Guideline should be applied from the initial phase of any project or programme – prior to any formal planning taking place. However, if this is not the case, the 10-

step process can be applied to later stages in the project cycle. This is likely to limit the application of elements of the approach if no changes are to be made to where the project / programme has reached.

As the Guideline is intended for use by a range of target audiences (see next sub-section), precisely *how* and *when* it is to be used will depend on the audience, their level of responsibility and/or decision-making with regard to current (or new) environmental sanitation services, the stage to which the development of those services has

reached and the extent to which the environment they are working in supports application of the HCES approach.

The Guideline can therefore be used in a variety of ways:

- **Planning:** The broad approach and 10-step process can be applied to support any new initiative from the conceptual phase through to monitoring and evaluation.
- **Application:** It can be used to support application of the approach to an ongoing UESS initiative, where elements of the Enabling Environment are addressed and the relevant stages in the 10-step Process are followed through.
- **Monitoring:** Once a UESS has been established the approach and process can act as a monitoring tool; to identify the effectiveness of the approach, where the approach has been adapted, where further changes may be appropriate and where lessons can be learned for future application.
- **Reference:** It can be used as a reference document for decision makers, to enhance understanding of the HCES approach and its application to UESS.

Target audiences

The principle audiences for this Guideline are **municipal planners**, especially those responsible for planning urban environmental services, and civic **officials**, such as mayors and city managers. These are the people who will initially have to take the decisions on whether and how to apply HCES, who will implement and support the process, and who will be responsible to their citizens for the results.

The Guideline is intended to assist them to:

- understand the HCES approach,
- apply it in their own circumstances, and
- be able to explain it to the user communities.

The Guideline by itself will not be sufficient for this purpose: as noted elsewhere, well-designed detailed communications strategies, aimed at helping the intended users to understand and fully participate in the HCES process, are absolutely vital components of any programme.

Other potential users of the Guideline are **municipal /state/provincial and central government officials**,

whose support is essential once local authorities decide to undertake HCES-based programmes because they, together with mayors and city managers, are responsible for creating the necessary enabling environment.

(However, the initiative must come from the local level: HCES is not suited to top-down implementation; as noted above, the 'top-down' element in HCES is limited to actions needed to secure an enabling environment.)

Formal and informal community leaders, members of the academic and professional communities, private sector providers, NGOs, and community-based organisations are also an important part of the potential audience. Obviously, in cases where it is intended that they will have a role in the planning and/or delivery of some urban environmental services, they will need to understand the HCES approach and be fully committed to applying it. In addition, in areas where the HCES approach is not yet being applied, these well-regarded shapers of public opinion may be able to convince elected officials to apply these new ideas.

Development of the Guideline

This provisional Guideline is the first attempt to 'operationalise' the HCES approach to UESS programmes. It is intended to provide those responsible for UESS planning with a basis for designing and undertaking the process using the HCES approach. After testing the provisional Guideline, through its use in demonstration projects, a final version will be prepared for general use.

HCES needs to be applied in a number of places, carefully evaluated, modified as necessary, and the findings disseminated. This provisional Guideline is therefore a way to launch this process. Being a general Guideline it will need to be modified in the light of experience gained from local application. An important outcome of this process will therefore be location-specific HCES application. In time, locale-specific HCES application can become a standard approach for planning and implementing broader urban environmental services.

To support the development process, **case studies** should be developed to examine application of the HCES approach under specific local conditions. They would provide:

- a realistic understanding of the expected impact and implications of the HCES approach, together with recommendations on how it should be implemented;

- an opportunity to learn from existing cases where communities have recently improved UESS in one or more sub-sectors, and to study how the whole complement of UESS sub-sectors could have been implemented; and
- a chance to explore how UESS programmes can incorporate holistic planning and secure environmental, operational and financial sustainability, while minimising adverse impacts on natural resources.

The Guideline and case studies will need to be supplemented by training materials developed to suit the particular local situation, and designed to help people such as agency and NGO field workers, and community leaders.

Enabling Environment

What is and why an Enabling Environment?

An 'enabling environment' can be seen as the set of inter-related conditions that impact on the potential to bring about sustained and effective change (adapted from World Bank Social Development Note, 2003). This includes the political, legal, institutional, financial and economic, educational, technical and social conditions that are created to encourage and support certain activities.

An enabling environment is important for the success of any investment programme; without it the resources committed to bringing about change will be ineffective. It is especially vital when applying an innovative approach, such as HCES, or when needs have historically been neglected because the impacts of unsatisfied needs were not properly understood. Both of these conditions are common in the case of UESS.

Developing an environment that enables change

Most of the critical elements to support an 'enabling environment', some of which are discussed below, should be identified or become evident during the programme development process. Ideally these elements should be identified, at least in broad terms, prior to starting the planning and consultative process (Step 1 in the 10-step

programme), so that the entire process does not start off with misunderstandings. It is essential that they are recognised before or during the evaluation of options (Step 5) at the latest, since if these critical elements cannot be assured, some of the options may not be feasible.

To develop an 'Enabling Environment' for the successful application of an HCES approach, the collective preconditions to be addressed include:

- Government support, in terms of political support and favourable national policies and strategies
- The legal framework, with appropriate standards and codes at national and municipal levels
- Institutional arrangements that suit the highly decentralised and zone-by-zone approach used in HCES
- Effective training and communications, ensuring that all participants understand and accept the concepts through possessing the required skills
- Credit and other financial arrangements that facilitate household participation and community involvement
- Information and knowledge management; providing access to relevant information, sharing of experiences, training and resource materials, the development of new approaches and the dissemination of findings

HCES is a non-traditional approach. In order for the approach to succeed important adjustments may be necessary to the preconditions. Most of these must be addressed by the municipal authority to ensure that a proposed HCES programme can be placed within existing national, state or municipal frameworks and policies, and that the support needed for HCES programmes is either available, or steps for its provision have been identified and will be implemented. Without the enthusiastic support of the municipal leadership, and its willingness to take the steps necessary to support an enabling environment, application of the HCES approach in full should probably not be considered.

For initial application of the approach, it will not be practical (or desirable) to make **general** changes in sector procedures. What is necessary is a willingness on the part of authorities to make temporary adjustments to appropriate standards, procedures, etc., to the extent needed to allow the initial application of the HCES approach.⁴

⁴ Changing standards and laws is usually a protracted process, and should not be undertaken until the form and content of the new laws is determined precisely, which will not be possible during the initial HCES applications.

An important part of the decision to undertake an HCES programme is therefore to review the existing environment, decide what needs to be changed in order to allow the programme to succeed, and work towards securing those changes. This may be a simple matter of making a policy statement that the HCES approach should be tried out, and obtaining temporary waivers which would allow it to proceed. Experience from such initial trials will then identify what permanent changes should be introduced.

The Guideline can help in identifying which of the existing conditions need to be addressed and adjusted, to bring about an environment that enables change.

Each of the conditions identified above are considered in more detail here.

I. Government Support

Overarching vision and political will at the highest level, taking on the challenge and articulating broad objectives, may be the first step in enabling the environment to change. To be effective this government support should be translated into expressions of support for environmental sanitation improvements, the explicit promotion of sanitation, advocacy messages, and other appropriate mechanisms for mass communication to raise public awareness.⁵

Political Support: Political support at all levels is essential. HCES involves departures from conventional methods, especially in its institutional approaches, and the programme promoters should plan to devote considerable efforts to familiarising elected officials, senior sector staff and advisers with the concepts. This will involve presentations, seminars, visits to demonstration projects in communities to learn about the possibilities offered by HCES, etc. The objective, at least initially, is not to secure an unconditional endorsement of HCES; it is enough to secure agreement that HCES should proceed in the programme area and will be fully supported.

The municipal authority is the focal point in both the creation of an enabling environment and the implementation of the HCES approach, because they and senior staff are responsible for providing infrastructure services to all stakeholders within the municipality. The municipal authority is also in the best position to know what measures are needed to create an enabling environment, and has access to policy-makers at state and national level. Their support is therefore essential.

National Policies and Strategies: National policies and the strategies adopted to implement them may permit or prohibit the HCES approach, or rather the many separate actions that constitute the approach. Given a general lack of knowledge about the HCES approach, it is unlikely that the approach will be specifically encouraged or discouraged. Whilst there cannot be a specific 'one-size-fits-all' HCES approach, it is important to ensure that the various actions which develop an approach fit within the policy and strategic frameworks, without violating specific existing legal requirements.⁶

Where necessary, agreement should be sought on a waiver that will allow the use of the HCES approach at least for pilot and demonstration purposes. Where governments are in the process of decentralising their functions and delegating them to local authorities, efforts should be made to include appropriate decentralisation of the UESS sectors as part of the general devolution of government functions.

2. Legal Framework

Service delivery standards: The most obvious immediate need for change in order to accommodate HCES is in the matter of **standards**. Many existing standards (national or municipal) are based on those developed in industrialised countries, under conditions totally different from those applying today in developing countries, and so they are often inappropriate. Even where they are, in theory, appropriate, they often cannot be applied because they are too expensive, and enforcement is weak. Neverthe-

⁵In many countries, the support of External Support Agencies (ESAs) is a critical element in enabling effective government support. However, ESAs are generally required to deal with government agencies, which are by their nature 'top-down'. Donors, constrained by operational procedures and policies, time and lending target pressures, need also to ensure that the 'bottom-up' element of the HCES approach is not neglected or threatened by institutions with different agendas. More discussion with donors will identify to what extent their role is possible, where the constraints lie and how best to address them.

⁶Existing national policies should be systematically assessed to see how they affect the provision of environmental sanitation services. (There may be more than one relevant policy in a given country). It may be beneficial to make use of Guidelines to support this process. One such Guideline has been prepared by the Environmental Health Project (EHP), of USAID. The Strategic Report Guidelines for the Assessment of National Sanitation Policies is available from the EHP website www.ehproject.org/Pubs/Strat_Papers.htm, or by contacting EHP info@ehproject.org

less, it is dangerous for a public sector official to reject the standards explicitly, as they put themselves at risk by working counter to accepted procedures and practices.

Part of launching HCES should therefore be to secure a moratorium on the application of existing standards to the programme area, and part of the overall exercise should be to try to identify standards which would be more appropriate – because they meet the basic purpose of standards, to ensure that everyone has a healthy life.

This may require another 'education' process for policy makers, conveying messages such as:

- Sanitation is as important as water supply in safeguarding public health.
- There are many simple technical options which can provide the same health benefits as 'western' standards.
- Conventional sewage treatment plants do not remove most disease-causing pathogens (nor do septic tanks, when built without drain fields).
- Systems which are too complicated and expensive to maintain, and which quickly break down, provide no benefits.
- 'Unbalanced' systems - such as providing more water without making arrangements for removing the resulting wastewater - contribute to public health problems.
- 'Band-aid' remedies – such as issuing 'boil water' alerts when houses are flooded with storm water and sewage – do not solve the basic problems and make users cynical about their leaders' commitment to improving conditions.
- Reuse and recycling reduce pressure on limited water resources, protect the environment, and offer economic opportunities at local level in fields ranging from urban agriculture to recreation.

National and municipal Codes: Typical examples of unrealistic standards that may present problems are:

- **Health codes** requiring a septic tank or a sewer connection as a condition of occupancy.
- **Building codes** specifying minimal distances between kitchen/living areas and toilets.

Technical Standards can be another obstacle to the use of more appropriate and less expensive systems and technologies, such as:

- **Water supply** standards requiring minimum pressures or pipe sizes designed to serve US-type fire-fighting equipment.
- **Sewer standards** requiring minimum pipe sizes much larger than needed for the flows likely to be experienced, or allowing gradients much flatter than is needed to avoid blockage under certain conditions.
- **Equipment** that requires spare-parts not available locally.

Upgrading of standards: HCES may also require **standards to be upgraded**. For example, many municipalities do not attempt to enforce proper standards for on-site sanitation, and so, by default, allow very unsanitary pit latrines (instead of improved latrines), and single-compartment septic tanks discharging into roadside ditches (instead of multi-compartment ones with proper drain fields). If these simpler, affordable options are to be acceptable, and have their full potential impact in safeguarding public health, then they need to be constructed and operated properly. The argument that what is being done 'conforms to common practice in the industry' is not acceptable.

3. Institutional arrangements

Across zones: The level of service demanded by stakeholders and the capacity to deliver that service will vary from one zone to another. The support services needed within each zone will therefore vary too. Local (neighbourhood) organisations will require specific support inputs not only from similar organisations (from other similar zones), but also from organisations in larger zones with greater responsibilities and (hopefully) greater capacities.

This support may take the form of **direct provision of services** to a given zone. For example, a neighbourhood may be perfectly capable of organising a local waste collection system, but will need to contract removal of solid waste from a collection point by a private contractor, or a town or city solid waste management department. This collaboration is needed not only during operation but also in the planning process, to ensure that appropriate support is available when needed. The relationship is similar to that of a wholesaler-retailer, with the local community (the retailer) obtaining supplies and services from a municipality (the wholesaler) or private service provider.

Support may also be provided in the form of **technical assistance** from one zone to another. This may range

from information dissemination and capacity-building at household-, neighbourhood- and community-level (helping to improve understanding of service benefits and stakeholders' responsibilities) to the provision of advice and support services to local service providers.

Institutions at municipal level: The most significant change introduced by the HCES approach is the participation of stakeholders that, under the conventional system of project planning and implementation, have had little opportunity to participate. Most UESS organisations are unfamiliar with the concept of consultative programme planning, responding to household demands for improved services and arriving at acceptable solutions. More than likely, organisations will have to change their approach from managing to supporting, requiring a good deal of reorientation and retraining of staff. While NGOs currently tend to bridge the gap between central organisations and community-level stakeholders, this role should eventually be replaced by more permanent arrangements between centrally based and community based organisations. (This might still involve NGOs, but in a less direct way.)

Closer collaboration between responsible organisations, in planning and support functions, has to focus activities on stakeholder support. Households and neighbourhoods need the support to ensure their plans integrate into broader master plans, while broad sub-sector plans need support to ensure co-ordination between plans, to maximize benefits.

Private sector participation: While environmental sanitation service provision to the urban poor by municipalities remains deficient, the small-scale private sector has a significant role to play. This may be in making water connections, water meter reading and maintenance, laying local sewers, collecting solid waste or emptying septic tanks. The lack of co-ordination and planning within the private sector (in a broad sense) may provide the case for legitimising what already occurs and making it more efficient. For example, private solid waste haulers should be required to use the municipal landfill, rather than dumping at random.

Planners should identify and address obstacles to the participation of small-scale private sector entrepreneurs. These obstacles may include:

- Poorly-written specifications (in codes and regulations, contract documents, etc.), so that requirements and procedures are not clear

- Unrealistic bidding procedures
- Delays in payment for work undertaken for the municipality
- Difficulties in obtaining credit or working capital
- Lack of access to specialised equipment and machinery
- Lack of access to training
- Hidden subsidies to municipal operations (for example, failure to use realistic costs for the use of offices and other facilities, computers, technical support staff, transport vehicles and construction plant), making the private sector appear to be too expensive to be competitive.

Assessment: Prior to launching a planning and consultative process, a preliminary assessment should be conducted to determine the capacities of the various UESS organisations and others who might become involved (for example, NGOs), and the existing status of collaborative planning activities. This knowledge will help planners to take quick action to remedy problems identified during the initial planning and consultative process meeting and throughout the HCES implementation.

4. Required skills

Many groups and organisations will need training and orientation so that they can understand and support the HCES approach. In some cases (such as government and municipal officials) this will need to take place very early on in the process, while for others it will be more appropriate later on in the process, as their roles in implementation of the approach are better understood. For example:

- **Householders** need to understand more about the implications of the options open to them – convenience, cost, operation and maintenance requirements of each option, support needs and support availability, appropriate and sustainable hygiene practices, and so on. They will also need appropriate training to be enabled to exert quality control over local builders and contractors, to ensure they are not being cheated.
- **Other concerned professionals, companies, organisations and institutions:** Such a group of stakeholders incorporates a broad range of organisations and individuals. The needs of each group have to be specifically identified. In general all such groups will have to be aware of, and where appropriate familiar with, existing

legal frameworks, regulations, codes and standards and the range of technical options available (with the cost, environmental and management implications of these). An example of specific skills and information needs lies with urban farmers, who need an understanding of land rights, skills in safe and sustainable techniques for application of solid and liquid waste, skills in the management of natural resources and marketing of end products;

- **Communities and their organisations (CBOs)** which will undertake construction, O&M and/or management of local UESS will need training on technical matters, accounting and simple financial management, basic contract procedures, and monitoring and reporting.
- **NGOs** that will become involved in the programme need similar training, but at a more advanced level, as they are probably going to have to train the participating communities. They will also need to become familiar with the social factors affecting the selection and proper use of UESS, and with supporting communications strategies (it is assumed that most NGOs already have a general, non-sector-specific understanding of these matters. An NGO that does not probably should not participate).
- **Municipal staff** will need to be reoriented away from their present perception that UESS deficiencies are primarily due to a lack of technical solutions developed in industrialised countries. Instead, they should be helped towards a better understanding of the social, institutional, financial and other factors that have to be addressed.
- **Private providers:** intermediate or independent private providers play a significant role in the informal provision of environmental sanitation services to many of the urban poor. Improving their recognition, status, viability and service, while reducing their risks, can be encouraged through developing a range of skills. These skills include business management, preparing competitive bids and loan applications, how to analyse and respond to market demands, exposure to a broader range of technical options. Minimising the risks from competition or unstable economies may be helped through greater cooperation and collaboration between such providers, supported by training in the formation of associations, improved financial management, accountability, transparency and the sharing of technical knowledge and communication skills to enhance sanitation promotion.

All of these groups and individuals will need training in 'commercialising' waste recycling and urban agriculture / horticulture activities (e.g. marketing) if the full potential that is offered by the application of the circular system is to be achieved. Only then can the simultaneous improvement of both the health and economic productivity of members of the participating households be achieved.

The participation and buy-in of such groups and individuals can be enhanced through the identification and application of appropriate incentives. Incentives will be locale- and situation-specific, but may be – for example – the increase in status or convenience from improved sanitation as a driver for change for householders, rather than the eventual health improvements. For municipal staff, private providers and more commercially-minded groups, incentives may need to be around increased recognition or enhanced work opportunities.

Effectively managed **resource centres** provide access to much-needed information, offering training in skills development and capacity building. They also act as a base from which to undertake relevant applied-research and consultancies. Their flexibility can support the development of short-courses to respond to the changing environment and needs identified by stakeholders. While other more formal training and learning institutes (such as universities) have less flexibility to be able to respond to change, they play an important role in influencing public opinion and developing appropriate curricula to match the demand (skills needed in the "market place") with supply (academic skills and knowledge). Joint problem identification and training needs analysis can identify training priorities and develop an effective response. Collaboration between the informal and formal institutions can support accreditation of training courses.

5. Financial arrangements

Large scale adoption of the HCES approach, through application of the Guideline, will require an increase in investment (at least initially) to the water supply and sanitation sector; and possibly other related sectors – such as environmental protection, education or health. While some financial support will come directly from the external community, or from private investment (such as companies taking on solid waste treatment and disposal in a city, or producing components for latrines), a significant proportion will need to come from national budgets. Allowance needs to be made for funding the full

range of costs; administrative and hardware costs, the 'software' components such as training, social marketing programmes, knowledge development and information sharing, and any operation and maintenance needs.

Achieving an increase in national budget allocation will require representation and strong advocacy at high levels of government to make the case for the impacts on poverty reduction of increased resource allocation. Representation is needed in the process of Poverty Reduction Strategy (PRS) development, while addressing commitments already adopted in PRS Papers (PRSPs).

A priority of national, regional and local level investment plans and budgetary allocations should be to address the areas of greatest need. Relating to both intra-sector and inter-sector allocations, would then influence decisions taken as to the most appropriate financing mechanisms to be adopted – e.g. full cost recovery, credit schemes, revolving loans, partial or full subsidies, cross-subsidies, grants or other strategies.

A major recurring problem encountered by low-income customers and small entrepreneurs is the lack of available capital to finance investments or equipment, even when they are capable of paying small amounts for current expenses. Rather than resorting to grants or subsidies, governments and their agencies should consider the establishment of a line of credit, or the provision of equipment and materials against regular payments. The provision of grants and subsidies often has the unintended effect of encouraging users and organisations (at whatever level) to choose systems and technologies they are unable to sustain, which later leads to rapid deterioration of facilities and deficient services. Their use should only be considered where other strategies have been tried and failed.

6. Information and knowledge management

In establishing an enabling environment, it is important to know about successful and unsuccessful approaches, systems and technologies. Those responsible for creating an enabling environment for the use of the HCES approach have to address the range of questions people need answering in a way that is both appropriate and accessible to all target audiences.

A locally developed Guideline should provide information on a comprehensive range of technical and software options, reviewing different aspects of these technologies and the associated software components.

A thorough review would address questions such as:

- What are the potential *benefits* of these technical options? What are the corresponding *limitations*?
- How '*user friendly*' are the options? (What levels of convenience, access, safety and security do they offer? How much user input (time and money) do they need to be operated and maintained?)
- What is their *impact* on the wider environment? (What is their contribution to resource conservation and closing cycles?)
- What is the *effectiveness* of wastewater treatment for that technical option? (What level of treatment is appropriate?)

A thorough review also helps to determine any necessary improvements to existing technologies.

Available 'State of the Art' texts, if necessary with supplemental comments, may serve this purpose. When information is not readily available, municipal officials will have to have access to others that can provide advice, such as resource centres⁷, academic institutions, experienced sector professionals, or institutions within or outside the country. Identification of information gaps by municipal officials will be an important contribution to the development of solutions needed. A task that has to be part of the development of the enabling environment at the local level is the identification of such information gaps; it will then be the responsibility of national or international sector support agencies to research appropriate solutions.

During and following the development of the HCES approach, various information gaps and research needs have been identified. The list developed is attached as Annex II. The topics for which specific review and research has been identified are listed below:

- Planning aspects
- Regulatory aspects
- Institutional aspects
- Private Sector Participation

⁷National resource centres can provide access to a breadth of information and knowledge, drawing on experiences from within and beyond the country context to add to information available locally. They also play an important role in the process of retaining information and enhancing knowledge - acting as a "memory bank" of information and experience that may otherwise be lost with time.

- Financing aspects
- Socio-cultural aspects
- Technological aspects
- Anticipated Benefits and Risks

Communications strategies: Project support communications (PSC) tend to be 'top-down': telling the 'target audience' what someone higher up has decided it ought to know. Under the HCES approach PSC should be far wider, and less biased towards pre-identified solutions. For example, it has to extend upwards, reaching policy-makers and other influential people (such as the media), who affect what are generally regarded as acceptable solutions, and enlisting their support (see the discussion in the previous section, 'Creating an enabling environment'). It also has to reach down to the intended users, not in order to 'sell' a particular technology or solution, but to inform them so that they can make up their own minds about what they want. An integrated package of PSC activities will therefore have to be developed and implemented.

The planners will also need to adjust their own attitudes: if the users reject what seems an ideal solution for apparently illogical reasons, then this cannot be dismissed as due to 'ignorance'. Further research is needed to find out the real reasons for the rejection, and to devise a response – whether improving people's understanding or modifying the solution. Experts in disciplines which may be unfamiliar to municipal officials, such as communications specialists and social anthropologists, will be key members of the PSC team.

Every option will also need to be examined in terms of other factors which may be important in deciding on the optimum course of action. These will normally include matters such as:

- Impact on services to the poor
- Reliance on imported equipment and skills
- Potential for job creation and income generation
- Environmental impact, resource requirements, and potential for resource recovery
- Traffic and land use implications
- Effects on a watershed or wider basis (e.g., IWRM)

The 10-Step Process

This section describes ten typical steps involved in developing and implementing an HCES programme. These steps are presented in sequence, but in practice they will usually overlap, some steps may need to be repeated more than once in an iteration to find acceptable solutions, and they will always need to be undertaken bearing in mind the concerns of the municipality as a whole. This presentation is therefore a simplification.

The 10-step process is represented in a diagram on the following page, identifying the steps in relation to a typical programme / project cycle framework.

Step I: Request for assistance

Output:

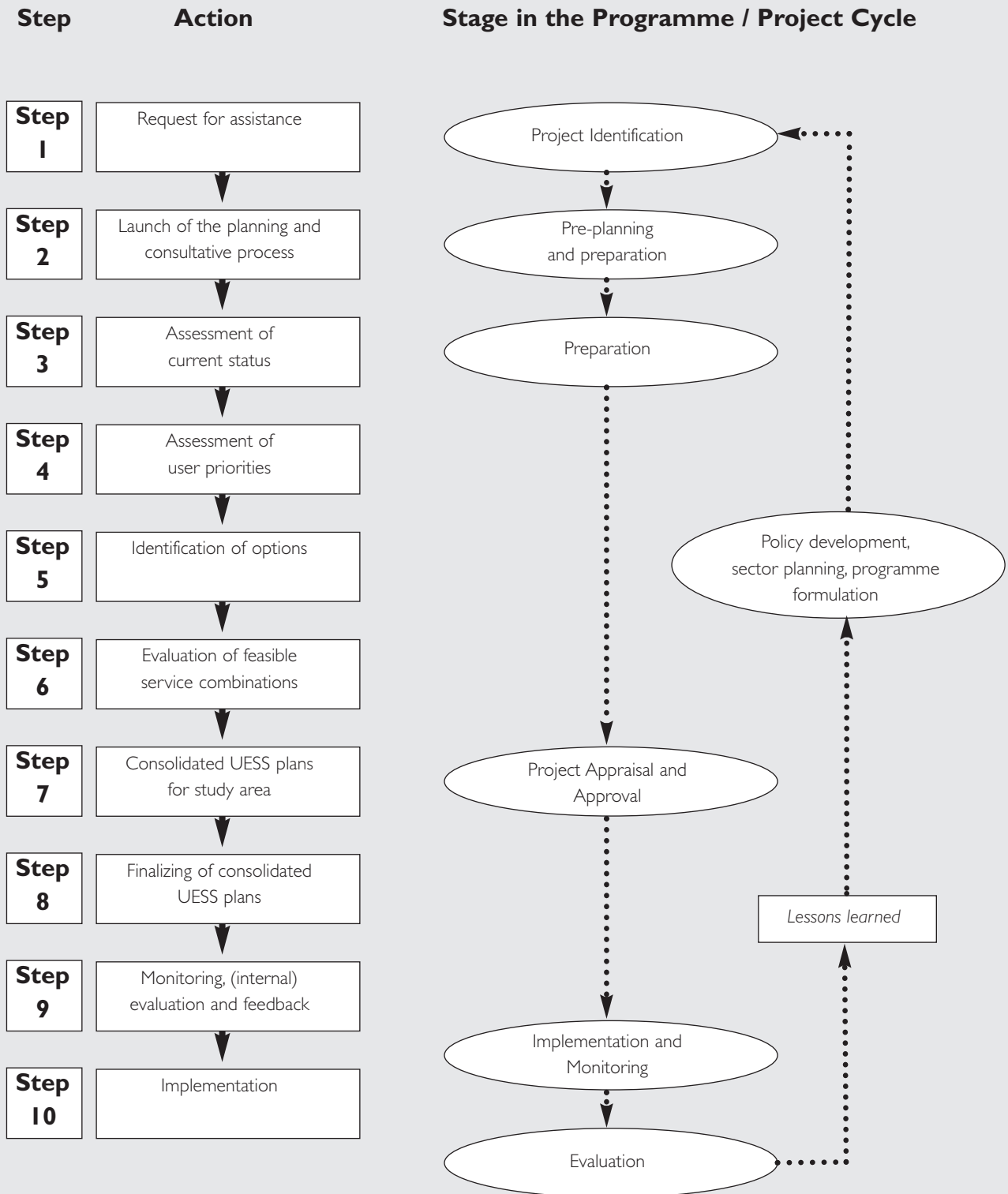
- Expressed request/s for assistance from community/ies

The HCES process should start in response to a request for assistance from the people who will benefit from the services: in the model used in this Guideline this request would be made to the mayor (or other professionals serving the mayor), by the users themselves, or their political representatives (such as city councillors), or local community leaders. Requests presumably would be directed by customary channels of communications to the leader of the jurisdiction within which the community is located (ward or municipality). NGOs may be instrumental in such efforts. In theory there could also be a request from the managers of the various UESS services, but in practice they are not usually allowed to make such requests, and anyhow rarely act in a coordinated way.

The initial request by householders or neighbourhood is likely to be for assistance in improving a specific service rather than a combination of services. The request should therefore be used as the starting point of a dialogue to identify UESS needs and priorities. Service managers should therefore also be encouraged to consult with each other before deciding on improvement programmes.

Unless there is strong evidence of local interest, HCES should not be started solely in response to a request from central government or to meet donors' sectoral investment objectives. Instead, government or donor agencies should initiate a dialogue with the selected community, a dialogue that eventually may lead to the

The 10-step process of the HCES approach, in relation to a typical project cycle framework



initiation of the HCES approach from a more appropriate level, the intended users. Such a dialogue must have a recognisable institutional host and responsibility; otherwise this part of the process may be compromised.

Requests for assistance will not occur in a vacuum, but are likely to be as a result of other stimuli, such as promotional activities, development project awareness, etc. Requests for assistance are also likely to be affected by the conditions laid down in any existing national planning frameworks or investment plans.

Indicators:

- Lobbying from representatives of householders (civil society/NGOs/activists, etc) – example: meetings, reports, visits to municipal offices

Decision point:

- On passing a predetermined threshold of number of requests for assistance (i.e., multiple expressions from wards), officials within the municipality can begin to plan for step 2 (Launch of the planning and consultative process).

Step 2: Launch of the planning and consultative process

Output:

- Workshop on planning and consultative process with stakeholders;
- Protocol agreement on modus operandi (endorsement of HCES principles, indication of wider process, indicative timeframe).

An initial planning and consultative meeting, attended by representatives of all crucial stakeholders (i.e., councillors, area leaders), should be arranged to cover four main topics:

- Explanation of the HCES approach and how it can help lead to better services;
- Definition of programme boundaries;
- Assessment of the responsibilities and capacities of UESS organisations, and the status of national/state policies and strategies, and;
- Agreement on process and responsibilities for future programme development.

Detailed explanation of HCES: Once a request for assistance in developing an HCES-based programme has been received, it is important to check that all the participating stakeholders really understand and accept the implications, for example: intensive user involvement; close collaboration between various agencies; and the possibility that the integrated, balanced, multi-service solution finally adopted may not exactly correspond to what the individual sectoral agencies had envisaged.

Definition of programme boundaries: Participants in the planning and consultative meeting need to decide what the physical boundaries of the UESS programme are to be (see boxed item below). It is important to reach consensus during the meeting to define the physical boundaries for planning purposes, recognising that as the programme develops, implementing actions may be sequenced differently for different parts of the programme area and for programme parts managed by different stakeholders.

Assessment of responsibilities and capacities of UESS organisations, and status of national/state policies and strategies: Solving UESS problems at the lowest organisational level capable of handling that responsibility requires municipal officials responsible for the HCES programme implementation to carefully assess:

- A community's capacity to participate in the planning process and to implement recommended actions;
- The ability of local public and private sector organisations to supplement community services or provide support (training, specific support services);
- Compliance of proposed HCES programmes with national/state policies and strategies and the possible need to modify at least temporarily policies and strategies that would otherwise make implementation of the HCES approach difficult or impossible.

The planning and consultative meeting should provide specific guidance to municipal officials on how to proceed so as to prevent any potential conflict with existing policies and regulations, and a clear understanding of the availability of support to assist the community or other low-level service provider.

Agreement on process and responsibilities for future programme development: The planning and consultative meeting is also an important venue to agree on how the remainder of the work will be carried out, and to define responsibilities. In particular, agreement has to be reached on who will have responsibility for overall man-

agement and coordination. Given the number of agencies likely to be involved, the programme manager needs to be a respected and neutral professional, and a skilled diplomat. An adequate staff and budget will be essential.

Indicators:

- Workshop report including:
 - Roles and responsibilities of various stakeholders in the process;
 - Preliminary definition of programme boundaries;
 - Consensus on HCES approach.

ISSUE: Definition of programme boundaries

It is essential to agree (at least provisionally) on the physical boundaries of the area to be considered in developing the programme. UESS services are typically sub-divided for planning and operational purposes using boundaries defined in physical terms (water supply distribution zones; sewerage and storm drainage basins; solid waste haul routes to a transfer station or landfill). Unfortunately, these usually are not the same for the various services. Nor do they usually coincide with political boundaries (such as those of city wards). Therefore some compromises have to be made, and during programme development allowances will have to be made for the discrepancies between the various boundaries.

Because the HCES approach depends on provision of services zone by zone, with agreement between zones on how they will collaborate, it is important to consider possible zone boundaries, at least in broad terms, during the planning and consultative meeting, and to reconcile these with the operational boundaries adopted by the various UESS services. The boundaries of the inner zones (the

user communities) are likely to be determined principally by socio-economic conditions, such as income and housing type (in certain societies, tribal or ethnic background, caste, and similar factors may also be important). Because many HCES solutions depend on some form of community consensus (for example, on the levels of service to be provided, or on responsibilities for operation and maintenance) it is likely to be simpler to adopt zones which contain more or less homogeneous communities. (In cases where neighbourhoods do not form real communities, such as recently-arrived squatters in shanty towns, possibly HCES may not be the appropriate approach until a representative community organisation can be developed.) Note that, throughout this discussion, 'programme' is used in preference to 'project'. The HCES approach involves institution-building and incremental improvements to a number of deficient services. Full implementation is therefore likely to take a long time, and participants (including donors) should be prepared to make long-term commitments.

Step 3: Assessment of current status

Output:

- Status assessment.

The next step in the development of the programme is a comprehensive, participatory assessment of the current level of UESS service (the planning and consultative meeting will have provided some valuable insights on the needed scope of the assessment). This is a more complicated process than that carried out in typical conventional single-sector planning, which is often confined to trying to answer questions such as 'What is needed in order for the water company to provide water through standpipes?' An HCES assessment needs to cover all the ser-

vices, must be participatory in its methodology, and understand how services are provided and used within a particular social context. It therefore seeks answers to questions in relation to:

- Local level status assessment
- Municipal level status assessment
- City wide status assessment of service providers

This work will be carried out by an interdisciplinary team (specialists from each of the UESS sectors; social and community workers), in conjunction with local residents and other key informants. One of the most important tasks of the group will be the reconciling of priorities amongst the various stakeholders.

The residents of the study area are a fundamental part of these assessments. They are probably the only people with good information about current deficiencies (for example, flood levels during storms; periods when water pressure falls to zero; places where garbage collection trucks do not penetrate). They are well placed to make distinctions between the official accounts of conditions, and what actually happens. They (together with community health and social workers) are likely to be important sources of information on the informal systems that people have come to rely on. Likewise, they have the most intimate knowledge on the status of infrastructure, its operation and maintenance, and can provide invaluable information in relation to perception of services, demand and needs. Residents should not only be consulted; with training and guidance, they can also carry out some of the assessment work.

This is only the beginning of the HCES process. Care should be taken not to arouse false expectations in the community about the eventual service levels, their costs, or the time by which they will be available.

See Annex III – STEP 3 for guidance points on what to do regarding **status assessment**

Indicators:

- Status report detailing:
 - Local level service assessment;
 - Municipal level service assessment;
 - City wide status assessment.

ISSUE: Capacity Development

Many groups and organisations will need training and orientation, in some cases (such as government and municipal officials) very early on in the process, so that they can understand and support it and others later on, when their roles in implementation are better understood. For example:

- Household holders will need to understand more about the implications of the options open to them, and will also have to be shown how to exert quality control over local builders and contractors, to make sure that they are not being cheated.
- Other concerned professionals, companies, organisations and institutions: In general all such groups will have to be aware of, and where appropriate familiar with, existing legal frameworks, regulations, codes and standards, and the range of technical options available (with the cost, environmental and management implications of these). Communities and their organisations (CBOs) which will undertake construction, O&M and/or management of local UESS will need training on technical matters, accounting and simple financial management, basic contract procedures, and monitoring and reporting.
- NGOs that will become involved in the programme need similar training, but at a more advanced level, as they are probably going to have to train the participating communities. They will also need to become familiar with the social factors affecting the selection and proper use of UESS, and with supporting communications

strategies (it is assumed that most NGOs already have a general, non-sector-specific understanding of these matters. An NGO that does not probably should not participate).

- Municipal staff will need to be reoriented away from their present perception, that UESS deficiencies are primarily due to lack of technical solutions developed in industrialised countries. Instead, they should be helped towards a better understanding of the social, institutional, financial and other factors that have to be addressed.
- Private providers will need skills in business management, preparing competitive bids and loan applications, how to analyse and respond to market demands, exposure to a broader range of technical options. Minimising the risks from competition or unstable economies may be helped through greater cooperation and collaboration between such providers, supported by training in the formation of associations, improved financial management, accountability, transparency and the sharing of technical knowledge and communication skills to enhance sanitation promotion.

All of these groups and individuals will need training in 'commercialising' waste recycling and urban agriculture/horticulture activities (e.g., marketing) if the full potential that is offered by the application of the circular system is to be achieved. Only then can the simultaneous improvement of both the health and economic productivity of members of the participating households be achieved.

ISSUE: Communications

Implementing a new approach requires not only that the people participating directly in the programme should be given appropriate training, but also that professionals, officials and institutions not directly involved in the programme understand it (at a minimum), and (ideally) support it:

- **Central government and regulatory officials** will require knowledge about the justification of the programme and need to be informed about necessary changes in policies and regulations required to make HCES permanently successful. Health and regulatory agencies in particular should be included in this category.
- **The academic and educational sectors** must be convinced to support the approach, since they are in a position to sway public opinion and are also developing the next generation of professionals who will inherit responsibility for the UESS sectors. In particular, the training of engineers is likely to ignore many of the technical approaches being considered, and many professional engineers have limited understanding of the institutional, financial, or social dimensions of their work. It is critical to convince them that their job is to provide a sustainable service, not merely to devise an engineering solution. The development of appropriate curricula, through a process of matching demand (skills needed in the “market place”) and supply (academic skills and knowledge) is an essential element.
- **Other concerned professionals, companies, organisations and national level institutions.** There are many other groups of people who have interests related to

specific aspects of HCES, who should be interested in learning about the approach and the proposed programme activities, and who might gain significant benefits from participating in successful HCES programmes. Who these people are will vary with circumstances, but they might include, for example, professional associations, specialists in recycling and reuse and in urban agriculture, tourism developers, trade associations, private sector UESS service providers, and a variety of small-scale entrepreneurs. Efforts should be made to identify and contact such people, and to keep them informed of activities, expected benefits and progress.

Municipal officials should develop a communications strategy to reach all stakeholders from the household to the central government level. The strategy should include the most appropriate of the various means available and suitable for the specific audience to be addressed, including texts and flyers, radio and television, meetings and workshops, etc. Such skills would not be expected to exist within the municipality, so they need to be brought in.

Each of the options selected will need to be supported by a **communication strategy**. As noted in STEP 5 (identification of options), this strategy will differ depending on the intended audience and the nature of the option chosen. In assembling a consistent UESS ‘package’, the effect of these differences – in time required, staffing needs, and type of action (for example, TV message vs. demonstration sanitation system) – must be carefully assessed.

Step 4: Assessment of user priorities

Output:

- Defined priorities for target households and communities.

The results of the status assessment (STEP 3) should be reported to the community through a participatory process (i.e., meeting, focus group discussions) at which representatives of relevant agencies are also present - but as equal participants, not as leaders. The objectives of this part of the process are to:

- Present the findings of the assessment;
- Correct possible factual errors;

- Establish, in broad terms, the ‘ground rules’ for the next, most intensive part of the study: deciding which deficiencies should be given priority, what levels of service should be considered, what institutional arrangements would be acceptable, etc. The setting of priorities is ultimately done by the householders or the neighbourhood, taking into account the Bellagio principles.

Indicators:

- Completed consultations with community leaders and household members, including feedback to the community on user priorities.

ISSUE: Unfamiliarity with options – possible piloting and demonstration

It is unlikely that all HCES services in low-income areas can be brought up to 'western' standards - and in fact this is often both unnecessary and undesirable, thanks to developments in more appropriate sustainable technologies. However, these latest concepts are likely to be unfamiliar to the residents, whereas they see full house connections for water and flush toilets for sanitation on television or in places where they work. Pilot and demonstration projects may be essential to build confidence and ensure acceptability of appropriate and more sustainable alternatives. Similarly, development agencies may promote concepts such as self-help construction and community-based management, but these also will need testing to establish their feasibility in the specific communities under study. However, pilot and demonstration activities are likely to add significantly to the complexity of programme design (and hence to skilled staff requirements), and also

to the time needed to develop a programme.

It is not practical to introduce too many innovations simultaneously, certainly not all the combinations of technical and institutional options that could be envisaged for multiple services. For initial programmes, it is therefore essential to focus on the most probable combinations, leaving others for later trials. There is a risk that 'the best will become the enemy of the good' if studies are too ambitious. In determining the HCES programme, the continued use of existing temporary solutions, developed by the users and so acceptable to them, should be considered, so as to permit the resolution of other more urgent problems. These existing solutions (possibly with some modifications) may allow progressive 'sequential upgrading' as the users' circumstances change, and the programme should be designed to support this.

Step 5: Identification of options

Output:

- Report identifying options, requirements and implications.

The identification of the various options for UESS services that are conducted using the HCES approach have to cover the same broad range of topics as those conducted for any feasibility analysis; they must examine the technical, institutional, financial and social feasibility of each option, and assess other factors such as its impact on the environment. This Guideline does not discuss these techniques, which are covered by a number of standard texts. However, there are certain special features which set the HCES analysis apart from conventional analyses:

- **Wider range of technologies:** Most feasibility studies assume a fairly narrow range of technology; for example, that water supply will be provided through standpipes, patio connections or house connections. The HCES approach does not impose such limits; the users may choose whatever best suits their circumstances, or not to upgrade a service at all (so, in this example, water supply options such as vendor supplies, rainwater collection or upgraded wells might also be included). The local expert or professional carrying out the identification of service options must therefore be familiar with the Bellagio Principles and how they relate to a wide range of technologies, the conditions under which they can be applied successfully, and their interactions (for example, on-site sanitation and shallow aquifers; solid wastes management and open channel drainage, re-use and recycling).

See Annex III – STEP 5 for guidance points on what to do regarding **wider range of technologies**.

ISSUE: Wider range of technologies

The output from this step should be a tabulation or matrix of options which the planning team judge to be feasible within the study area and in relation to the Bellagio Principles. The output will be used as a basis for preparing for the community consultation in the next step, and so must contain sufficient information for this purpose. It should include:

- Various 'packages' of UESS service options. These options should be balanced between services (for example, there is proper provision for dealing with wastewater resulting from water brought into the community), and should provide at least the minimum level of service previously agreed in STEP 4.
- Capital and O&M costs for each option, where possible translated into probable repayment implications (such as water and sewer tariffs, payments on home improvement loans, monthly charges for solid wastes management, betterment levies for storm drainage).
- Possible institutional arrangements, with particular emphasis on potential contributions from users, the communities served, and small entrepreneurs, so that users can make decisions on their possible role based on a clear understanding of obligations and costs.
- Assessments of 'externalities', such as environmental impact and employment generation.
- Assessments of economic benefits achievable through the reuse of 'waste products, the potential and existing market opportunities for reuse of waste.

At this point it may not be necessary for the planners to pay attention to affordability (although this will be a key - and very difficult - issue to resolve during the next step). Their prime responsibility during this step is to ensure that various packages that they are developing for submission to the users are complete and consistent, and that all the associated costs have been reasonably accurately estimated. In particular, they should not limit themselves to

some preconceived level of the users' willingness to pay for service: users may be willing to pay more than expected for UESS, provided that they can be convinced that it will be reliable and will meet their needs.

The planners should also be ready to deal with questions relating to interactions between sub-systems serving individual neighbourhoods. For example, the optimal solution for a low-income neighbourhood may appear to be on-site sanitation. However, if an adjacent neighbourhood is likely to be served by a sewer system, then the first neighbourhood may be able to take advantage of that fact and adopt a solids-free or other modified sewer solution at little or no additional cost. The planners should be able to anticipate where such interactions may arise, and prepare possible solutions, together with at least approximate estimates of the impact on costs, institutional arrangements, etc.

It will probably be prudent for the planners to consult with the various sector agencies and regulatory bodies before finalising the output from this step. It is far better to resolve any problems during this step than to have a community consultation which is disrupted by official objections or opposition. If an 'enabling environment' exists (see the preceding section), no serious difficulties should arise. If it does not (for example, if officials refuse to accept low-technology solutions or community-based management), then planners will have to decide whether to postpone the community consultation until such time as more constructive discussions can take place.

From this output it will then be necessary to prepare suitable materials for presentation in the community consultation (STEP 7 below); specialist inputs may be required in designing and producing these materials, and they should be tested to make sure that they can be understood by the intended audience.

- **Wider range of institutions:** Conventional feasibility studies usually assume that the institutional framework in the study area will somewhat resemble that in the remainder of the municipality. In contrast, the HCES approach examines all possible ways of providing, managing and operating services. For example, water supply might consist of a wholesale/retail arrangement between the water agency and the community, with storage and distribution managed by the community itself, and with final distribution through community-based vendors; on-site sanitation might be undertaken by households, assisted by NGO-administered lines of credit, contracting with local builders, and with emptying done by specialized companies through municipal contracts; storm water drainage might be constructed and maintained by householders (for each individual property) and neighbourhoods, up to the street drains, where the municipality would take over; and solid waste management might be by a combination of private scavengers collecting recyclables, for sale to private sector entrepreneurs, and community-paid sweepers collecting the remaining wastes and delivering them to transfer points operated by private sector companies under contract to the municipality. The identification of options would have to assess carefully the implications of each of the institutional options: whether the assumptions are correct about people's willingness and ability to carry out the functions assigned to them (the next step then examines whether the combinations of functions are still feasible: a community may be willing to manage one service, but prove incapable of running several).

Institutional arrangements across zones for service delivery require special attention. Conventional service providers are not generally good at consulting or collaborating with users at the household, neighbourhood and community level. As a consequence, NGOs often bridge the gap between central organisations and stakeholders at the lower, community levels. This gap should be eliminated, with more permanent arrangements between central organisations and organisms created or retained by the community to satisfy its needs (which might still involve NGOs). Two principle aspects can be distinguished:

- **Technical Assistance** needs, ranging from information dissemination and capacity-building at household, neighbourhood and community level to help generate understanding of service benefits and stakehold-

er responsibilities, to the provision of advice and support services to local service providers; and

- **Direct UES Service provision** by government or private organisations on a commercial basis, under contracts by individual or groups of stakeholders. Arrangements could be similar to a wholesale (central organisation) - retail (stakeholder, stakeholder organisation or small-scale entrepreneur) relationship.

See Annex III – STEP 5 for guidance points on what to do regarding **wider range of institutions**.

- **Wider range of financial arrangements:** Matching the wider range of technologies and institutional options, more financial approaches need to be examined. These may take many forms, ranging from, for example, government funding directly linked to externalities (not grants and subsidies, but payments calculated to reflect environmental, health or other benefits to the public at large) to self-help at household and community level, not only in construction but also in management, operation and maintenance.

Because HCES will be successful only if people actually use the services, the emphasis is on constructing entire systems – including the house connections for water supply or the toilet and house sewer for sanitation – rather than just the pipes in the street. Therefore supporting financial services have to be provided, such as loans to cover house connections, or easy access to credit for home improvements.

Collections also have to be easy and transparent. Rather than require users to make numerous individual payments at inconvenient offices, this may call for community-based collections, or the establishment of local banks.

Many of these procedures may not be easy to accomplish in the existing environment. For example, communities may not be able to operate bank accounts, and householders may not be creditworthy using standard criteria. Changing this situation is an essential part of establishing an enabling environment.

See Annex III – STEP 5 for guidance points on what to do regarding **wider range of financial arrangements**.

Indicators:

- Report itself, detailing:
 - Brief commentary on social issues in relation to range of options (including user perceptions)

and for each option:

- Institutional and management arrangements;
- Operation & Maintenance requirements, roles and responsibilities;
- Technical design of the option (including requirements for linkages to wider city infrastructure networks);
- Financial costs (who pays for what?)

Step 6: Evaluation of feasible service combinations

Output:

- The preferred servicing option/s.

Once the costs and implications of various options are known, at least approximately, work can begin on determining which combinations are likely to be feasible. The lowest desirable level of service should have been decided during the consultations in STEP 4; for example, that every household should have access to reliable water supply (carried if necessary), basic sanitation (excreta and sullage management), some means of solid waste disposal (even if this requires using a remote collection point), and sufficient local drainage to protect the property during storms of a specified frequency. Above this lowest level, the task is primarily matching a particular level of service with the associated on- and off-site facilities (for example, flush toilets are not feasible without a high level of water supply and effective means of wastewater collection, treatment and disposal).

The various technical combinations can then be matched with various institutional options.

See Annex III – STEP 6 for guidance points on what to do regarding **evaluation of feasible service combinations**.

Indicators:

- Report, detailing preferred service option package, including:
 - Revised institutional and management arrangements;
 - Revised operation & maintenance requirements, roles and responsibilities;
 - Revised technical design of the option (including requirements for linkages to wider city infrastructure networks);
 - Revised financial costs (who pays for what?)

ISSUE: Risk of excessive complexity

The results can rapidly become very complex; for example, as discussed under STEP 5 (wider range of institutions) community-managed water distribution (water being bought in bulk from the water authority at a point on the community boundary); on-site sanitation arranged by the householders and serviced by local entrepreneurs; micro-drainage managed on a neighbourhood basis; and solid waste collected by local scavengers and hauled to a

collection point from which the municipality trucks it to the landfill. The programme planning team will have to be careful not to confuse the analysis by allowing too many options, while on the other hand not excluding ones that might later turn out to be optimal (at least in early applications of the approach, iterations between STEP 6 and 7 are likely, as it is found necessary to explore alternatives that may have been ruled out earlier).

ISSUE: Institutional competence in the UESS sectors varies widely, but is generally low

In general, water supply agencies are likely to be the most advanced; in many municipalities institutional capacity in the other sectors ranges from poor to almost non-existent, especially in their dealings with low-income areas. This lack of capacity extends over all aspects of their operations: planning, implementation, operation and maintenance, financial performance, and staffing. Similar deficiencies are often found in the regulatory bodies responsible for these sectors. This situation poses serious problems for the HCES approach; for example:

- How can a sustainable balanced package of UESS services be developed if it is probable that only one of the four services will be capable of playing the role expected, at least in the short term?

- Should the programme be delayed until institution-building shows positive results?
- Should the programme concentrate on improving private and informal sector capability (since, in the absence of municipal competence, the private sector is often a principal supplier of services at present)?
- Will government accept a large amount of external support being channeled to the private and informal sectors?
- What are the implications for the timing and coordination of the overall programme?

There are no easy answers to these questions. The only immediate solution appears to be that a criterion for selecting the areas which will see the initial applications of the HCES approach should be that there is good evidence of strong institutional competence, in local government departments and agencies, the private sector, and the communities themselves. Selecting areas where institutional competence is lacking is a recipe for failure.

Step 7: Consolidated UESS plans for the study area

Output:

- Consolidated plan for entire study area.

Consolidation of local area plans: The objective of this step is to develop a programme that will cover the entire study area. The various options identified during STEP 6 are likely to be suited to particular neighbourhoods or communities, depending on factors such as income level, housing type, soil conditions and topography. The challenge now is to assemble and integrate these into a broader UESS network.

Reconciliation with other activities in the municipality:

Municipalities will probably want to try the HCES approach on a limited basis initially, to gain experience and determine how best to apply it (they may also be constrained by lack of enough people with the necessary skills, in disciplines which are likely to be unfamiliar). Therefore they are likely to have one area in which services have been planned using the HCES approach, and other areas planned using conventional means. Before proceeding to implementation, it is therefore important to recognise and, if necessary, to reconcile any discrepancies resulting from the two approaches.

ISSUE: Absence of municipal planning

Lack of adequate plans is a common problem in many developing country municipalities. Water supply is the service most likely to be covered by some form of plan; sewerage and storm drainage rather less likely; any solid waste management planning is often limited to landfill development; and sanitation planning is usually non-existent. In such circumstances, reconciling proposals for the pro-

gramme area with services in the remainder of the municipality may become more difficult, because municipal officials may not know the true state of their services or what it would cost to put them on a sound footing, and so may be less able to appreciate the need to adopt different approaches and different standards.

ISSUE: Different policies on standards and cost recovery

HCES aims at sustainable systems based on effective demand. Therefore it requires a high level of cost recovery from the users, with standards set at levels that are affordable. Conventional planning, in contrast, typically starts with assumed required standards, with services often heavily subsidised from other municipal revenues (or simply under-funded, so that, for example, O&M is neglected). People in areas planned according to HCES principles are therefore likely to find themselves asked to pay more

and to do more in the way of construction, O&M and management, for comparatively lower levels of service. Until they have gained some experience of the actual systems in operation, they may not appreciate that they are enjoying better services, because they are more reliable. (There is also a risk that their considerable contributions towards their own UES services will not be offset by reductions in the standard municipal fees and tariffs; clearly an equitable arrangement has to be devised).

ISSUE: Inadequate municipal infrastructure

This issue is closely related to the ones above. Planning in the HCES programme area is designed to ensure good O&M of the services provided. The users will pay the costs needed to provide the services and keep them operating satisfactorily. However, they are dependent on the municipality or its service agencies for the effective provision of services outside the programme area, without which their efforts will be wasted. For example, locally-constructed and -managed storm drains and sewers will not function without effective downstream collectors and

trunk systems. Local water supply networks will not provide satisfactory service if the trunk system only provides an intermittent and unsafe supply. Thus deficiencies in the broader UES systems may lead to disappointment and resentment within the programme area. Unfortunately, this is not easy to avoid. For example, it is usually politically impractical to limit subsidized water supply to high-income neighbourhoods in order to ensure more reliable service to low-income residents.

ISSUE: Population growth

Uncontrolled urbanisation is common in developing country municipalities. In the time it takes to plan and implement improvements to UESS, the character of the programme area or its immediate surroundings may have changed significantly, or municipal services, probably already inadequate when planning commenced, may have become even more overloaded. This is already a problem for conventional planning; it is even worse when using the HCES approach, as normally this approach would not encourage the use of conservative conventional design cri-

teria and design lives (how can low-income people, who want to have 25 lcd of water through standpipes, afford systems which would eventually serve twice as many people with 200 lcd through house connections?). The solution may be to treat the programme area more as a series of neighbourhoods, without too much interaction. By reducing the emphasis on integration and synthesis (apart from that necessary to ensure a functioning programme), some efficiency may be lost, but the programme should be less vulnerable to unexpected developments.

Indicator/s:

- Report, detailing:
 - What extra demands the existing area plans make on the city wide infrastructure
 - Identify shortfalls in capacity (what, where?)
 - Identify missing links to wider city infrastructure
 - Consolidated plan for entire study area

Step 8: Finalising of consolidated UESS plans

Output:

- Workshop

The consultation involves three stages:

- Planners present the options that appear feasible for individual neighbourhoods;
- Planners explain the interactions between neighbourhood choices;
- Planners assist the community on reaching a consensus on a broader programme.

It may be more efficient to conduct the first two stages separately, neighbourhood by neighbourhood, but if this approach is taken each neighbourhood must clearly understand and accept that the final stage may lead to later adjustments and modifications.

As in the case of the project launch, representatives of the sector agencies, the municipality, regulatory bodies, etc., should participate (if the consultation is carried out in stages, their participation is especially important in the latter two stages, where the synthesis is being developed). Their role is primarily to explain what their institutions can and cannot do to assist the programme, clarify technical issues, and explain the implications of certain

choices. Their presence will help ensure that whatever is decided will later be approved and implemented.

However, they should not be allowed to dominate or determine the outcome of the discussions.

Because the HCES approach places great emphasis on sustainability, it is important that all participants in this consultation understand the financial implications of their choices, and are fully committed to meet the costs of the UESS package finally adopted. This does not just mean that the users have to commit themselves to the cost recovery proposals, and to whatever contributions they may be expected to make, in cash or kind. In addition, representatives of the municipality, UES service organisations and government have to be ready to give reliable commitments of the support they will provide to the programme.

Guidance point on what the workshop would do:

- Review consolidated plan with strategic stakeholders;
- Raise proposals for possible improvements to consolidated plan;
- Prioritise improvements to city wide systems which best support local plans;
- Develop a programme timeline.

ISSUE: Further research to determine how 'effective demand' for these UESS combinations can be estimated

Ideally, UESS services should always be provided in response to 'effective demand' - expressed willingness on the part of the users to pay the cost of the services. This concept, the 'Demand-Responsive Approach', is intended to ensure the acceptability and financial viability of the services provided. The concept is equally valid when using the HCES approach. However, there is no experience of the application of this type of analysis to multiple services, offered in a variety of combinations of service level, and with various possibilities of institutional arrangements for implementation, operation and maintenance. Even with a single service, such as water supply or sanitation, carrying out a demand study is expensive and time-consuming, requiring skilled direction and analysis - and there do not appear to be any Guidelines, based on actual case studies, on how to derive reliable conclusions. Cities contemplat-

ing initial applications of HCES cannot be expected to undertake sophisticated research of this type on their own, because of their own lack of expertise and funds, and the lack of consensus on methodology and clear guidance on application. If guidance is not available from elsewhere by the time that they need it, then it should be recognised that the cities are being used by external agencies as research sites, and they should therefore be given external assistance to undertake research into the best way of assessing effective demand. Research is needed now on how best to determine affordability, and then action can be taken at the appropriate points in the 10-step process. It is likely that work on estimating affordability will have to begin quite early in the 10-step process, and this needs to be factored in to the descriptions above.

ISSUE: Failure to reach consensus

It is almost inevitable that at some point there will be disagreement on the solution to be adopted. For example, a householder may want to have a full house water connection and flush toilets in an area where only simple on-site sanitation is envisaged. If solids-free or other modified sewers are not affordable or acceptable to the community at large, then it will probably be necessary to explore other options (such as on-site treatment or a vault system) for this particular property. Similarly, some house-

holders may not want to participate in options which involve a large community input into construction and management of the system, and in such cases it may be feasible for them to make additional cash payments which will enable the community to hire substitutes. Since communities usually have minimal power to enforce participation, disagreements such as these must be resolved prior to implementation; it will be too late afterwards.

ISSUE: Urban neighbourhoods are often heterogeneous

Very mixed residential standards (squatters next to modern high-rise buildings) or non-conforming land use (factories in residential areas) makes the application of the HCES approach more difficult, because the expectations and willingness to pay of the various users may differ widely. One solution is to divide the study area into more

homogeneous micro-neighbourhoods, each of which can decide on its own package of services, and then make the necessary adjustments at the boundaries. If this is too complicated or too time-consuming, then these areas may have to be excluded from the programme.

Developing a programme timeline: This reconciliation of various activities planned within the municipal area should result in a general agreement on what will be done under the HCES programme, and what will be handled under other projects and programmes (which may involve a number of actors: the municipality, UES agencies, regional authorities, etc.). This agreement on division of responsibilities has then to be developed into a timeline for UESS improvements during the programme implementation period, setting out priorities, critical dates, and more detailed responsibilities.

Even though it has to cover a very wide range of activities, this timeline must not be too complicated, because it has to be understood by all parties, including the members of the communities participating in the programme. Probably it will start with a simple representation, such as a bar chart, which makes clear how the various projects and programmes interact. Once this has been agreed in principle, then individual actors may prepare their own plans in whatever form is most useful and familiar to them, but it is still essential that an overall plan is maintained in a format useful for everyone.

This timeline needs to be designed so that it can be kept current. This means that each activity must be capable of being monitored, its progress assessed, and the implications for other related activities determined. This is not a serious problem with physical progress, but is likely to require much more ingenuity in assessing non-physical

aspects, such as community mobilisation, institutional development, or financial reforms. The Logical Framework, with its insistence on Objectively Verifiable Indicators, may prove a useful model. Very careful attention will have to be paid to developing an effective MEF protocol (discussed below), and sufficient resources (staff and budget) will have to be allocated for the task.

Agencies that do not have a history of collaboration with other agencies may not be enthusiastic about setting up a mechanism that monitors the progress of the HCES programme, especially if they themselves are not intimately involved in the programme (for example, the public works unit responsible for roads, and hence for major parts of the off-site storm drainage network, may not see itself as bound to adjust its priorities in order to respond to a community that wishes to connect its micro-drainage network). The mayor should therefore establish a strong steering committee to guide and monitor the programme implementation. This committee should be ready to capitalise on the enabling environment, by using the media, involving local politicians, etc., to keep up pressure on the implementation process.

Indicators:

- Workshop report, including:
 - Consensus on prioritised list of improvements to city networks;
 - Milestones in programme timeline;

Step 9: Monitoring, (internal) evaluation and feedback (MEF)

Output/s

- Identification of indicators to be used in MEF
- MEF plan

MEF must be thought of as one integrated process, even though it consists of three separate elements. There is no point in collecting data (monitoring) unless the data is then analysed critically (evaluation), and then the conclusions of the evaluation used to improve the process being monitored (feedback).

Good MEF is absolutely essential to the success of HCES programmes. The HCES approach involves:

- Multiple actors, from all levels of society
- Multiple sectors, with widely differing capabilities
- Inter-disciplinary approaches, requiring the effective coordination of technical, financial, institutional, social, environmental and economic aspects of project development

Failure to track closely what is occurring during programme implementation, to find out the cause of delays or discrepancies, and to devise and put into effect appropriate remedial action will quickly lead to unbalanced and unsustainable development, to wasted investments, and to disappointed and disillusioned users.

It can be argued that this statement is true, to a greater or lesser extent, of all development efforts, as indeed it is. However it is especially relevant to HCES programmes, since the potential for problems increases as complexity rises. For example, MEF on a pipe-laying contract is usually fairly simple, concerned primarily with compliance with specifications, physical progress against the original work plan, and keeping within budget. MEF on an HCES programme, in contrast, has to determine whether the approaches and solutions adopted during the development phase were appropriate in the light of events, or should be adjusted. For example, it may be found that the technical solutions need to be modified to match people's needs and preferences more closely; that unexpected urbanisation or UESS developments have altered the optimal solutions; that some communities are not willing or able to play the roles assumed for them; or that some sector institutions are not able to develop in the way that had been hoped, so that some of their functions need to be undertaken by the private sector.

A comprehensive MEF plan therefore has to be developed prior to starting implementation and proper allowance has to be made in the planning for the staff and budget to put it into effect. This will almost invariably run into difficulties: most agencies tend to underestimate capital costs and implementation periods, and, when they run into time and cost overruns, find 'spare' funds by cutting into less visible components such as staff training, tertiary physical systems, and MEF. Technical agencies, such as most of those concerned with UESS, also tend to be reluctant to devote resources to non-technical staff or investigations, or to institutionalise the 'soft' aspects of their work. This should not be tolerated in HCES programmes. Since there will be a continuing dialogue with the communities affected throughout the implementation period, and approaches will be refined throughout the period in the light of experience, it would be a serious mistake to cut back on MEF. The risk is not just that the entire programme may fail due to lack of prompt diagnosis and solution of problems as they arise; there is also a more insidious risk that the programme develops a 'one size fits all' approach, because it does not have the resources to tailor solutions to individual communities and changing circumstances.

Unfortunately, in the past, MEF has been almost invariably the most neglected part of any UESS improvement process (and of most other development activities). Data collection has been erratic, at best, and evaluation and feedback have been even weaker. Funding agencies have contributed to this problem by imposing data collection and monitoring efforts designed primarily to satisfy their own needs, rather than focusing on information needed for proper planning, delivery and management of the services. It is a real weakness in donor-supported projects that they are not adequately monitored in order to ensure that they are actually achieving their intended objectives, and as a result corrective actions are usually much too late to be of real benefit (in fact, corrections are often only addressed in follow-on projects). It is equally surprising that developing countries, which are by definition very short of capital to improve their circumstances, are not more interested in ensuring the effective use of whatever capital they do have at their disposal, whether from their own resources or from outside.

The first step in designing the monitoring programme is the **establishment of measurable monitoring indicators.** That is relatively simple for measuring physical progress (such as the number of water connections completed or latrines built), or ensuring the quality of the work (such

as the proportion of locally-fabricated pipes meeting specifications). It is more difficult when social objectives are to be measured, and undoubtedly substitutes will be required at times. For example, progress in stakeholder participation may be determined by the number of stakeholders actively involved (as a percentage of the total eligible), but that may not reveal how effective the participation is. Similarly, the number of women participating or holding management positions is only a partial indication of their influence. Nevertheless, such indicators provide an important message: that whatever it is that is being monitored is important to the success of the HCES programme.

Efforts are therefore needed to agree on some basic approaches for MEF in the UESS sector. The most progress has been made on benchmarking for urban water supply. Unfortunately, benchmarking indicators, which are designed to measure the efficiency of utility operations, rarely include some of the most important aspects of HCES. In contrast, HCES indicators need to provide information about the effectiveness of service delivery and the impact of HCES on the wellbeing of affected stakeholders.

An important justification for UESS improvements is the expected health benefits, especially to children. However, UESS professionals are usually not qualified to monitor health (and health impact studies give rise to controversy even among specialists). Therefore it is probably best to restrict monitoring to activities that can be observed by people who are not professional epidemiologists. It is now acknowledged that changes in personal hygiene habits are as important in achieving health benefits as are improvements in the availability of water supply and sanitation. Therefore, in addition to monitoring the provisions and proper functioning of facilities, UESS programmes should monitor changes in health and hygiene behaviour. This should be done in consultation with health sector officials, who are responsible for developing and delivering health education, and who, in order to plan their own work, need to know precisely what will be done through the UESS programme. These consultations may identify indicators useful to both sectors for monitoring hygiene education efforts. However, the UESS programme itself should focus primarily on whether health education is being delivered, and whether it seems to be having the desired impact; design of the health and hygiene education activities should ideally be left to the public health authorities.

Often similarly neglected is the monitoring of social objectives, in particular the participation of the users, especially women in the decision-making process leading to UESS investments. The inclusion of women in policy and management roles in the UESS sectors, although generally accepted (with various levels of enthusiasm), is equally missing from the monitoring screen. Appropriate indicators that allow a measuring of progress must be developed and included in the MEF process. These might include topics such as:

- The effectiveness of stakeholder participation (in terms of time requirements, information generated, identification and selection of alternatives, understanding of relationship between service delivery and personal hygiene practices)
- The impact of stakeholder participation (for example, on user satisfaction, cost, and sustainability of services)
- The extent of women's participation in the planning and management of service delivery (for example, the proportion of women participating in or leading planning efforts, or managing services)
- The role of small entrepreneurs (many of whom are women, in certain countries) in providing services and support

Even where the participation of women is accepted, this acceptance is often confined to women within the user community. This is justified by citing women's key role in running the household and educating children about hygiene. This statement is correct, but neglects the equally important role that women have to play as professionals and field workers in the planning and implementation of the programme. Women are still rare in the technical professions in many developing countries, but they are common in many of the agencies and NGOs that deal with public health, community development, social research, and similar aspects of development. If women of this type are not properly represented, and given an equal voice, in the UESS programme team, then it is likely that the team will have problems in addressing a number of critical issues, and in communicating effectively with the user communities. The composition of the team, and the dynamics of its decision-making, need not necessarily be part of the MEF protocol, but these aspects must be addressed.

Similarly, other government social or economic objectives (such as job creation, import substitution, resource recovery, and environmental restoration) need to be

explicitly recognised when planning MEF. To the extent that government is interested in the results because of their broader policy implications, as well as their impact on the programme itself, then it is reasonable to expect government to provide the resources and staff to carry out this part of the MEF process.

Defining what is to be monitored is only part of developing effective MEF. **Designing the evaluation process** is equally important. The purpose of monitoring is to determine what progress is being made towards the achievement of objectives, and therefore decisions on what to monitor must be closely linked to clearly defined objectives and to means of evaluating the collected data so as to produce operationally useful results. In HCES programmes, the overall objective is the improvement of human health and productivity and the protection of the environment. However, this is too broad to be easily measured on a regular basis (for example, in a quarterly progress report). Therefore monitoring should focus mainly on matters that can be readily measured and evaluated, for example, on quantifiable improvements in UESS delivery. By establishing intermediate and final targets for these proxies, progress can easily be measured. Again, evaluation of the non-physical aspects of the programme (for example, changes in hygiene behaviour) is likely to prove much more difficult, and less amenable to frequent updating.

Ultimately, the justification for the effort spent in monitoring and evaluation is that the lessons learned will help correct deficiencies in the ongoing programme and improve the design and implementation of future programmes. Therefore **mechanisms for feedback** must be thought about from the beginning of planning. Probably the most important consideration is that feedback must be timely. It is better to have indicative financial projections at the end of the third quarter of the financial year, while action can still be taken, than audited statements six months into the next year. The programme manage-

ment should adopt tough feedback procedures, which will impose a discipline on the reporting and analysis of collected data. (Of course, some of these MEF efforts, such as any assessment of the impact on public health, will be long-term and extend beyond the immediate HCES programme, but most should reveal information much more quickly, if managers insist on this and allocate sufficient resources to the task.)

To develop a sound MEF protocol, means have to be found to invite each of the disciplines involved, each of the various participating institutions, and each of the various zones, to think through the factors that they consider need to be watched in order to ensure success of the programme, and to propose intermediate and final targets, monitoring indices, and evaluation methods. The outcome will probably be a series of long and incompatible lists, written from very different perspectives. The difficult task of the programme coordinator is then to consolidate and synthesize these lists into an agreed overall MEF protocol, which defines the roles and responsibilities of each of the participants, provides a framework for reporting and analyzing the data collected, and ensures that sufficient funds and staffing are included in the programme budget. Once a consensus is reached on this protocol, all concerned then have to commit themselves to making it work. The temptation will be to make this list too comprehensive and too complicated; as with any tool, if it is not used, it is useless. A lesson can be drawn from WHO's Minimum Evaluation Procedure, which aimed to answer just three questions: Was it built? Did it work? Did people use it? HCES monitoring will have to be more complicated than that, but the basic approach is sound.

Indicators

- The MEF plan itself, including a list of agreed indicators to aid monitoring.

Step 10: Implementation

The final Guideline should include a section on matters requiring attention during implementation, because - as should be clear from the discussion on MEF above - programmes undertaken using the HCES approach are likely to require adjustment and fine-tuning during the implementation process, especially if new communities are added to the programme as work proceeds.

However, the authors of this document consider that it is premature to prepare this section on implementation at the present time. The HCES approach has not yet been applied to any actual projects or programmes, and the provisional Guideline, while based on the various authors' extensive operational experience, will still be somewhat hypothetical.

The authors' suggestion is that the provisional Guideline should be tested on selected projects, which should be subjected to particularly careful MEF, and which should be written up as case studies. That process should not only test the provisional Guideline and reveal areas which need to be improved. It should also bring out the topics which need to be particularly stressed during implementation, and the issues which are likely to arise, and so enable this final section of the Guideline to be written with a firm grounding in reality.

Annex I: The Bellagio Principles

- 1. Human dignity, quality of life and environmental security at household level should be at the centre of the new approach, which should be responsive and accountable to needs and demands in the local and national setting.**
 - solutions should be tailored to the full spectrum of social, economic, health and environmental concerns
 - the household and community environment should be protected
 - the economic opportunities of waste recovery and use should be harnessed
- 2. In line with good governance principles, decision-making should involve participation of all stakeholders, especially the consumers and providers of services.**
 - decision-making at all levels should be based on informed choices
 - incentives for provision and consumption of services and facilities should be consistent with the overall goal and objective
 - rights of consumers and providers should be balanced by responsibilities to the wider human community and environment
- 3. Waste should be considered a resource, and its management should be holistic and form part of integrated water resources, nutrient flows and waste management processes.**
 - inputs should be reduced so as to promote efficiency and water and environmental security
 - exports of waste should be minimised to promote efficiency and reduce the spread of pollution
 - wastewater should be recycled and added to the water budget
- 4. The domain in which environmental sanitation problems are resolved should be kept to the minimum practicable size (household, community, town, district, catchment, and city) and wastes diluted as little as possible.**
 - waste should be managed as close as possible to its source
 - water should be minimally used to transport waste
 - additional technologies for waste sanitisation and reuse should be developed

Annex II: HCES research topics

- (a) Planning aspects**
 - Development of criteria governing planning, to be set by the municipality within the national or regional framework
 - Evaluation and refinement of demand-responsive approaches, Willingness to Pay, Contingent Valuation, and other tools for establishing effective demand for a particular level of service, and expansion of this approach to cover multiple services
 - Review of appropriateness of conventional design criteria and assumptions
 - Development of tools for evaluation of the benefits of improved UESS as basis for justifying investments, allocating costs and providing subsidies
- (b) Regulatory aspects**
 - Examination of the best means to develop a regulatory framework that:
 - encourages the full participation of all stakeholders
 - leads to transparent and effective application of realistic standards
 - facilitates inter-zonal negotiations and agreements
 - Review of the appropriateness of existing standards and regulations and evaluation of their impact on the implementation of the HCES approach
- (c) Institutional aspects**
 - State of the art review of the role of households, community-level organisations and small entrepreneurs in urban upgrading
 - Development of institutional arrangements for inter-zonal elements
 - Review of the potential and limitations of private sector participation in different forms (for example, service contracts, management contracts, and concessions).
- (d) Financing aspects**
 - Compilation of experience on methods and effectiveness of resource mobilisation and cost recovery, focusing on household-level expenditures
 - Mechanisms for setting tariffs by zone or sub-zone reflecting the selected service standards and the import/export implications between zones
 - Clear policy and justification for targeted and transparent subsidies and incentives
 - Identification of different forms of access to credit by householders and communities
- (e) Socio-cultural aspects**

Compilation of socio-cultural factors critical to successful appli-

cation of Bellagio Principles and the HCES approach, such as:

- Decision-taking processes at community level
- Taboos related to sharing of facilities
- Attitudes toward recycling of waste products
- Mechanism for behaviour change

(f) Technological aspects

Review of the potential and the limitations of existing technical alternatives, with special emphasis on decentralised systems at household and community level, with particular attention to aspects such as:

- User friendliness
- Environmental friendliness (including the fate of pathogens and micro-pollutants such as EDCs)
- Saving of natural resources (e.g., closing nutrient and water cycles)
- Removal efficiencies for different kind of pollutants
- Financial requirements (capital and O&M costs)
- Institutional requirements
- Requirements for skilled labour (education and training)

(g) Anticipated Benefits and Risks

Implementing the Bellagio Principles should not add risks to either human health or the environment. Therefore, research has to carefully evaluate possible trade-offs in benefits and risks resulting from the proposed new holistic approaches, in order to ensure that the anticipated benefits from greater sustainability of simpler methods and systems are not unduly diminished by greater risks to health and the environment.

Annex III: 10-Step Process – Further materials

Step 3: Assessment of current status

Local level status assessment

Find out what is already there

Initial survey work needs to be conducted to find out about what services exist and what the user perceptions of the services are. There are two approaches, both of which need to be used as they provide different information about the same problem.

- Use participatory methods to find out what the opinions of the users are concerning the provision and operation of existing services. This also gives useful indications of demand. A further focus may be on user perceptions in relation to waste as a resource, and gender issues of relevance;
- Use a technical survey to establish what infrastructure exists, its condition and where it is located;

- Use participatory methods to establish wider information of relevance, such as the existence of a market for waste as a resource (for example, is waste sold on to waste collectors? Are municipal services used or are labourers used to empty latrines?)

Municipal level status assessment

Make contact with:

- Key staff in relevant line departments of the municipality and in specialist line agencies, e.g., water, power supply
- Municipal councillors
- Offices of other politicians from the regional or national assemblies who may have development budgets under their control to introduce the ideas behind the programme for improving services

Find out what is already there

- Collect available maps and plans to locate existing infrastructure in each municipal Ward
- Identify proposed urban poor project areas in relation to existing primary and secondary infrastructure lines

Identify future plans

- Identify and collect detailed information from line departments and utilities on future plans for extending and upgrading infrastructure within the municipality, including maps and diagrams.
- Identify how these proposed improvements affect those Wards in which upgrading is to take place

City wide status assessment of service providers

Local institutions.

- Are they appointed? Are they representative? What informal and formal organisations already exist? What groups exist or could be formed to best make decisions concerning environmental/domestic sanitation and personal hygiene? Which field workers can best work with these groups, if any, and how would they be supported?

Government, parastatal, and private organisations.

- List of existing agencies and organisations active in the sanitation/hygiene sector at the central, district, and local levels – including preliminary assessment of their effectiveness in relation to mandate and action and reputation for 'honesty'; summary of hygiene and sanitation activities undertaken; responsiveness to consumer demand and preferences or complaints. How effective and appropriate are the current roles of institutions? Are there problems of effectiveness or system losses? What is the community's level of trust with local authorities or appointed contractors? Would it be the same if the community made more decisions about who is hired to perform which role?

NGO's.

- National, regional, local, or community-based in scope of services; level of organisation and status (e.g., registered at local level and/or to receive external funds); management, technical, programme, and staffing capacities; providers or enablers of local development; development track record (community infrastructure, health, education, productivity, and credit, etc.); functions (advocacy, development programme, management, welfare services); linkages (with external agencies and other NGOs). Which NGOs can support and facilitate community-based projects where consumers become key decision makers? What other sector roles might they play? What is the best way to engage NGOs, and what capacity building will they need?

- Identify the range of options for providing those services which are a priority;
- Narrow down the options to those which are feasible within the local situation; when the specific local site conditions are taken into account, many options do not turn out to be feasible, and this makes the choices more straightforward;
- Calculate the indicative costs for the improvements in each sector which the users have prioritized. The use of simple tools such as standard engineering details and spreadsheets makes this relatively simple to do.

In theory, there is a wide range of infrastructure options from which users can choose; in practice the choice is limited both by the existing infrastructure and the physical characteristics of the site. The following table provides an indication of the basic maintenance tasks which are theoretically within the capacity of most user groups. This information will help to guide discussions with users to assist in determining which options are technically feasible in the locality, and helping to draw up a short list of possible options and levels of service which users are interested in and which will form the basis for detailed exploration of specific designs and costs.

Step 5: Identification of options

Guidance point on what to do: wider range of technologies

Explore technical options and costs

In order to respond to what people want and are willing to contribute their resources to, it is necessary to be able to offer a range of technical options:

Service option and maintenance requirements	
Sanitation: OPTION	MAINTENANCE
Latrines Individual household latrine User group shared latrine	Daily cleaning Daily cleaning
Disposal system On-site pit Septic tank Sewerage	Pit emptying Tank emptying Report defects

Source: Cotton, A.P and Tayler, W.K. (2000) Services for the Urban Poor: Section 3. Action Planning Guidelines. WEDC, Loughborough University, UK: 3a, 3.55

Reference to further background material:

GHK, WEDC, WSP-SA (2000) Strategic Planning for Municipal Sanitation: A Guide. First Edition. GHK Research and Training Ltd., London, UK: C2, Tool 2.1

Cotton, A.P. and Tayler, W.K. (2000) Services for the Urban Poor: Section 4. Technical Guidelines. WEDC, Loughborough University, UK: 4a, 4.5-4.17

GTZ references on ecological sanitation technologies; www.gtz.de/ecosan

Guidance points on what to do: wider range of institutions

Prior to moving to project identification, institutional appraisals of the sector and an overview of the broad range of institutional arrangements in sector institutions will be necessary within the country concerned. An example of the type of focus areas for institutional and sector appraisal is provided in the following table:

Focus areas for institutional and sector appraisal	
Appraisal categories	Focus areas
Water and sanitation sector	<ul style="list-style-type: none"> ● Regional allocation of water between user groups ● Water pricing and subsidy distribution ● Allocation of responsibilities between WS&S institutions ● Government policies, strategies and regulation in the sector ● Actual service levels, particularly for the poor ● Sector performance against key indicators ● Cost recovery, transparency and lending terms ● HRD for the sector ● Private sector participation (PSP) in water and sanitation ● Climate for change and change champions
External environment	<ul style="list-style-type: none"> ● Social, technical, economic and political environment ● Government policies and progress on reform ● Employee conditions of service and recruitment policy ● Opportunities and constraints for PSP ● Formal and informal structures ● Absorbive capacity ● Consumer and media pressures
Appraisal of water supply and sanitation institutions	<ul style="list-style-type: none"> ● Organisational performance against key indicators ● Actual service levels, particularly for the poor ● Organisational autonomy ● Leadership ● Commercial orientation ● Consumer orientation ● Management and administration ● Technical capability ● Developing and maintaining staff including training needs ● Organisational culture, formal and informal structures ● Interactions with key institutions/departments ● Availability of financial resources ● Priority areas for improvement often include: Management of O&M, cost recovery, customer services, demand assessment, and investment planning
Community organisations	<ul style="list-style-type: none"> ● Demand for improved water and sanitation services ● Capacity/willingness to manage service provision and recover costs ● Representation of different community groups in the community organisations ● Social cohesion within the community ● Linkages with government/water utility/NGOs etc ● Training needs

Source: LSHTM/WEDC (1998) Guidance Manual on Water Supply and Sanitation Programmes. Published for DFID by WEDC, Loughborough University, UK: 133

Guidance point on what to do: wider range of financial arrangements

The source of finance is a key factor in relation to the administrative procedures and rules required to progress expenditure on service improvements locally. The following table outlines some of the requirements of these different sources of finance.

Sources of finance	
Source of finance	Rules and procedures
Government	<ul style="list-style-type: none"> ● Government money is used to finance the works in the Local Action Plan; their procedures need to be following in approving expenditure
External Donor Agency	<ul style="list-style-type: none"> ● External donor agencies provide the finance for the works with the money being channelled through the government; again, government procedures need to be followed and it is likely that donors will require additional procedural stage
Users and community groups	<ul style="list-style-type: none"> ● Government money is not involved; the finance is raised internally by users and community groups. They are at liberty to define and use whatever mechanisms they feel confident with. Relatively little reliance is placed on the written word and trust between the partners is key.
Split financing	<ul style="list-style-type: none"> ● Split funding under the 'matching grant' approach with contributions from government and community groups. The government agency will need to ensure that its procedures are followed, and the community will need to be confident that it knows what is happening to its own money.

Source: Cotton, A.P and Taylor, W.K. (2000) Services for the Urban Poor: Section 5. From Action Plans to Implementation. WEDC, Loughborough University, UK: 5, 5.4

Additionally, the following questions might be usefully posed in relation to financial arrangements:

Potential local sources of financing.

- *Is community/household self-financing feasible? How about local banks, credit institutions, and private lenders, etc.?*

Indicators of willingness to pay.

- *Are people currently paying for any sanitation services, such as refuse or night soil removal, public latrines, or septic tank emptying? Is service for emptying pits or tanks available in peri-urban areas?*

Cash economy vs. traditional structures.

- *To what extent are people dependent on cash incomes vs. self-sufficiency and local production?*

Credit: sources, availability, and use; understanding and history of debt repayment; traditional methods of saving.

- *Is there a history of credit use? If so, is it widely used? For what type of expenditure (e.g., emergencies, capital items, school fees, etc.)? In what light are credit providers viewed? How are repayments collected?*

Reference to further background material:

Micro finance for sanitation
www.lboro.ac.uk/well/resources/fact-sheets/fact-sheets-htm/mcfs.htm

Applied Study No. 2: Financial Services and Environmental Health. Household Credit for Water and Sanitation
www.dec.org/pdf_docs/pnabu314.pdf

Step 6: Evaluation of feasible service combinations

Guidance points on what to do regarding evaluation of feasible service combinations

Framework for local action planning	
Activity	Brief Description
Review Costs	<ul style="list-style-type: none">● Discuss the cost estimates with the users in relation to the cost budget ceiling for the area and willingness to pay for particular levels of service. Users will be contributing to the operation and maintenance costs, and in some cases to the capital costs.
Reassess user priorities and demand	<ul style="list-style-type: none">● Reviewing the costs may result in changes in demand and user priorities. Assist users to revise their priorities within the overall budget ceiling including any top-up money users/user groups are prepared to add. This will provide the basis for any Local Action Plan.
Modify technical design	<ul style="list-style-type: none">● The review of priorities and demand may lead to a desire to modify technical details; whilst these can appear to be minor; they may be very important for users: for example, bathing enclosures to suite the specific needs of women.

Source (abstracted from): Cotton, A.P. and Taylor, W.K. (2000) Services for the Urban Poor: Section 3. Action Planning Guidelines. WEDC, Loughborough University, UK: 3.17, Table 3a.1

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The Water Supply and Sanitation Collaborative Council

The Water Supply and Sanitation Collaborative Council (WSSCC) is a leading international organisation that enhances collaboration in the water supply and sanitation sector. WSSCC's main objective is to accelerate the delivery of sustainable water, sanitation and waste management services to all people, with special attention to the unserved poor. This it achieves by enhancing collaboration among developing countries and external support agencies and through concerted programmes.

Mandated by a 1990 United Nations resolution (UN Resolution No A/RES/45/181, 71st plenary meeting, of 21 December 1990) to accelerate progress towards safe water, sanitation and hygiene for all, the Council facilitates this process by arguing the need for action on water, sanitation and hygiene (WASH) issues in every possible forum.

WSSCC therefore catalyses and co-ordinates actions by governments, donor agencies, professional bodies, researchers, non-government organisations, community associations, women's groups and the private sector. With the support of regional and national representatives in currently 33 countries, WSSCC continues to put WASH issues on the global agenda and seeks to mobilise political commitment for this cause.

Eawag and Sandec

The Swiss Federal Institute for Aquatic Science and Technology (Eawag) is a Swiss Competence Centre for National and International Water Research. Eawag's research mandate focuses on integrated water resource management and addresses water in its natural environment and in society. Multidisciplinary teams of specialists in the fields of Environmental Engineering, Natural and Social Sciences jointly develop solutions to water-related problems.

The Department of Water and Sanitation in Developing Countries (Sandec) develops and implements new water and environmental sanitation concepts and technologies especially adapted to the situation in developing countries. Taking advantage of the multidisciplinary scientific and technical knowledge of Eawag, it aims at:

- developing, providing and facilitating the implementation of new concepts and technologies in water supply and environmental sanitation
- increasing research capacity and professional expertise in low and middle-income countries in the field of water supply and environmental sanitation
- raising awareness and enhancing professional expertise in high-income countries for water supply and environmental sanitation issues in low and middle-income countries

About this Guideline

The fact that a large majority of the world's population is without access to adequate water, sanitation, drainage and solid waste disposal services, presents strong evidence that conventional approaches to Environmental Sanitation are unable to make a significant dent in the backlog which exists in most of the developing world.

This provisional Guideline, produced by the Water Supply and Sanitation Collaborative Council (WSSCC) and the Department of Water & Sanitation in Developing Countries (Sandec) at the Swiss Federal Institute for Aquatic Science and Technology (Eawag), challenges conventional thinking and proposes some guiding principles as the basis for future planning and implementation of environmental sanitation services, commonly known in the sector as the "Bellagio Principles".

WSSCC's Environmental Sanitation Working Group conceived the Household-Centred Environmental Sanitation (HCES) in the search for approaches which are based on these principles that are likely to help achieve the overall goal of water and sanitation for all. The HCES approach is based on a framework which balances the needs of people with those of the environment to support a healthy life on Earth. Seen as radical departure from the central planning approaches of the past, it places the household and its neighbourhood at the core of the planning process.

This publication has been developed to give guidance on how to implement the "Bellagio Principles" by applying the HCES approach. It provides assistance to those who are willing to include and test this new approach in their urban environmental sanitation programmes. Since practical experience with the HCES approach is lacking, this Guideline is neither comprehensive nor final, but will be developed further on the basis of extensive field experience and feedback from the users.



Water Supply and Sanitation Collaborative Council (WSSCC)

International Environment House
9 Chemin des Anémones
1219 Châtelaine, Geneva
Switzerland
Tel: +41 22 917 8657
Fax: +41 22 917 8084
E-mail: wsscc@who.int
Website: www.wsscc.org

Eawag/Sandec

P.O. Box 611
Ueberlandstrasse 133
CH-8600 Dübendorf
Switzerland
Tel: +41-1-823 5286
Fax: +41-1-823 53 99
E-mail: caterina.dallatorre@eawag.ch
Website: www.sandec.ch; www.eawag.ch