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**SANDEC**

Water & Sanitation in  
Developing Countries

## **Summary Report of Bellagio Expert Consultation on *Environmental Sanitation in the 21<sup>st</sup> Century***

**1 - 4 February 2000**

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## 1. Introduction: Aim and context

A group of 25 participants (Annex) drawn from a wide range of international organisations involved in environmental sanitation, both from headquarters offices and the field, met at Bellagio, Italy, from 1-4 February 2000. The meeting was convened by EAWAG/SANDEC (Swiss Federal Institute for Environmental Science and Technology) on behalf of the Environmental Sanitation Working Group (ESWG) of the Water Supply and Sanitation Collaborative Council (WSSCC).

The purpose of the meeting was to take forward the work of an earlier workshop of an ESWG sub-group (Hilterfingen, 1999) in developing a new approach to environmental sanitation<sup>1</sup>, building on the lessons of the past. The starting point for the meeting was therefore the Report of the Hilterfingen Workshop on Environmental Sanitation<sup>2</sup>, the ‘Household-centred environmental sanitation’ (HCES) model elaborated in embryonic form at that workshop, and exploratory practical work subsequently set in motion. The Bellagio meeting was timed so that its outcome could be fed into the WSSCC process of developing a ‘Vision for Water Supply and Sanitation for the 21st Century’ – ‘Vision 21’ – and its presentation at the upcoming World Water Forum in The Hague, 17-22 March 2000.

Three billion people in the world are without proper sanitation today, and around 50% of wastes lie uncollected, polluting the environment and endangering health. Conventional systems of waste management, especially those relating to excreta disposal, cannot meet the current needs of vast numbers of the world’s people, are unsustainable and unaffordable in many parts of the world, and profligate with clean water in the rest of it. Thus, radical new thinking in the field of environmental sanitation is needed. In any field of human endeavour, policy-makers and practitioners are accustomed by training and experience to thinking within familiar sets of parameters, and while aware of the shortcomings associated with these parameters, find it difficult to step outside them. In principle, radical new thinking is always desired but is rarely produced. When produced, it often meets with resistance even from those who sought it simply because it steps outside those parameters – ‘outside the box’ – of preset assumptions, experience and capacity. In the view of the Hilterfingen sub-group, the approach to environmental sanitation they had termed ‘household-centred’ and the concepts on which it was based had managed to step ‘outside the box’ in this way.

Since the Hilterfingen workshop, efforts had been made to assess the HCES approach against field realities by conducting case studies. The intention of the Bellagio meeting was, therefore, to share the approach with a wider group of stakeholders and practitioners, and

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<sup>1</sup> The WSSCC has defined ES as: “Interventions to reduce peoples’ exposure to disease by providing a clean environment in which to live, with measures to break the cycle of disease. This usually includes hygienic management of human and animal excreta, refuse, wastewater, stormwater, the control of disease vectors, and the provision of washing facilities for personal and domestic hygiene. ES involves both behaviours and facilities which work together to form a hygienic environment.”

<sup>2</sup> **Household-centred environmental sanitation: Report of the Hilterfingen workshop on environmental sanitation in the 21<sup>st</sup> century**, 15-19 March 1999, available from EAWAG.

explore the case study conclusions, with the hope of refining it, matching it with programme realities, and expanding its ownership. From the start, the key anticipated outcome of the meeting was intended to be a **Bellagio statement on environmental sanitation**, at whose core would be the principles underlining the HCES thinking, together with initial exploration of some of their practical implications.

The process of people ‘buying in’ to radical new ideas is unpredictable; different minds, with their different backgrounds and disciplines, tend to accept and resist them at different points and levels. There were many positive responses by the Bellagio group to the HCES model. The fundamental premise that people and their quality of life should be put at the centre of the design and implementation of any environmental sanitation system – that it should be ‘household-centred’ – was universally accepted. The principle of designing systems at interlocking levels (household, community, municipality), in such a way as to facilitate the reduction of imports (of clean water in particular) and of exports (of waste of all kinds) at each level was also widely accepted. However, it would be inaccurate to suggest that the entire group fully accepted all parameters of the Hilterfingen HCES model, or that this would be desirable, given some of the practical ambiguities thrown up by the case studies.

The group did, however, reach consensus on a statement on **Clean, healthy and productive living: A new approach to environmental sanitation**. This statement, which appears at the end of this report, is believed by the group to encapsulate the key elements of a ‘new start’ in environmental sanitation. Participants also worked on how to apply the precepts of the statement at household, municipal, and national levels. The ‘new start’ outlined in the Bellagio statement and its implications for programme practice can now be presented to the WSSCC, at the World Water Forum, and within the key organisational entities to which the participants belong. More importantly, it is hoped that the Bellagio meeting and statement will have launched the process of bringing about a radical overhaul of ideas, policies and practices that have dominated public health engineering since the last sanitary revolution – that associated with the 19th century industrial revolution. If conventional approaches are never going to bring a clean, healthy and productive living environment within the reach of all, an initiative to develop something more equitable, efficient and affordable is owed to the millions of people without adequate services. Ten years on from Bellagio, the new sanitary revolution to deliver on that obligation should be underway.

***The specific objectives of the workshop were as follows:***

- *Introduce/discuss/agree on main principles for environmental sanitation;*
- *Give examples of how to apply these principles in case studies;*
- *Identify the implications of applying the HCES approach for different stakeholders (households, communities, government authorities, public and private service providers, ESAs);*
- *Identify the present constraints/problems in applying the HCES approach;*
- *Identify next steps in developing and promoting the HCES approach.*

## **2. Challenging conventional thinking**

The participants of the workshop all accepted the need to challenge conventional thinking, and to do so persuasively to the wider international water resources and waste management community, public and private, as well as among the broader community of economic, social, and urban policy-makers. The basis for this need is as follows<sup>3</sup>:

- ‘Business as usual’ cannot provide services for the poor; the rapid rate of urbanisation poses particular problems of squalor, human indignity, and threat of epidemic.
- ‘Business as usual’ is not sustainable even in the industrialised world; sewerage and drainage systems are over-extended and the use of water of drinking quality to transport human excreta is extravagant, wasteful, and the wastes thereby flushed add to the pollution of the environment.
- The under-utilisation of organic residues is economically wasteful, and belongs to a distorted view of waste management as confined to issues of disposal as opposed to resource utilisation.
- Centralised systems designed and implemented without consultation with, and the participation of, stakeholders at all levels are out-moded Stalinist or high Victorian responses to public health and environmental problems, and are ineffective in today’s world. Stakeholder participation is vital.
- There is a lack of integration between excreta disposal, wastewater disposal, solid waste disposal, and storm drainage. Many problems would be resolved by a new paradigm which placed all aspects of water and waste within one integrated service delivery framework.
- The pressures of humanity on a fragile water resource base, and the corresponding need for environmental protection and freshwater savings, require that wastewater and wastes be recycled and used as a resource, within a circular system based on the household, community, and municipality, rather than a linear system.
- The export of industrialised world models of sanitation to environments characterised by water and resource scarcity is inappropriate, and amounts to an amoral continuation of wrong solutions.

In the light of these compelling arguments for radical re-thinking, the following principles were proposed as the underpinning basis for a new approach:

- People and their quality of life should be at the centre of any environmental sanitation system.
- Solutions of environmental sanitation problems should take place as close as possible to where they occur.
- Any environmental sanitation system must be designed in such a way as to balance economic with environmental good; thus systems should be ‘circular’ – designed in such a way as to minimise inputs (water, goods and materials), and reduce outputs (wastewater, solid waste and stormwater) in any given setting (e.g. household, apartment block, tourist resort, etc.)
- 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 and waste management.

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<sup>3</sup> This part of the report draws on presentations by Klaus Kresse: **New strategies for Environmental Sanitation in the 21<sup>st</sup> century**, and by Maggie Black on the **Household-centred Environmental Sanitation Approach**.

- Wastes, whether solid or liquid, should be regarded as a resource to be harnessed to productive enterprise, instead of as noxious residues to be flushed away or otherwise removed.
- Research is needed into technological solutions which are more people-friendly, waste-friendly, environment-friendly, job-friendly, and cost-effective; private enterprise should be invited to participate in this quest.

### **3. The Household-centred ES model**

The model of environmental sanitation developed by the Hilterfingen Workshop and termed the 'household-centred' model was intended to respond to many of these principles. The vision of environmental sanitation it was intended to promote was as follows:

**Water and sanitation for all, within a framework that balances the needs of people with those of the environment in order to support healthy life on earth.**

The following are its key characteristics:

- 'Zones', consisting of stakeholders according to different levels of organisation (neighbourhood, town, river basin), are the basis for ES services. Only if a problem cannot be solved at the respective zonal level should it be 'exported'.
- Decisions about services are taken with participation of consumers of services, not just by providers, within each given zone; e.g. sanitation committee, town hall meeting, council planning process, etc.
- Services for environmental sanitation should be designed and managed within an integrated structure; and this structure should be part of a wider system of integrated water resources and waste management.
- Decisions should flow from household level upwards. Thus, a community sanitation plan can encompass decisions/actions to be taken by households, by the community, the municipality, and be guided by policy and regulatory framework settled at central level.
- At each zonal level, systems should be designed to favour minimum import of freshwater, to economise on all service ingredients, and favour maximum recycling of water and waste, thereby minimising the export of waste products which cannot be productively used.
- The structure of the system is circular rather than linear; instead of importing water and other goods into a community, using them once and discharging them, the circular HCES system imports them, manages their demand for maximum efficiency, and reuses and recycles all residues and products to optimise social, economic and environmental benefits.

### **4. Case studies: practical implications of applying the HCES approach**

A variety of case studies were reviewed at the workshop, some of which had been specifically undertaken to examine the existing application of approaches very similar to HCES, or

incorporating HCES features, as part of post-Hilterfingen activity<sup>4</sup>. Other case studies concerned programmatic approaches or specific projects which incorporate many of the policy principles at the heart of HCES – many of which are already widely ‘owned’ in the environmental sanitation community – without having been designed to measure practice specifically against the HCES model.

The case study presentations were as follows:

- **Sustainable Sanitation and Wastewater Management in the Middle East and North Africa** (Hamed Bakir, Regional Advisor, Environmental Health, CEHA – WHO Regional Centre for Environmental Health, Jordan)
- **From Urban Management to Urban Governance: Towards a strategy for the New Millennium** (Jonas Rabinovitch, Senior Urban Development Advisor/Manager, Urban Development, Management Development and Governance Division, UNDP, New York)
- **Household-centred Environmental Sanitation: Gran Guarí, Heredia, Costa Rica** (Ana Lorena Arias, Environmental Engineer, GTZ and SURA S.A, Costa Rica)
- **Household-centred environmental sanitation, a case study: Faisalabad, Pakistan** (Kevin Tayler, GHK Research and Training, UK, and Shahid Mahmoud, CAP, Faisalabad)
- **Slum networking: An alternative way to reach the urban poor** (Himanshu Parikh, Himanshu Parikh Consulting Engineers, Ahmedabad, India)
- **Household-centred environmental sanitation, a case study: National Sanitation Programme, Mozambique** (Kevin Tayler on behalf of Andy Cotton, WEDC, and Paulo Oscar Monteiro, World Bank/UNDP Water and Sanitation Programme, Nairobi, Kenya)
- **Community-managed sanitation in Nigeria** (Comfort Olayiwole, UNICEF Water and Environmental Sanitation Programme, Lagos, Nigeria)
- **A case study on the successful implementation of the pilot ecological sanitation project in Dalu village, Guangxi Province, China** (Mi Hua, Project coordinator, Provincial Public Health Bureau of Guangxi, People’s Republic of China)

In addition to the case studies, a presentation on ecological sanitation as an integrated approach to human waste management and nutrient re-use was made by Stephen Esrey, UNICEF Senior Nutrition Advisor, New York. This presentation was invited in recognition that as an overall approach, ecological sanitation shares many features of the HCES model. Notably, the approach is circular, envisaging as an optimum almost zero ‘waste’ exports. Action research is already being undertaken into the effectiveness and safety of ecological technologies, and their acceptability at household and community level, the results of which have a bearing on the potential of the HCES system. The key perspective added to HCES by the ecological approach is the emphasis on waste outputs as a resource, particularly the use of neutralised excreta as an organic fertiliser.

### **Lessons learned:**

The following synthesis of the debates provoked by the case study presentations does not do justice to the depth of work undertaken by presenters, nor to the wide range of useful experience and best practice their presentations threw up<sup>5</sup>. It is proposed that the development

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<sup>4</sup> Studies were undertaken in Faisalabad, Pakistan, and Mozambique, by GHK Research and Training and WEDC respectively, funded by DFID, UK; and in Heredia, Costa Rica, funded by GTZ.

<sup>5</sup> Copies of many of the case studies can be obtained from EAWAG.

of guidelines for the implementation of the HCES approach is one way in which the workshop output will be carried forward. Many of the more detailed components of the case studies would be incorporated in such a product.

The following represents a sample of key points and lessons learned:

**General:**

- Emphasis on the household as the centre of the approach will require the development of a menu of options, so that local solutions to environmental sanitation problems are genuinely locally devised, utilising and adapting the most suitable technologies for the setting. There can be no universal prescriptions; the promotion of only one technology in a given setting is unlikely to meet the needs of all members of a community which – even in an African village, let alone in a large urban neighbourhood or city – includes households of different income levels, backgrounds, wishes and other consumer variables. (*Cotton/Taylor/Monteiro, WEDC et al, Mozambique*)
- Religious and cultural beliefs and practice regarding current methods of excreta disposal need to be respected. For example, in the Middle East, this has led to sanitation being water-based; in the Jordan Valley, 97% of households – including the poorest – have installed their own pour-flush latrines. Dry sanitation would not be acceptable in this environment, or many other primarily Muslim settings. (*Bakir, CEHA/WHO*)
- Cost-effective and well-tried settled and simplified sewerage systems, and other technological sanitation options for both urban and rural settings, exist which can meet desired criteria of water conservation. More technological research is needed, especially thorough testing of some of the existing water-conserving and waste recycling ‘alternatives’; but there is an existing range of options which could be applied immediately, at least within pilot programmes. (*Schertenlieb, EAWAG*)
- Good governance is critical to the development and implementation of any new approach to environmental sanitation. Good governance is understood to require a policy-making and administrative framework which includes government itself, the private sector, and civil society, involvement of all stakeholders in decision-making, full transparency and accountability. Good governance is ‘pro-people, pro-nature, pro-jobs, and pro-women’. (*Rabinovitch, UNDP*)
- The household-centred approach, within a circular rather than linear construct of service delivery, will require extensive use of recycling and re-use systems at household and community levels, and a move away from large and expensive centralised water and sewage treatment plants. Examples exist of such systems in use at the local level, but the O&M requirements at local level need to be addressed. (*Kresse, GTZ and Arias, SURA/GTZ, Costa Rica*).
- Urban dwellers in poor communities have an absolute need and desire to solve their environmental sanitation problems, which rate very highly in their priorities, and they willingly – often spontaneously – mobilise resources to do so. This resource – slum-dwellers themselves – is under-appreciated, under-utilised, and often ignored by planners; where the reverse is the case, physical infrastructural and environmental improvement can be an entry-point for development of all kinds, and city-wide improvement. (*Parikh, HPCE, Ahmedabad, India; Taylor/Mahmood, GHK/CAP, Faisalabad, Pakistan*)
- Waste is too often negatively considered as something noxious to be disposed off, whereas (in safe form) all ‘natural’ waste (human and plant) has a potentially important economic role in agriculture and food production. Thus, waste management technologies

which allow for the maximisation of the resource potential of waste should be promoted for wider adoption. (*Esrey, UNICEF*)

- The public health rationale for environmental sanitation is very important, in spite of the fact that arguing the case for spread of services on this basis has not brought about the breakthrough in resource allocation, system design and programme implementation needed. Arguments on behalf of human dignity (important to women and householders), and on behalf of environmental protection, have been less used and should be emphasised. But they should not eclipse the health rationale. Every effort should be made on the basis of every rationale to raise sanitation on the political agenda and make it ‘sexy’. (*Evans, WB/UNDP and Curtis, LSHTH*)

### Specific:

- **Nigeria:** The successful establishment of a ‘sani-centre’ or sanitation market requires much more than latrine construction skills and capacities. It also requires social mobilisation, income generation, empowerment, management skills, and hygiene education. In our community-based work, we have developed a system of community information-gathering: if they collect the information it is trustworthy; if we collect it, people simply tell us what they think we want to hear. (*Olayiwole, UNICEF Lagos*)
- **Nigeria:** We want to reach 1.8 million rural and peri-urban dwellers. We need to increase private sector involvement – Shell and Chevron, for example – and that of NGOs. We need more sanitation options and design variations within each option. We don’t yet have appropriate technology for riverine areas; research in this area can hopefully be supported by Shell and Chevron. Meanwhile, we are encouraging the government to become a facilitator, not an implementor. (*Olayiwole, UNICEF Lagos*)
- **China:** Where there is no piped water, water scarcity, no sewerage, a significant fly breeding problem, confined space, and effective hygiene education about the use of the system, eco-san is recommendable. 100% of households in the pilot project were satisfied; however some people did not complete the process of dehydration and used the faeces before they were completely non-dangerous. (*Mi Hua, Quangxi, China*)
- **Mozambique:** In spite of moves in favour of decentralisation, the flow of ideas is still top-down, not bottom-up; however, should decisions flow from the household upwards, it is not clear how a loss in strategic thinking about service provision would be avoided. (*Cotton, Mozambique*)
- **Mozambique:** It will only be possible to ‘solve problems as close as possible to their source’ if the appropriate administrative mechanisms are in place – ward committees, local councils, etc. The ‘zone’ needs its own administrative infrastructure and social cohesion before the model will work. (*Cotton, Mozambique*)
- **Faisalabad, Pakistan:** In respond to their needs – which were not being met by the Water and Sanitation Authority – a large number of households and communities have implemented their own zonal systems for collection and disposal of wastewater and solid wastes. Thus a zonal system similar to HCES has been adopted by default rather than by intent; it seems to work, although with shortcomings (notably, lack of formalisation and registration of connections, lack of standards, lack of revenue collection modalities). (*Taylor, GHK*)
- **Faisalabad, Pakistan:** There are many problems with the construction of sanitation (sewerage) schemes initiated by the community which are inadequately guided and supervised. These include: poor quality of construction; too-shallow gradients and under-sized pipes; inability to extend beyond a narrow small-scale perimeter. (*Taylor, GHK*)



- **Faisalabad, Pakistan:** In urban areas where settlement is crowded, sewage treatment not regarded as a priority, and land expensive, it may be difficult to introduce locally manageable low-tech treatment options such as waste stabilisation ponds. Effective on-site disposal of wastewater also depends on ground conditions; the soils in Faisalabad were too silty. (*Taylor, GHK*)
- **Jordan:** Conventional and centralised sewerage systems in the region have proved costly, unaffordable, and problematic – especially when provided to small towns and sparsely populated communities. A planned system for 41 communities in the Jordan Valley will cost UD\$2061 per connection, significantly higher than elsewhere in the country. Each household will contribute US\$605 in connection fees, yet the average household earns less than US\$182 a month. Take-up is bound to be slow. (*Bakir, CEHA/WHO, Jordan*)
- **Cyprus:** Grey water recycling systems for use at household level have been developed, and O&M are reported to be simple. Cyprus provides a subsidy to households willing to install grey water recycling and re-use, with dual plumbing which allow the re-use of grey water in toilet flushing. Grey water can also be used for gardening and household landscaping. (*Bakir, CEHA/WHO*)
- **Costa Rica:** The residents of Gran Guararí elected community representatives to identify their problems in order of priority. The bad condition of the streets, sewerage and wastewater treatment, lack of recreational facilities, and solid waste management were the top concerns. Building community organisations to support and carry out developments to improve quality of life was rated as the priority response. (*Arias, SURA*)
- **India:** All cities have natural drainage paths, without which villages and towns would have drowned in their own waste long before they grew into cities. If properly exploited, these paths become ideal routes for manmade urban infrastructures: sewerage, storm drainage, water supply, roads. The environmental skeleton of city greens and water bodies also lies on the same paths. Studies show that slums are consistently located along these paths. Once this connection between slums, urban infrastructure and environment is understood, it is easy to see how to intervene in ways beneficial to both slums as well as the rest of the city. (*Parikh, Ahmedabad*)
- **India:** Recent pilot projects have shown that the urban poor can mobilise huge resources. The charitable attitude towards them, whereby they are seen as separate entities from the city and dealt with by ‘pro-poor’ programmes, aid and grants, has to be changed. It should be replaced by a much more businesslike attitude which sees them as a part of the city’s normal fabric, and which increases their self-sufficiency and dignity. (*Parikh, Ahmedabad*)

## 5. Practical implications of putting the HCES approach into effect

For the last part of the workshop, participants divided into three groups to discuss the practical implications of applying the HCES model at three levels: (i) At the community level; (ii) At the municipal and private sector level; (iii) At the central government and ESA-assisted level. The following is a synthesis of their findings.

### i) *Group I: At the community level*

The group addressed the roles of the community, households, community-based organisations (CBOs), NGOs, and small-scale private providers as comprising the potential range of significant community actors. The framework for addressing the issues and the desired

actions was that developed at the Hilterfingen workshop: **institutional, legal and regulatory, economic and financial, social and cultural, technological, planning, and information and communications**. In each case, they produced a summary of issues to be addressed and actions to be taken.

**Institutional:** At the community level, the key institutional issues are that conventional planning mechanisms neglect existing community institutions in planning and implementing services, and that households and communities therefore fail to play an active role in the process. **Action:** It was proposed that a code of ethics for HCES be developed to facilitate institution building at the community level and links with other levels.

**Legal and regulatory:** The absence of legal recognition for key household and community goods and institutions (e.g. tenancy, proprietorship, community organisations) was regarded as critical. Without a recognition of status, and the sense of empowerment to claim it, communities cannot act 'legitimately' on their own behalf. **Action:** The production of tools (and advocacy that they be applied) for a legalisation process at community level for all goods and institutions relevant to HCES.

**Economic and financial:** At present, government subsidies (for e.g. water connections) do not help the poor, but favour the better-off. Even very poor communities will contribute to services if they are motivated, enlightened, and can see that the service in question will be useful, valuable and will function properly. **Action:** Support micro-level financial mechanisms which enable people to obtain loans, and build cooperation with regular lending bodies.

**Social and cultural:** The fact that everyone has existing beliefs and behaviours surrounding waste disposal and water use is inadequately recognised, and there is a lack of effective tools to find these out; the same applies to understanding which existing groups (e.g. women's organisations) can be enlisted to help change behaviours. **Action:** Develop capacity-building for KAP activity, especially among engineers who – with a social background – are ideal community-level workers in this context.

**Technological:** There needs to be a much wider knowledge and understanding of the pros and cons of conventional and non-conventional waste disposal options, as well as the interactions with such issues as cleanliness, safety, and consumer acceptability (amenities should be attractive). **Action:** Prepare a hand-book for community-based environmental sanitation workers.

**Planning:** There need to be appropriate planning and decision-making tools for HCES, which ensure that planning at all levels is holistic – is not abandoned to communities in the name of decentralisation. **Action:** Introduce into the planning process a system whereby the roles of all stakeholders – high, low, minor, major – are established and universally accepted.

**Information and communications:** There is a need to use indigenous (as well as modern) methods of communication, information exchange, networking etc.; case studies of effective programmes need to be disseminated. **Action:** Develop tools to enhance existing methods of communication, and advocate strongly for their use.

**Research and development (knowledge generation):** The lack of appreciation for indigenous knowledge and skills is a feature of many existing programmes; more on-site applied research, in which communities actively participate, is required. **Action:** On-site research should be sponsored and its outcomes applied; HCES practices should be integrated into formal and non-formal educational curricula.

ii) **Group II: At the municipal level**

The group which addressed HCES implications at the municipal level began their work with a role-play, whereby each member of the group acted out a given function: Mayor, Financial Secretary, Chief Engineer, Public Health Chief, Municipal Secretary, etc. From this exercise, certain overall conclusions were reached:

- a) The municipality is the key strategic level of decision-making, acting as intermediary and broker between activity at the community level and at the national level. The Mayor, for example, must see that the rights and obligations of all citizens are met, looking up to the national level on the one hand and out to the community on the other, and providing communications channels between them.
- b) No environmental sanitation problem can be effectively addressed without good governance – not only at municipal level, but at all levels. This critical component of transforming the state of indignity, threat to health, and environmental squalor so many millions of people are obliged to endure should be prominently expressed in any policy statement.

The group divided their report into three parts: (a) **governance**; (b) **municipal functions in ES**; and (c) **interactions on ES with the community level**.

- a) **Governance:** Good governance in relation to HCES will require that the municipal administration undertake the following: the integration of complementary activity by all actors – the private sector, the public sector and voluntary bodies; the resolution of conflicts and mediation between the interests of the different stakeholders; establishment of a common vision and policy framework; the creation of channels for dialogue between the municipality and the national government, and between the municipality and communities. ES must be inserted in the good governance debate, and transparency of the decision-making process assured; the necessary resources for change (human and infrastructural) must be mobilised, and the existing inertia regarding ES in the municipal system must be dispelled.
- b) **Municipal functions:** Certain *principles* were established to govern actions; these were as follows: There can be no universal solution to ES; no city starts with a *tabula rasa* – adaptation will be the name of the game; the different sectors must be assigned to do what they do best; sanitation should be liberated from the aid mentality, with professionals assigned to every level; the municipality should regulate at local level to ensure that public health standards are met; since the political situation changes over time (e.g. new Mayoral elections) commitment to ES programmes must be longstanding.

The group then set out **generic actions**: Establishment of a municipal vision as a political priority; generate information about the current ES situation and disseminate it; remove barriers to small-scale independent provision of ES services; create an environment whereby creative

people, especially at local level, are able to try out new solutions; set clear rules and pricing structures; set up an information exchange system, and make sure communities have access to local plans; encourage and facilitate credit programmes; market the ES vision to the entire city population.

**Specific actions:** Benchmark utilities to see how good they are at reaching the poor; develop systems for communicating what we know down to local level, which may involve, for example, providing support for issuing materials in a variety of local languages; try to find ways of getting politicians to talk about sanitation, and associate themselves with a subject which is not usually spoken about – make sanitation sexy; inject ES components into other kinds of development plans, for example roads, community development, etc.

### (c) Interactions on ES with the community level

Interactions on ES with levels below the municipal level should be guided by the following **principles:** Everybody wants sanitation and has sanitation at present; therefore it is essential to know how people are already solving their sanitation problems; it is equally important to understand the bottlenecks whereby the demand people have for sanitation is not being met. On the **technological** side, the problems are less to do with the availability of options than to do with the process of matching options to a functioning and cost-effective service delivery structure. Among the many technological options, eco-san should take a place, but it not yet a sufficiently proven technology to be unequivocally promoted. On the question of '**closing the circle**' (export of wastes from one 'zone' to another), the principle should be established that the polluter pays for wastes exported to another zone. On information and communications, **advocacy** of the HCES model was needed, and its promotion should fit within a whole effort directed at behavioural change. Where the health rationale for behavioural change does not work, others should be explored (dirty environment, dignity, privacy for women etc.) On **planning:** indicators and targets for application at the household level should be developed so that community environmental condition and health status is known in a 'before' and 'after' context.

### iii) Group III: Central governments and ESAs

As in the case of Group I on implications at the community level, Group III on implications at the central government level addressed key issues and suitable actions within a framework – not the identical framework but a similar one. It covered the following areas: development of a **vision, planning process, legislative framework, policy framework** (or enabling environment), and **capacity building**. For ESAs, a list of principles to govern their role and activities was developed.

**Vision:** The vision should consist of 'sanitation for all, with dignity, within an environment whose safety is guaranteed by the sanitary behaviour of all'; such key features as optimal decentralisation, gender mainstreaming and equity should be respected. **Action:** Adopt the policies, goals and objectives articulated at Hilterfingen.

**Planning:** To carry out useful planning, more needs to be known about what is really going on in ES (risk or situation analysis), and a far greater degree of integration and coordination between sectors is required (a planning 'culture'). Commitment is needed to widespread

dissemination of plans and allowance for feedback from stakeholders, and to full transparency in decision-making. **Action:** Undertake reviews: health and environmental status, gender dimensions, KAP studies (social analysis).

**Legislative framework:** An enabling legal and administrative framework needs to be put in place at the macro level, which facilitates local solutions. **Actions:** A full range of legal tools and instruments needs to be established or revised; these should cover: codes and standards (setting and enforcement); landlord-tenant rights and (land) ownership; environmental regulations; administrative structures and their accountability.

**Policy framework:** The policy framework establishing the ‘enabling environment’ will respect the need for integrated water resources and waste management within a decentralised service delivery structure, and be based on the principles in other areas already outlined (sound legislation, information sharing, sectoral coordination, etc.). **Action:** Decentralisation process put in place, with human and financial resources allocated accordingly, and policy-making tools agreed for consistency of analysis and implementation (e.g. for valuation purposes, and application of incentives/disincentives).

**Capacity building:** To encourage innovative local solutions within a decentralised framework, capacities must be built at all levels, including within schools and higher education curricula; the financial environment will also need to be made supportive, and attention given to advocacy throughout society to gain support for and understanding of the national policy framework. **Actions:** R&D and support to piloting; establishment of resource centres; training for small entrepreneurs, NGOs, CBOs; reorientation of sector professionals; access to credit; communications packages and information kits.

### **ESAs: principles for development cooperation in ES**

1. ESAs should be invited to assist the central government in developing a holistic ES vision and policy framework; they should internalise this vision and work within the policy framework, not undertake separate independent projects.
2. ESAs should treat sanitation as a vital element in related sector operations (e.g. in urban development, rural development, irrigation). ES should be treated as integral to school-building, health centre development, etc.
3. ESAs should support risky and innovative ventures which would otherwise not attract investment to help identify new approaches.
4. ESA funds should be used to leverage funds from other sources (private sector, external, NGOs, community) and build links between stakeholders at all levels.
5. ESAs should deploy funds to learning lessons from activities of all kinds, and disseminate ‘best practice’ findings.
6. ESAs should ensure that they feed back lessons learnt into the global agenda, and join forces to promote such an agenda.

## 6. The Bellagio Statement

The following is the text of the statement agreed at the conclusion of the Bellagio consultation on ‘New strategies for environmental sanitation in the 21<sup>st</sup> century’:

### **Clean, healthy and productive living: A new approach to environmental sanitation\***

In the world today, 1.2 billion people are without access to safe drinking water, 3 billion are without proper sanitation, and 50% of solid wastes remain uncollected. Meeting at Bellagio from 1-4 February 2000, an expert group brought together by the Environmental Sanitation Working Group of the Water Supply and Sanitation Collaborative Council agreed that current waste management policies and practices are abusive to human well-being, economically unaffordable and environmentally unsustainable. They therefore called for a radical overhaul of conventional policies and practices world-wide, and of the assumptions on which they are based, in order to accelerate progress towards the objective of **universal access to safe environmental sanitation, within a framework of water and environmental security and respect for the economic value of wastes.**

**The principles governing the new approach are as follows:**

- 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.**

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\* The WSSCC has defined ES as: “Interventions to reduce peoples’ exposure to disease by providing a clean environment in which to live, with measures to break the cycle of disease. This usually includes hygienic management of human and animal excreta, refuse, wastewater, stormwater, the control of disease vectors, and the provision of washing facilities for personal and domestic hygiene. ES involves both behaviours and facilities which work together to form a hygienic environment.”

- 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, 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

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