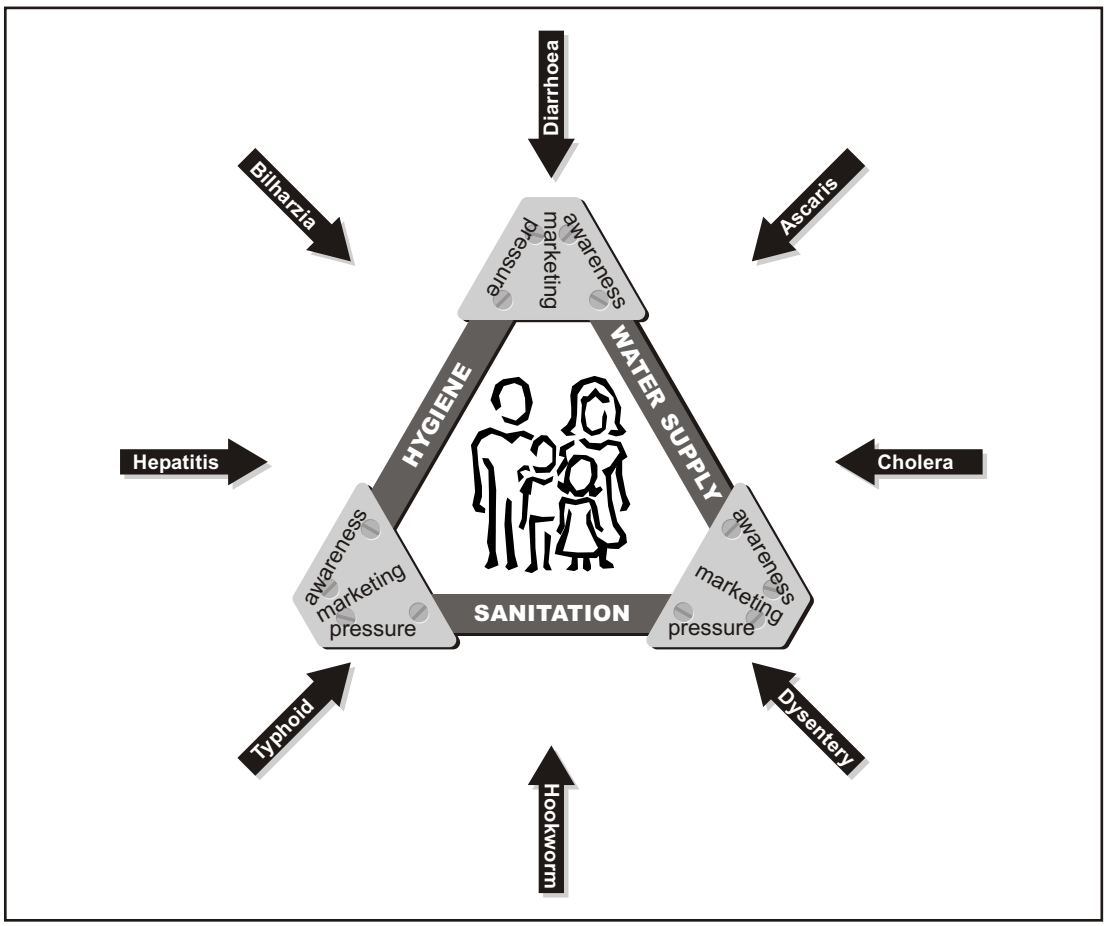
This shit drama – are there ways out?

Innovative approaches for practical solutions to a dirty and deadly issue that has been taboo for too many decades

Report on the 19th AGUASAN Workshop
Gersau, Switzerland
June 23 to 27, 2003

A workshop for project staff, consultants and desk officers



compiled by Adrian Coad, Skat Consulting

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PART I THE MESSAGE

Chapter 1 Summary and introduction

1.1 Summary of this report

This report describes a workshop that was conducted in Switzerland as a response to the high continuing death toll from diseases caused by inadequate sanitation and poor hygiene. It was the nineteenth in a series that has concentrated on topical issues in water supply and sanitation. Participants from 19 countries in four continents assembled to try to find ways of improving the coverage of satisfactory latrines and hygiene education, firstly in connection with four cases studies, and then extending to the situations in which the participants are working, so that proposals are realistic and practical. Presentations were given on the following topics:

- The links between health, sanitation and habits
- The promotion and impacts of understanding on hygiene-related issues – awareness
- Marketing – creating demand and adapting the product to the demand
- Enforcement and incentives to promote changes in behaviour and spending – pressure

Four case studies were considered in detail – two from Asia and one each from Africa and Latin America. Each was at a different stage and scale. Working groups first became familiar with the cases and then discussed how to apply the information that had been presented to improve the health of the communities represented.

The workshop also included short discussions based on the working situations of other participants, an excursion to see old and new approaches in the surrounding area, and other informal inputs.

This report cannot give a complete record of all the ideas that were developed and shared during the workshop, in each working group and in hundreds of conversations. It aims to cover the main points made and the recommendations arising from discussion. It also describes the workshop programme and methodology, which may be of use to some readers who wish to pick up some tips on preparing and running workshops, since this workshop was the 19th in a series of successful annual meetings. For the first time a wealth of information has been added on a CD that accompanies this report. This backup includes the full PowerPoint presentations, pictures of all the posters that were produced before and during the workshop, documents used in the preparation of the workshop and other useful and relevant information. More information about the CD can be found in Annex 3.

1.2 The background and objectives of the workshop

1.2.1 The Challenge

When choosing the theme for this workshop, the preparation group were faced with many issues of current importance in the field of water supply and sanitation, all of which would be suitable themes for the workshop. The topic of the workshop was finally chosen because Armon Hartmann, who has been working in water supply and sanitation for SDC for several decades, was so impressed by the need to do something about the huge numbers of poor people (mostly babies and children) who are

dying because of the shortage of satisfactory sanitation. Most efforts in the water and sanitation field have been directed at water supplies, yet there is compelling evidence that sanitation and improved hygiene practices can have a greater impact on health. Of course the best protection, and the goal of our efforts, is the three dimensional strategy of water supply, sanitation and good hygiene practices, but it is wrong to consider that sanitation and hand washing are junior partners.

- 2.5 billion people still have no access to adequate sanitation and hygiene.
- 6,000 children die every day from diseases associated with a lack of access to safe drinking water, inadequate sanitation and poor hygiene.
- More than half a million additional people need to be provided with access to sanitation every day to achieve internationally agreed targets.

Six thousand children die every day from diseases associated with a lack of access to safe drinking water, inadequate sanitation and poor hygiene. It is impossible to comprehend the number 2.5 billion. It is even difficult to grasp what six thousand means. The death toll becomes more meaningful when we translate it to more immediate terms – one child death every 14 seconds. Surely something can be done about this ongoing, relentless tragedy. Actually much has been done, but it has not been enough, and some of our efforts have been wasted. There must be a way out – or ways out. Half a million people a day need sanitation – what a challenge!

Despite decades of effort in the field of sanitation and hygiene, the situation remains catastrophic. Professionals working in this sector are tired of being repeatedly reminded of the grave consequences of this situation. It seems that everything possible has been done but with limited success. The topic remains unattractive and avoided. It demands changes in people's habits at a very personal level, and this takes time to achieve. The relinquishing of existing habits, the readiness to change and the consolidation of new habits seem to require generations. Can we afford to be resigned to such a slow improvement? Why should we involve ourselves into something that looks so hopeless and unattractive? These were key questions that influenced the choice of the theme for the Aguasan workshop 2003. Reminded by the Johannesburg conference and challenged by the internationally agreed target - to halve the proportion of people without access to safe water and sanitation by 2015 - the workshop steering committee decided to take up this challenging theme. To achieve this target will require a huge acceleration in sanitation and hygiene programmes – and it would still leave more than one billion people without basic protection against illness and death, especially for their children.

1.2.2 What can I do?

This question was posed at a recent meeting of the Water Supply and Sanitation Collaborative Council in Geneva and the following answers were suggested:

- Convince decision-makers and politicians of the urgency of the situation.
- Convince sector specialists of the need (so that they work in sanitation and hygiene promotion, not just water supply).
- Monitor and publicise progress. (In the past there was no concern with failures and unused facilities – records showed facilities that had been installed, not those which were being used. It is important to consider facilities that are actually working.)
- Analyse successes and failures. If an installation is not working, we should find out why and learn from the experience.
- Build alliances, to access funds and link expertise.
- Identify people-centred technologies that are affordable and meet perceived needs.

- Seek to implement household-centred approaches.
- Scale up successful approaches – there are huge numbers still to be served.
- Start in schools – get children talking about sanitation.
- Involve the Media. (A one-minute video of Nelson Mandela talking to a child about sanitation was very powerful.)

Think big – it is a huge problem

Think small – what can I do?

Some brochures were handed to the participants:

- For media professionals – *A guide to investigating one of the biggest scandals of the last 50 years*; WASH (Water Sanitation Hygiene) www.wsscc.org
- *Kyoto – the agenda has changed* A ten minute briefing. WASH www.wsscc.org wsscc@who.int.
- WASH Please tear up this publication (Each page can be used as a poster.)

1.2.3 Looking for ways out

Considering the actual situation and the scale of the challenge, the workshop set itself the goal of finding ways to dramatically accelerate progress by looking at the following two potential sources of inspiration:

- Firstly, to draw lessons from existing cases. Why have they succeeded or failed? Which have been the favouring or hindering factors in the context? Which factors have been the key interventions that contributed to the success? How could these approaches be replicated and scaled up?
- Secondly, to learn from three specific approaches (applied successfully in related sectors) to bring about the desired changes. These three are:
  - **Promotion and awareness creation**: The reasoning behind this approach is mainly that people will change their habits if they understand the necessity for change and expect benefits from change.
  - **Marketing:** A marketing approach considers and seeks to influence the preferences and wishes of people in order to create a demand for a product or service. In addition, this marketing approach should also modify and present the product or service to match users' preferences without compromising on the product's basic purpose.
  - **Pressure and incentives**: In many instances, laws are employed to protect public interest. Their stringent enforcement may bring about the desired effects and lead to changes in habits. Often other forms of pressure or encouragement are more effective than law enforcement – have they been sufficiently considered in connection with sanitation and hygiene?

The final step is to bring all the lessons together and try to understand how, and possibly in which mix, they would be most effective in a given context.

1.2.4 Workshop objectives and expected outputs

The overall aim of the workshop is to contribute to the reduction of disease and death caused by unhygienic sanitary situations.

In practical terms, this means that the workshop should develop effective approaches that will reduce the transmission of excreta-related infections - through improved hygienic practices, through improved access to sanitary facilities and through protection of drinking water.

Participants are expected to derive the following benefits by attending the workshop:

- Increased understanding about the fundamental issues of sanitation (a study of causes and effects).
- Familiarity with innovative ideas regarding project design and technologies
- Exposure to novel approaches, insights and tools to influence human behaviour.
- A fresh motivation to improve the sanitation component in their own working situation and projects.

1.3 The meaning behind the workshop title

"This shit drama – Are there ways out?"

The title was chosen carefully. Reflection on the words that are used reveals some of the concerns and expectations of the organisers.

This Instead of "*The* shit drama" the use of the word "This" emphasises the immediacy, the closeness and our responsibility. It is a situation that faces us today. Children are dying today. It concerns and involves us. It is not some academic concept, far away. It is here and now.

shit This is clearly a controversial choice of word, and whilst it has some value in attracting attention, it was also chosen for other reasons. It refers to a down-to-earth problem, unpleasant and vulgar, but also real and immediate. It is surrounded by cultural taboos, and the use of a word which is unacceptable to many users of English illustrates the need to breach taboos if progress is to be made.

drama A drama demands our attention and involves our emotions. The word "tragedy" would also be appropriate in some ways, considering the suffering involved, but it also suggests hopelessness, and it is vital that we maintain and stimulate hope that the situation can be improved.

Are there ways out? We need to escape from this predicament. The status quo is not an option. We need more than one way out, because of the range of cultures, climates and geographical and economic conditions. It is a question. We don't have all the answers.

1.4 Appreciation

The participants expressed their sincere gratitude to the Swiss Agency for Development and Cooperation for supporting the workshop, and for the sponsors who enabled such a diverse and experienced set of individuals to attend. Warm appreciation was also expressed for the excellent work that was done by the preparation and steering group (listed in Section 7.4) and for the excellent leadership and good humour of the Moderator, Tonino Zellweger. A large part of the success and benefit of the workshop were the fruit of the efforts devoted to thoughtful and thorough planning and preparation by this team. The many contributions of Skat team, both before and during the workshop, were also warmly applauded.

1.5 An observation

As participants listened to lectures on the importance of handwashing, it appeared that the number of workshop participants washing their hands before each meal was increasing during the workshop; certainly handwashing was done more consciously. However, there was no corresponding observable change in the attitude to open defecation.

Chapter 2 Excreta, health and sanitation

A presentation by **Martin Strauss**

This presentation laid the foundation for much of the later discussion because it made the link between sanitation (the management of excreta) and much of the death and disease among low-income communities. The talk was supported by a comprehensive and well illustrated PowerPoint presentation, which is available on the accompanying CD. This Chapter does not cover all the material on the PowerPoint programme, but summarises some key points.

2.1 What types of risk?

The risks from water and waste can be divided into those caused by microbial agents and those caused by chemicals – usually pharmaceuticals or chemicals and their derivatives from industry (of which many are used in consumer products). This workshop was concerned only with diseases caused by microorganisms. There are four classes of implicated organisms in this context – helminths (worms), protozoa, bacteria and viruses (progressing in size from the largest to the smallest).

There are various groups of people who are at risk from inadequate management of human excreta – the family and neighbours, the public at large (if they use water or eat raw fruit and vegetables that have been contaminated by excreta), people whose work puts them at risk (such as those operating wastewater plants or emptying pit latrines and septic tanks or maintaining drains), and farmers who use wastewater or sludge to irrigate their crops.

2.2 The relevant infections

Lists of common diseases in different countries show some variations, but diarrhoeal diseases (meaning a group of gastro-intestinal diseases caused by viruses, bacteria and protozoa) are found on every list. Worm infections are also prominent. Both types are linked to faeces and so are of concern in this context. Other important diseases are spread by other routes (such as sexual contact and shared needles for HIV/AIDS and inhaling bacteria, in the case of TB).

Figure 2.1 shows how infections can be classified according to whether they are communicable (passed by any route from one person to another) and infectious (passed directly from one person to another, without an intermediate stage or agent).

Table 2.1 lists common infections caused by the four classes of pathogens. Rotaviruses are the most important cause of diarrhoea in children. All of the important excreta-related diseases are transmitted by the faecal-oral route, except hookworm and bilharzia (schistosomiasis), which enter through the skin.

2.3 Facts and figures

There is clear evidence linking poverty to short life expectancy. For example, the PowerPoint presentation shows a graph which indicates that, in Bangladesh, the number of babies dying before their first birthday is about twice has high in the urban slums than in the established urban areas. There are clearly many potential reasons for this difference, but sanitation is likely to be one of the most influential factors.

The disease burden from Excreta- and Water-Related Infections (EWRI) is illustrated by the following worldwide figures for one year:

- 3.4 million people die from EWRI each year
- There are 4 billion cases of diarrhoea, causing 2.2 million deaths (mostly infants)
- 200 million people are infected with schistosomiasis
- 6 million people blinded by trachoma.

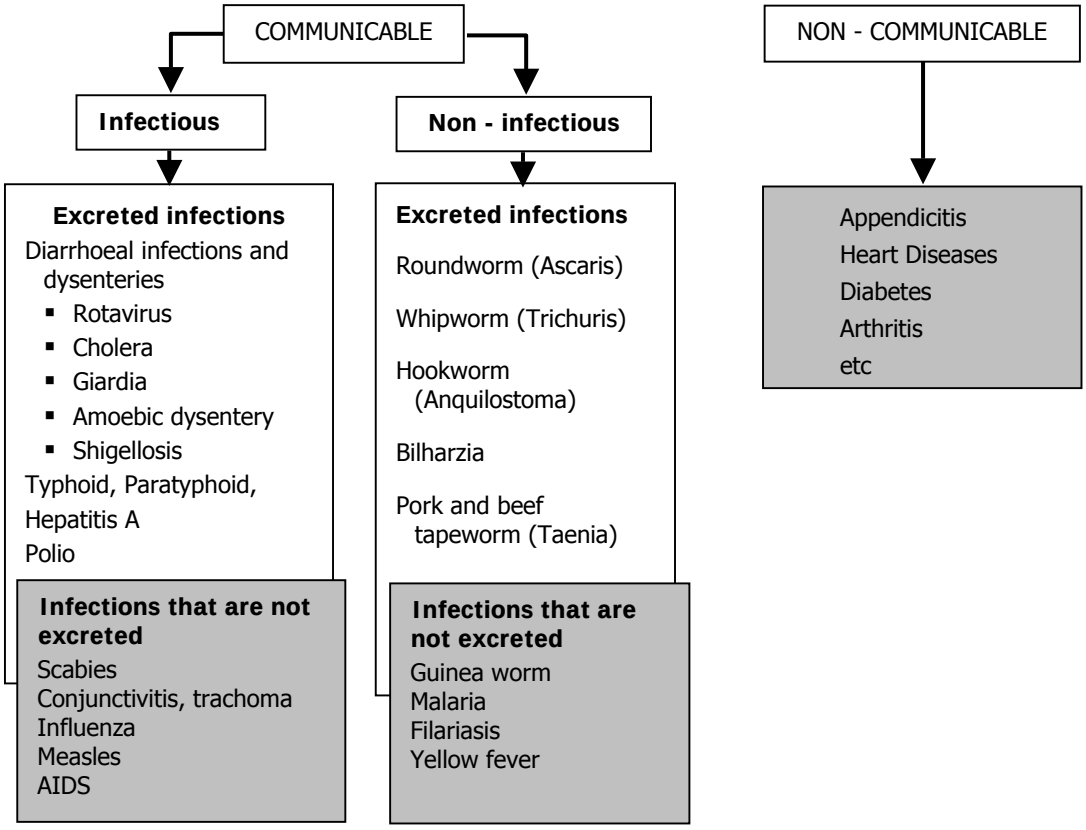


Figure 2.1 General disease classification

Table 2.1 The relevant infections

Infective agent	Examples	Main transmission sites and routes
Viruses	Rotaviruses Hepatitis A	Household, person-to-person
Bacteria	Salmonella V. cholerae	Household, person-to-person, water, crops fertilised by excreta or wastewater
Protozoa	Entamoeba histolytica	Household, person-to-person
Helminth eggs	Ascaris lumbricoides (roundworm) Chlonorchis (liver fluke)	Fields, soil, crops; ponds, fish

2.4 ERI transmission and factors

Figure 2.2 shows possible transmission routes for Excreta-related Infections (ERI). Water is involved in some of the paths, but for some of the diseases it is not the most important factor.

The relative impact of various diseases in different situations can be compared using Disability-Adjusted Life Years (DALY), an index that takes account of reduced capacity (for example for economic activities) caused by illness as well as the difference between the age at death and the general life expectancy. Using this tool, and with good health statistics, it is possible to determine which diseases are the most damaging and should be given the highest priority in a particular country or area..

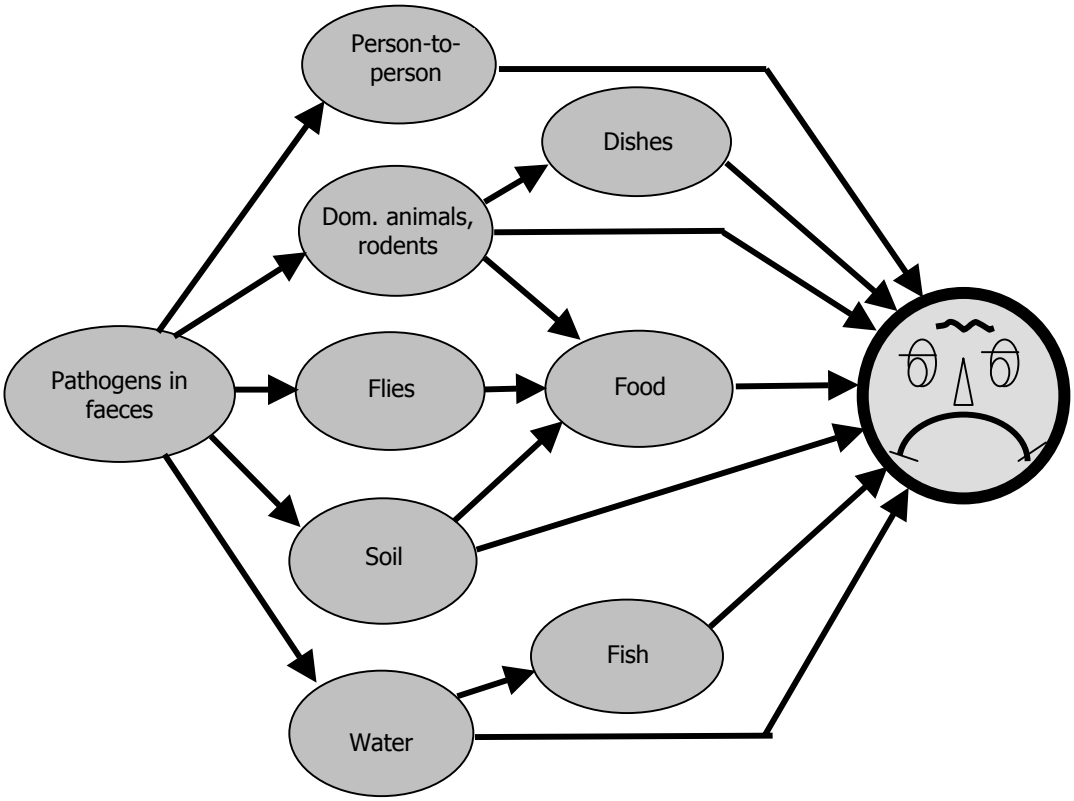


Figure 2.2 Possible transmission routes for excreta-related infections

Many factors – some related to the pathogen and others related to the general health and habits of the person who comes into contact with the pathogens – affect whether that person develops symptoms and becomes ill. An important factor related to the pathogen is the rate of die-off in hostile environments. Factors that affect the rate of die-off include temperature, time, dryness or humidity, and UV light. Conversely, pathogens multiply in friendly environments such as milk and fish, or aquatic hosts in the case of certain helminths.

The die-off rate of pathogens in a latrine pit is an important guide to the hazard related to handling of the material, for example, spreading it on fields to fertilise crops. Table 2.2 and Figure 2.3 show die-off periods for various organisms and various conditions.

2.5 Tools for prevention

In sanitation, die-off periods of pathogens are an important guide to measures that can be used to prevent the spread of disease. There are other important measures for controlling disease transmission, and they also depend on the organism that causes the disease. Table 2.3 categorises the organisms that cause the major excreta-related infections and lists the control measures that are effective for each category.

Whilst there are some measures that are needed for particular categories (relating to meat or fish, or exposure to water in lakes and rivers) the main three control measures are

- improved hygiene behaviour (especially washing hands with soap after using the toilet and before preparing food and eating);
- excreta management (especially ensuring that flies cannot transmit pathogens from faeces, that faeces do not contaminate water supplies and that faeces are not left exposed to allow skin contact). These requirements place demands on the design of the sanitation facilities and the way they are used, and also on the methods that are used for removing and treating toilet wastes and wastewater.
- water supply – not only the quality of the water (particularly the absence of pathogens), but also the quantity available (for personal hygiene, washing) and the convenience and reliability of the supply.

Table 2.2 Average survival time in wet faecal sludge at ambient temperature[1]

Organism	Survival time in days	
	in temperate climate (10–15C)	in tropical climate (20-30C)
Viruses	< 100	< 20
Bacteria		
Salmonellae	< 100	< 30
Vibrio cholerae	< 30	< 5
Faecal coliforms [2]	< 150	< 50
Protozoa		
Amoebic cysts	< 30	< 15
Helminths		
Ascaris eggs	2- 3 years	10-12 months
Tapeworm eggs	12 months	6 months

Notes: 1. When exposed to the drying sun, the survival periods are much shorter.
2. Faecal coliforms are bacteria always found in the human intestines, and used as indicator organisms for excreted pathogens

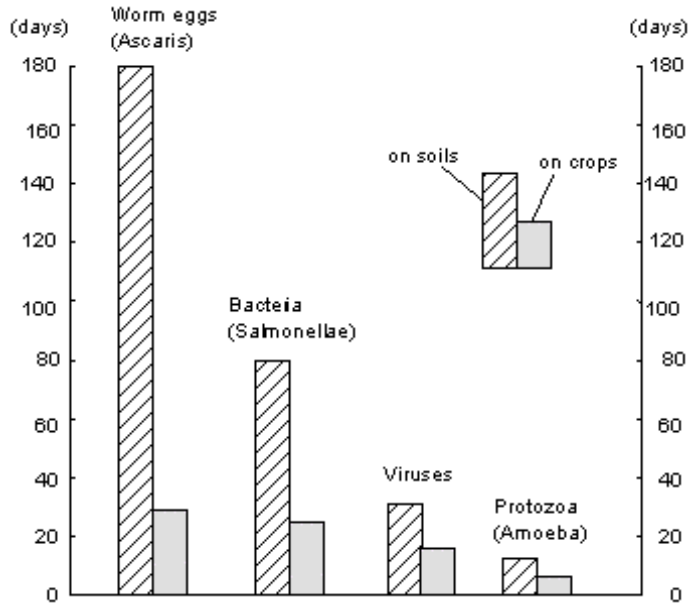


Figure 2.3 Survival on soil and crops (in warm climates)

Table 2.3 Sanitation-related classification of EWRI and major control measures

Category	Examples of infection	Dominant environmental transmission foci	Major control measures
I. Non-bacterial (faecal-oral)	Viral: Rotavirus diarrhoea, Infectious hepatitis Protozoal: Amoeba	Person, Household	Improved water supply (quantity, reliability, quality) Improved hygiene Improved housing Improved excreta disposal
II. Bacterial (faecal-oral)	Cholera Salmonellosis Shigellosis Typhoid	Person Household Water Excreta or wastewater	Improved water supply (quantity, reliability, quality) Hygiene education Improved housing Improved excreta disposal Treatment of FS[1] or wastewater prior to use
III. Soil-transmitted helminths (no intermediate host)	Ascariasis Hookworm infection	Peri-domestic Fields, soil, crops	Improved excreta disposal Treatment of FS[1] or wastewater prior to use
IV. Tapeworm infections (cow or pig as intermediate host)	Taeniasis	Peri-domestic Fields, soil, Fodder crops	Improved excreta disposal Treatment of excreta or wastewater prior to use Cooking of meat and meat inspection
V. Water-based helminths (intermediate aquatic host)	Clonorchiasis (liver fluke) Schistosomiasis	Water Fish	Improved excreta disposal Treatment of excreta or wastewater prior to use Cooking of fish Snail control and reducing water contact
IV. Spread by excreta-related insect vectors	Infections in categories I to III transmitted by flies or cockroaches, Filariasis	Per-domestic; Contaminated water (faecally contaminated sites in which insects breed or roam)	Improved domestic and peri-domestic hygiene, Improved sullage disposal

Note 1: FS is faecal sludge removed from on-site sanitation systems, viz. pit latrines, cess pits, bucket latrines and septic tanks.

Table 2.4 Impact of various measures on transmission of excreta-related infections

Organism	Improvement in water supply and sanitation			
	Improved water quality	Improved quantity of water available, leading to improved hygiene	Use of safe sanitation facilities	Treatment of faecal sludge and wastewater before reuse
Viruses		**X**		
Bacteria	**X**	**X**		**X**
Protozoa	**X**	**X**		
Helminths			**X**	**X**

X indicates that the measure is effective primarily on these organisms (infections)

Table 2.5 shows the relative impact of various measures on morbidity resulting from gastro-intestinal (diarrhoeal) infections, and these results show that sanitation and improved hygiene habits individually have a greater impact on health than measures related to water supply. Improved hygiene habits and sanitation together make a very powerful combination. It is commonly believed that clean water is the key to reduced incidence of gastro-intestinal disease, but these results show clearly that sanitation and personal hygiene are of great importance, and that more effort should be

concentrated on improving these two measures. Table 2.6 shows that the three measures of interest here (sanitation, improved hygiene and water supply) can have a greater impact than immunisation on child health.

Table 2.5 Reduction in diarrhoeal disease morbidity from improvements in specific components of water supply and sanitation

Water and sanitation measure	Percentage reduction in diarrhoea morbidity
Water and sanitation	30
Sanitation (improved excreta disposal)	36
Quantity of water	20
Water quality	15
Water quality and quantity	17
Improved hygiene	33

Esrey et al. 1990 and 1991; rigorous studies only.

(There is not complete consistency between the results [for example Quantity of water 20% but Quantity and quality only 17%] because the results come from different cases and are not so precise.)

Table 2.6 Reduction in diarrhoeal morbidity and mortality in young children through non-clinical interventions

Intervention	Percentage reduction of		Remarks
	morbidity	mortality	
Promotion of breast feeding	8 - 20	24 - 27	infants 0 – 6 months
Improved weaning	n.e.	2 - 12	
Rotavirus immunization	2.4	7.7	most effective from 6 to 23 months
Cholera immunization	0.1	1.7	most effective from 2 to 5 years
Measles immunization	1.8	13	
Improved sanitation & water supply infrastructure	27	30	
Promoting personal & domestic hygiene	14-48	n.e.	

n.e. – not evaluated (Feachem 1986)

Figure 2.4 shows how good sanitation and good hygiene practices can act as a barrier to the transmission of disease. (This concept of the barrier is used later in the discussions of the main case studies.)

2.6 The HACCP approach

HACCP stands for "hazard analysis at critical control points". By observing practices and systems it is possible to identify particular actions or components that pose risks, and then focus effort on reducing the hazards at these critical points. For example, the work of emptying a latrine pit might be identified as a critical point because of the risks to the labourers doing the work. Protection for them could be achieved by improving the equipment used for emptying pits and motivating the labourers to wear protective clothing and wash thoroughly before eating or touching their eyes or mouths.

2.7 Health aspects of the use of human waste

Whilst the use of faecal material for fertilising the soil, and irrigating with wastewater do improve yields and soil texture, and often improve the management of excreta, there are health risks involved, and measures are needed to minimise these risks. Both the farmer and the consumer should be protected. Studies show that use of untreated faecal wastes in this way result particularly in higher incidences of intestinal nematodes, cholera and typhoid. The following measures are used to reduce the risks:

- Treatment of wastewater or faecal sludge – this has been shown to cause a marked reduction in disease;
- Restricting the use of wastewater and sludge to particular types of crops, and avoiding public areas;
- Modifying the application method (to avoid contact) and timing (to allow time for die-off); and
- Improving hygiene practices – using protective clothing and washing hands.

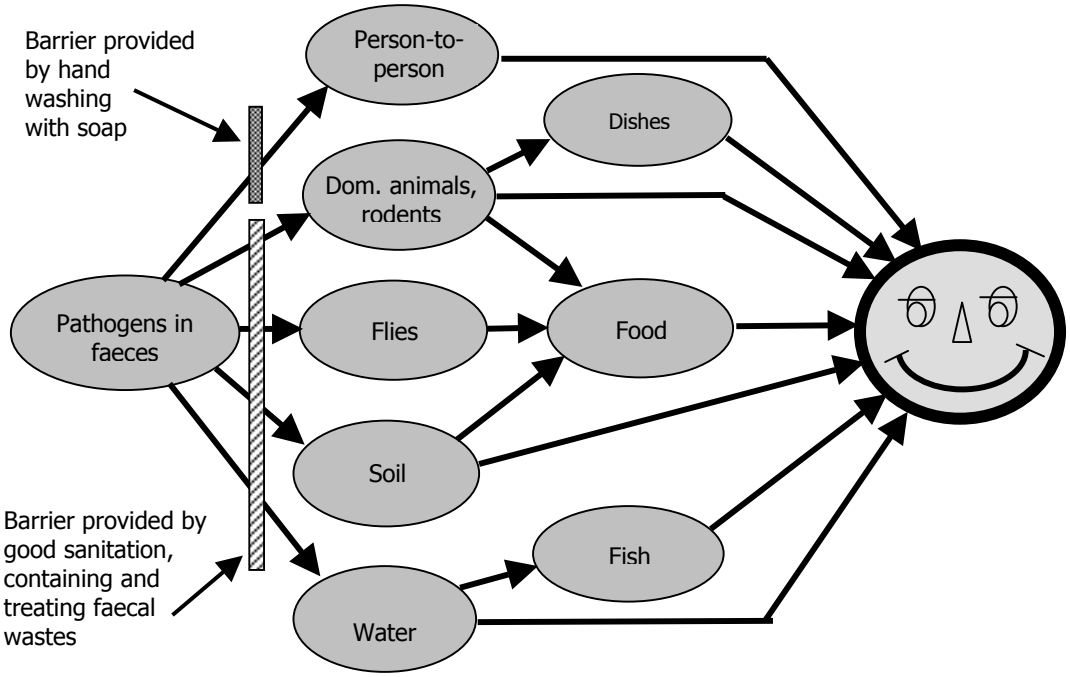


Figure 2.4 Hygiene and sanitation act as barriers to the transmission of disease

2.8 Community baseline study

Most of the risks of transmission of excreta-related diseases in a community are related to the facilities available to the community members and to the practices of the people. It is therefore useful to have a good knowledge of a community so that a strategy for reducing disease transmission (or erecting barriers) can be established. The following guidelines were presented to assist in conducting a baseline survey to provide information on the community and statistics on the current health situation.

The general mapping exercise to start the survey should include the following aspects:

- The physical characteristics of the community, including housing density, types of roads, water table and soils, and agricultural activities;
- Information about the households, including level of education and family income;How the community is organised;

- Socio-cultural factors, including dietary habits and food preparation, and traditional sanitation-related customs and beliefs;The situation regarding incidences of excreta-related infections and non-excreta-related infections;
- The existing arrangements for sanitation and water supply, including the types of installations and practices, the use, operation and maintenance of the facilities, and the methods used for the disposal of excreta.

Health risk mapping requires information, for each segment of the community, on

- Predominant diseases,
- Predominant transmission routes and places, and
- Transmission factors.

It is then necessary to synthesise the data that have been collected, to identify the key aspects of the context, the strengths and weaknesses and the challenges, in relation to preparing a plan to improve the health status of the community. With this information the most critical barriers can be identified and a plan to define effective actions and approaches can be drawn up and implemented.

2.9 Discussion

- It is often believed that objections to latrines in parts of Latin America are related to a religious or cultural-based reluctance to excrete on Mother Earth, but it seems that, in some places where this was supposed to be a problem, the real problem with latrines was the smell. One community solved this problem by adding vegetation and manure to the excreta. How can we find out how to make latrines acceptable?
- A SANDEC student spent some time in rural Peru, living with the community and developing links with them. As a result of this long-term contact, community members were ready to share their ideas and opinions with him, and he was able to assist them in changing behaviours to reduce disease transmission. It is a long process to change habits, and it is valuable to have long-standing contacts. Community leaders may be the best entry point, and the motivation for getting improved facilities may be more linked to status and a wish for privacy than for health improvements.
- Many latrine designs are not suitable for disabled people.
- Breast-feeding becomes a difficult issue if the mother is HIV positive. As shown in Table 2.6, breast-feeding gives considerable protection to babies because of the antibodies in the mother's milk and the avoidance of using polluted water (which could cause a fatal infection of diarrhoea). However, the WHO recommends that HIV positive mothers should not breast feed, because of the risk of transmitting the HIV virus, and Ugandan Government policy prohibits breast-feeding if the mother is HIV positive. Another aspect is the emotional benefit of breastfeeding. There is a strong case that HIV-positive mothers living in poor conditions should breastfeed, in spite of the risks, because babies of poor families who are not breastfed carry a high risk of dying from malnutrition, because of diarrhoea caused by the use of unsafe water and inadequate bottle hygiene, and if insufficient milk powder is used.
- The presentation suggested a public health approach. How does the household-centred approach fit in? Would it be useful to combine the two? For marketing, the household-centred approach is better, since advantages of latrines - such as social status, convenience and safety - are all household-centred.
- In many projects and programmes there is no baseline study on health. Baseline studies are standard procedure in social science, so perhaps such studies could be extended to include indicators on health. Health statistics collated by government agencies are often insufficient – for example, there may be no figures on incidences of diarrhoea, but only on cholera. It is important to have an indicator to show the impact of sanitation and to collect baseline data before the start of an intervention or programme. It is often difficult to isolate the impacts of sanitation, water supply and improved hygiene from the effects of other improvements, such as improved nutrition or more

income. We need indicators to show the impact of sanitation and hygiene improvements, instead of measuring progress by the number of latrines that are built.

- It would be useful to have a rapid assessment tool to help planners to identify high-risk communities and practices.
- What motivates people to change their habits and build and use latrines? It may not be the link with improved health. It is perhaps easier to focus our attention on programmes that build latrines, but we should devote more attention to necessary changes in practices and habits.
- There is an international prize for innovative ideas. More information is available from Armon Hartmann.

2.10 Ecological sanitation

There was some confusion over urine separation. During the excursion (Section 8.2) we learned that urine and faeces should be mixed in the systems that we saw, but previously we had heard that urine should be kept separate to avoid an unpleasant smell. So, on the last day of the workshop, Martin Strauss was asked to make a few comments on Ecological Sanitation and urine separation. During his explanation he showed some frames from a comprehensive PowerPoint presentation on Ecological Sanitation (Ecosan); this presentation can be found on the CD.

He explained that Ecosan is not a technology but a strategic sanitation approach. It is a comprehensive approach that seeks to integrate all aspects of sanitation: human waste, solid waste, greywater, and drainage. It links sanitation with agriculture, and is valid in both North and South. Ecosan seeks to make the minimal use of fresh water and minimise the discharge of waste into the ecosystem.

In general, urine (which is usually sterile) is separated from faeces – under aerobic conditions, decomposing faeces does not smell. Sometimes however, faeces are so dry that the composting process goes very slowly. It has been found that separated faecal material that has been in a composting toilet for 6 months was not free of pathogens and so required further treatment – either further storage or composting, perhaps with biodegradable solid waste (garbage). Urine can be used to provide the moisture that the composting process needs, provided that the smell can be kept within acceptable limits. (The systems that we saw on the excursion had carefully designed ventilation systems.) The addition of structural material (such as wood chips) can help to keep the decomposing material aerobic.

2.11 Useful publications

James **Chin** (Editor); *Control of Communicable Diseases Manual*; American Public Health Association, 17th Edition 2000, ISBN 0-87553-242-X

Feachem, R G et al. (1983); *Sanitation and Disease – Health Aspects of Excreta and Wastewater Management*; World Bank Studies in Water Supply and Sanitation 3.

A short list and a long list of books on sanitation are available from SANDEC. Skat's list of 20 basic books is on the CD.

Chapter 3 Key measures - awareness, marketing and pressure

The presenters were all asked to concentrate on their particular topic and ignore the other two, but all agreed that the best results come when all three approaches – awareness, marketing and pressure – are combined and co-ordinated.

3.1 Awareness - One way out

A presentation by **Ann Killen**

The presentation was subtitled "Myths, babies and bathwater". The myths are inaccurate ideas about raising awareness and encouraging behaviour change, and such ideas must be identified and discarded. The mention of babies and bathwater is drawn from the proverb "Don't throw out the baby with the bathwater" – after washing a baby, it should be lifted out of the dirty water before the water is thrown out. In the same way we should separate the useful concepts and approaches from invalid ideas, not discarding everything in our desire to be rid of myths and misleading reasoning.

This summary is based on the PowerPoint presentation (which is on the CD), with some additional comments from the presentation and subsequent discussion.

Awareness works best when it is focused on what the target group is interested in.

3.1.1 The development of awareness-raising approaches

The steps that have led us to where we are today regarding our approach to raising awareness can be outlined as follows:

- Top-down approach – telling people what kind of arrangements will be applied.
- *Let's scare them* approach – such as showing pictures of pathogens under a microscope, with the intention of frightening people to do what we want them to do.
- The osmosis approach – expecting that information given to one family member will be passed on to others - but often it does not happen.
- The teaching approach – an "expert" passing on information to learners.
- Learning from the agriculture sector – the agricultural extension approach has often been very effective and provided good examples. Key features of this approach have been intensive community contact, working with groups, and starting with leaders and innovators.
- The participative approach – PRA. This is the best approach, but still it is not always successful. Why, for example, does sanitation lag behind water supply?

When trying to solve an awareness problem there can be many target groups, and many messages. It is often assumed that women are always the target group, but this assumption should be challenged.

3.1.2 Culture

Awareness is not just knowing, but it involves perceived knowledge, conscious understanding, and attitudes and beliefs. Attitudes and beliefs form culture, and culture is expressed in behaviour.

There is nothing sacred about culture. It can be changed. Culture is the way a society or group of people choose to organise themselves, their beliefs and their actions. It is a way of living and is generally inherited from parents.

Socialisation is the way we bring up our children and it includes

- *Folkways* – our everyday actions, such as how we greet one another;
- *Mores* – our moral code – ideas of right and wrong, what is acceptable and what is not (including the way we talk about excreta), and
- *Laws* – strict regulations and sanctions.

Culture is dynamic and ever-changing. The culture of many Europeans has changed dramatically in a generation. Changes come to a culture when it is challenged.

In considering how to encourage changes in behaviour that can lead to improved health, the following questions are among those that should be asked:

- Whose behaviour should change?
- Who are the key actors?
- How is the community segmented?
- What are the cultural and social roles in the community?
- Do all people need the same messages?

3.1.3 Myths – false assumptions that should be discarded

- *Cultural taboos prevent learning and change*. Not so. Experience has shown that taboos can be challenged and culture can change.
- *Poverty prevents change.* Wrong again. There are many examples of the poor taking effective action. Maslow's hierarchy of needs has long been uncritically accepted, along with its conclusion that if needs for food and shelter are not met, nothing higher in the hierarchy will receive attention. This concept is not true, does not take account of cultural diversity and is anti-poor.
- *Change takes a long time.* Some approaches have worked quickly. Coca Cola does not accept that changes in buying habits always take a long time to take place.
- *Sanitation is a private or household responsibility*. It is also a question of public health. Smoking and domestic violence used to be regarded as private matters, but now in many cultures they are matters of public concern. Sanitation needs to be discussed in the community.
- *Sanitation is women's responsibility*. Yes, but men also need to be involved and take responsibility for themselves and their families. Constructing sanitation facilities makes sanitation more of a responsibility for men – this needs to be recognised. Further, it is often the men who make the decisions about investment in infrastructure for the family.
- One size fits all. There is no unique solution that suits all situations, whether for latrine design or an awareness message. Local factors and individual choice must be integrated.

3.1.4 PHAST – one successful approach

PHAST - Participatory Hygiene and Sanitation Transformation – is an approach that was developed in co-operation with WHO, the UNDP-World Bank Water and Sanitation Program, and other national and international agencies. The materials are freely available at www.worldbank.org. Users are expected to adapt them to suit their own needs and situation. The publications *Explaining the Approach* and *A Step-by-step Guide*[1] were recommended for those who wish to learn more.

[1] The PHAST initiative: - "A New Approach to Working with Communities"; WHO Geneva, UNDP World Bank Water and Sanitation Program;
PHAST Step-by-step Guide: "Participatory Approach for the Control of Diarrhoeal Diseases", part of the Health and Sanitation Training Series; WHO, Sida, UNDP.

The following principles outline the PHAST approach:

- Communities can and should determine their own priorities for disease prevention.
- People in communities possess enormous knowledge and experience related to health.
- Communities are capable of arriving at a consensus about their own hygiene behaviours and sanitation systems.
- When people understand why improved sanitation is to their advantage, they will act.
- All people are capable of understanding the faecal-oral disease transmission route.
- There are manageable barriers to the transmission route, which communities can identify and plan for.The participatory group process is best for problem solving. People should not be involved as individuals or households, but in groups.
- Groups collectively have enough information and experience between them.
- Sustainable learning is best in a group, which helps to produce socially acceptable changes in norms and behaviour. (Sustainability does not mean that something stays forever in the same form – it should be capable of change and adaptation. Norms are folkways and mores [Section 3.1.2]).
- Concept-based learning is better.
- There is synergy in groups and communities – the whole is greater than the sum of its parts; when individuals work together they can achieve more.

The seven steps of PHAST can be listed as using the tools that have been developed for

- Problem identification
- Problem analysis
- Planning for solutions
- Selecting options
- Planning for new facilities and behaviour change
- Planning for monitoring and evaluation, and
- Participatory evaluation.

3.1.5 What to keep and what to discard

The baby – what we want to keep	The bathwater – what should be discarded
Clear concepts In a local context Given by local people Using a mix of media Involving all the community Expecting behaviour change Empowering the community	Top-down messages Passive learning Assumptions about: ▪ Culture ▪ Gender ▪ Households ▪ Poverty ▪ Helplessness One size fits all Awareness alone is enough

3.1.6 Discussion

The following comments were made and questions asked by participants after the presentation:

- There is a danger that we may have too rosy a picture of communities; they have their own internal disagreements and conflicts. (Comment from Ann Killen: Conflict is ever present and inevitable.

Conflict is necessary for change, and so can be seen as a good thing. In such situations power and influence may move so that change is possible.)

- According to the PHAST approach, is it no longer considered desirable to seek to create demand? Is demand creation too much a "top-down" approach? (Answer: People can be helped to see their own needs - which can lead to a demand - as the outsider seeks for information and asks questions. Then they are more ready to receive advice.)
- Is social marketing different from raising awareness? (Answer: The two philosophies are different. Social marketing is more "top-down". The two approaches can be combined.)
- Raising awareness needs a friendly environment.
- In planning to raise awareness, we need to know the knowledge, attitudes and practices of the community, who is more open, and the levels of education.
- It would be useful if the workshop could produce a code of practice for raising awareness regarding sanitation; we should not restrict ourselves to the hardware.

Two further comments from Ann Killen:

- It is helpful to train community members to present the PHAST approach in their own communities.
- Donors are becoming increasingly aware of the need to fund "software" (awareness) in sanitation projects.

3.2 Marketing – The case of Robidog

A presentation by **Michael B. Mueller**

Marketing consists of different measures to promote products and services in order to maximise profit.The Robidog system is a method of keeping pedestrian areas free of dog excrement. The experience gained in marketing this system is used as an example of some of the key principles of marketing. The presentation included two short television commercials on the topic of dog excrement; the first, made by a leading advertising firm, was particularly amusing. The second, using a drier sense of humour, is on the CD. The PowerPoint presentation is also on the CD.

3.2.1 The problem

At the start, it is important to understand exactly what the problem is, and why it is a problem.

Dog excrement on footways and in public places is seen as a serious problem in many urban areas, for three major reasons. Firstly it degrades the image and beauty of otherwise attractive urban areas. Secondly, and related to the first reason, it can cause an economic impact by reducing the visits of tourists, because they perceive the area to be dirty or degraded. Thirdly, there are public health impacts, children especially being at risk from worm infections.

In Paris, one of the cities most plagued by this problem, the human population is 2.1 million, and there are 250,000 dogs, producing an estimated 25 tons of excrement every day. The area of Paris is only 10 km by 12 km. The New York Times reported that New York hospitals see, each year, an average of 650 cases of people who have hurt themselves because they slipped on dog excrement.

3.2.2 Solutions

The many solutions that have been tried can be divided into prevention (stopping the occurrence of dog excrement on the ground) and remedy (picking up the waste).

Prevention Laws, penalties and enforcement are used with varying degrees of success. In Berlin and Tel Aviv there are dog police who are responsible for catching and fining owners of dogs which soil the streets. In Berlin, the penalty is Euro 170. In Tel Aviv the police use night-vision equipment. Some cities have designated certain areas (for example children's parks) as zones where no dog may go. Awareness campaigns have been tried. Dog owners are encouraged to each take a plastic bag with them for collecting excrement left by their dogs, whenever they take their dogs out. Paris has conducted many campaigns to persuade owners to prevent their dogs from fouling footpaths, but with little success. The Robidog system, described in the next section, has been very successful in certain locations.

Remedy In 1982, Paris instituted a new means of picking up dog excrement from the ground – a fleet of 70 "Caninettes" – motorbikes equipped with vacuum equipment that can pick up excrement. A similar system, based on pedal cycles, was introduced in Prague. In other cities, the street sweepers are supposed to remove excrement from the paths and parks.

3.2.3 The Robidog system

The basic idea is simple – a dispenser that provides plastic bags at no cost, instructions on a hygienic way of picking up the excrement using a bag, and a container into which the closed bag can be put. The local authority is responsible for emptying the containers and disposing of the contents in a hygienic way.

The system was developed by Joseph Rosenast, while he was unemployed. It was patented in Switzerland in 1981 and in Europe in 1983, and has become a leading solution to the problem of dog fouling. The system has developed as new products have been added to the range. The products are sold largely to local authorities, though some companies and individuals (such as hotel owners) are among the customers. The customers are responsible for maintenance and for public awareness.

3.2.4 Four Ps of marketing

The four Ps of marketing are product, price, promotion and place

Product The product is simple – a dispenser of plastic bags, a box to put used bags in, and rolls of plastic bags to replace bags that are used. The dispenser has been improved to make it more convenient to use, and a model that consists of only the dispenser is also available. The equipment is neat and unobtrusive, though immediately recognisable.

Price Effective marketing requires that the price of any product is affordable and perceived as reasonable value. The costs of a Robidog installation are about CHF 600 (US$400), but maintenance costs depend on use. In Switzerland these costs are paid with revenue from a dog tax. It is estimated that the annual cost per dog owner is CHF 25 (US$17).

Promotion The main customers, and therefore the main targets for promotion efforts, are local authorities. They are reached by direct mailing campaigns and at annual community fairs. Video presentations - made at Swiss cities that have adopted the system - are also used. Promotional material is developed for local authorities and others to use. There is also some promotion to dog

owners at clubs and fairs. Since the system is widely used in Switzerland (by 1,600 communities in all cantons) there is public pressure on local authorities which have done nothing about this problem to "catch up" with the others.

Place Each local community decides where its dispensers should be located. The system is in widespread use in Switzerland, Germany and Portugal, and also in some other European countries. However, it has not been universally accepted; some countries show little interest, for reasons that will be discussed later.

3.2.5 Success factors

- Robidog focuses on the source of problem: the dog and its owner. It is not a "downstream" or "end-of-pipe" solution. It is not just cleaning away but sensitises dog owners directly.
- It is seen as the cheapest and most hygienic system. The excrement does not remain on the ground for more than one or two minutes.
- It is well established in the whole country, well-known and proven.
- There is competition amongst local communities, and pressure from people on authorities to take action on this problem.
- There is social control in local communities. Dog owners feel that their neighbours are watching them when they take their dogs out, and they fear that their neighbours may see and expose them if they let their dogs foul public space. The Swiss have the reputation of appreciating cleanliness and order. Therefore dog owners are willing to take a plastic bag, bend down and clean up after their dogs.

3.2.6 Challenges

There are challenges in expanding the market to other countries.

- Products made in Switzerland are expensive in many other countries.
- Cultures that place less emphasis on cleanliness in public areas show less interest in the problem of dog excrement, and where there is less social pressure, dog owners may be unwilling to clean up their dogs' messes.
- Local authorities may have insufficient revenues for all they would like to do, and dog excrement may be low on their list of priorities.
- Salaries for street sweepers are lower in most other countries, so it may be more cost-efficient to rely on street sweepers to keep the public footways clean.

3.2.7 Key messages

Circumstances considered as problems can be solved by entrepreneurial innovation.

Success depends heavily on cultural factors and local circumstances.

3.2.8 Discussion

- In the Robidog system, plastic bags containing dog excrement can be deposited in any street container. The regular collection service and the method used for disposal (incineration) ensure that there is no nuisance or health risk.
- The tax paid by dog owners (CHF 50 per year) easily covers the cost of operating the Robidog system.
- Farmers are particularly concerned about dog excrement, because if there is any dog excrement in a load of hay, the cows will not eat that hay.

- Humour is very effective in communicating a message, though it must be remembered that humour is cultural, and what is funny to one social group may be shocking or unpleasant to another – especially in the field of sanitation.
- The inventor of the Robidog system believed that legal pressure is not effective in this area, and that it is important for people to make their own internal choice.
- When we are faced by a problem, it is useful to ask if it can be solved in an entrepreneurial way – to solve the problem at the same time as making a profit.
- There are opportunities for the private sector in sanitation (managing human wastes). For example, small enterprises can get involved in collecting faecal sludge (emptying pit latrines and septic tanks). Unfortunately local government authorities often do not know how to work together with micro- and small enterprises so that standards are maintained and there is effective competition.
- Public toilets and washing facilities have proved to be commercially interesting in congested cities in India, where even members of poor communities are willing to pay to use a well-maintained sanitary facility.
- The success of the Robidog system is due to the existing social pressure, the demand for clean streets, the willingness of dog owners to pick up the waste, the willingness of municipalities to pay for the system, and the high costs of street cleaning.

3.3 Pressure – a successful means

A presentation by **Markus Antener**

There are situations in which enterprise or the interests of the individual will not bring results. In such cases pressure may be a helpful tool. The script of the talk and the PowerPoint presentation can be found on the CD.

3.3.1 What is pressure?

Pressure can be positive or negative, to the donkey a carrot or a stick. Pressure can take many forms: arbitrary exercise of power, enforcement of laws and standards, fines and penalties, requirements for permits, contract conditions, financial instruments, subsidies, reductions in fees, incentives, and social pressure.

A form of pressure that was new to many participants is the charging of the actual costs incurred in identifying the source of pollution or in remedying the pollution, or both. Such charges do not have the legal status of fines, so it is easier to pay them, and there is no criminal record attached. They also encourage co-operation with the pollution control agency so that the charge is minimised.

The presentation was illustrated with many examples from the author's experience of wastewater management in Zürich.

3.3.2 When do we need pressure?

1. *If the benefit from the invested money is at a place other than where the money comes from, and the investment cannot be used for public relations.* The example was of water pollution effects that were causing trouble at a distance of hundreds of kilometres from the city.
2. *If 100% of the involved persons must act in the same way.* An example is dumping of solid waste or littering – if even a few people deposit waste illegally, many others may follow.

3. *If the damage is not immediately visible or cannot be seen or felt.* An example would be pollution of groundwater at some distance from a well – the pollution may take years to reach the well, but before it does a huge volume of groundwater may have been polluted.
4. *If the damage can be enormously big and is in no relation to the investment.* An example could be the pollution of an aquifer by a leaking fuel storage tank – the cost of repairing or maintaining the tank could be quite small.

3.3.3 Requirements for using legal pressure

1. *A legal basis* - There must be clear and precise laws that define liability and sanctions.
2. *Control* - There must be the means for monitoring the situation and taking action.
3. *If the control shows defect or deficiency, the third pillar – an executive power that is willing to execute the legal measure – becomes necessary.* An example could be enforcing standards of construction, such as the proportion of cement used in a structure, the slope and jointing of a sewer pipe or the design and finish of a septic tank. If inspectors never visit construction sites or never require builders to replace unsatisfactory work, poor standards will abound. But once an inspector shows that he/she is willing to require that defective work is dug up and replaced, the message soon spreads and construction standards rise. The same applies to enforcing contract conditions. Sometimes the will to inspect is there, but there is no support from bosses, the police, judges or political leaders, and in such cases the inspector may be powerless.
4. *The law has to be understandable by the people and the benefit has to be visible.* If the general public do not understand a law or can see no reason for it, it is likely that the law will be largely ignored, and so have no significant effect.
5. *It must be possible to fulfil the law.* An example was taken from Zürich in the nineteenth century. Before it was reasonable to propagate a law forbidding urinating in public places, it was necessary to ensure that there were toilets in the city that people could use. Similarly, there is no value in a law that says that all households must connect their drains to a sewer if there is no sewer nearby or if the cost of connection is unaffordable.

3.3.4 Points raised in discussion

- In some situations it is necessary to create public pressure that will force the government to act.
- In many countries there are many laws on paper, but the institutions are weak so the laws are not enforced and therefore achieve nothing.
- It is difficult to target individuals. Random measures can be effective.
- Corruption must be considered when methods of enforcement are being considered.
- Inspectors who are responsible for checking and monitoring may be threatened or bribed. To some extent this problem can be reduced by paying adequate salaries, developing their motivation and rotating staff or allocating personnel on a random basis.
- To enforce standards, there must be inspectors on the spot. It is not possible to monitor the performance of contractors from an office thousands of kilometres away.
- To be accepted, a regulatory body needs a high political profile, and it should meet a visible need. Staff training is important.
- Often inspectors can provide positive assistance such as making recommendations for improving process efficiency or suggesting where financial assistance may be found.
- Sometimes expatriate inspectors or managers can enforce standards where local inspectors do not have the support. However, in such cases the expatriates may soon be forced to leave the country.
- Contractual arrangements should be clearly defined. Contracts should be appropriate to the size of the job and the risks involved.

- There is often a considerable time period involved in instituting new legal measures. This period is needed for ensuring that satisfactory alternatives exist (such as a replacement for phosphorus in washing powder) and for giving time for modifications to processes and equipment.
- In a project which has external support, who should be responsible for quality – the external agency or the local government agency? Local inspection capacity should be strengthened.
- Community awareness can provide effective pressure. Awareness, marketing and pressure are best when applied together.

3.4 Application – outputs of group discussions

Following these presentations, the participants were divided into four working groups, not linked to the particular case studies, and asked to list measures in the three categories – awareness, marketing and pressure – and consider what the prerequisites for them might be. The results for the four groups have been combined and are summarised below. Some comments have been combined to reduce repetition. Photographs of the original posters are available on the CD.

3.4.1 Introductions

Some of the groups considered that it was necessary to present a general section first. Figure 3.1 illustrates relationships between actors.

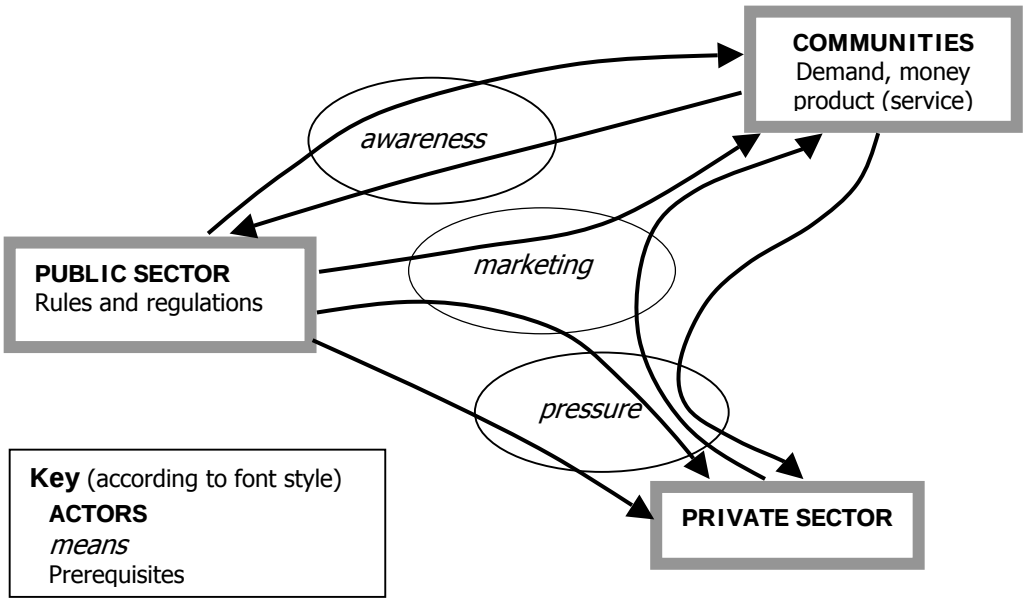


Figure 3.1 Actors, means and prequisities

Other general comments on measures included:

Measures	Prerequisites
▪ Develop a clear strategic concept, including - clear, precise objective - realistic time frame - different stakeholders - mechanisms to continuously adapt approach (monitoring and evaluation)	Barriers identified Understanding of context Marketing skills Ownership of all stakeholders resulting from a participatory approach Implementers at all levels are convinced that cultural beliefs and taboos can be changed. Support of implementers at all levels
▪ Exposure of implementers to success cases	

3.4.2 Awareness measures

Some of the measures were linked on the posters to prerequisites, whereas other posters listed them independently. First, the measures and prerequisites that were not linked will be presented, and then the other measures will be listed with their corresponding prerequisites.

Measures

- Orientation and training of project staff.
- Set up soap opera (television or radio serial story) (top-down).
- Use a mix of media for communication.
- Do not use one message for all but tailor messages for particular groups.
- Make use of an influential person.
- Promote/build awareness
  - specific messages
  - specific issues
  - specific target groups.
- Community walk, community mapping.
- Demonstrate good practice.
- Public meetings and informal follow-up.

Prerequisites

- Support from politicians, leaders and authorities.
- Set aside budget for awareness-raising.
- Baseline survey conducted.
- Identification of motivating factors.
- Identification of health risks.
- Training, training, training.
- Local facilitators are available, and trained; Terms of Reference and remuneration available.
- Knowledge about culture and perceptions.
- Participatory approach (PHAST).

Tasks

Some groups also included tasks that cannot be described as measures but are related to the measures they proposed. They include the following:

- Identify key persons, associations and innovators.
- Identify the target group (1 or more). Involve the target group in planning and decision-making.
- Networking with potential partners.
- Pilot or test messages

Measures, and the corresponding . . .	Prerequisites
▪ Public campaigns to promote technology and good hygiene practice (top-down).	Mass media exist and are ready to contribute. Communities have access to mass media.
▪ Health education in schools (top-down)	Facilities in schools. Teachers (parents) aware and trained
▪ Change curricula of stakeholders (top-down)	Curricula exist and are formulated at central level.
▪ Set up PHAST and other participative methodology (bottom-up)	Efficient environmental health agents in the field. Good training of trainers

▪ Set up sanitation clubs in schools (bottom-up)	Long-term involvement of trainers with communities
▪ Set up drama groups (bottom-up)	Drama groups exist
▪ Exchange of experience between communities (horizontal strategy)	More advanced communities identified
▪ Learning from successful approaches of other sectors Horizontal exchanges	System providing effective flow of information Open mind Willingness of implementers
▪ Promotion of multiple alternative solutions	Availability and successful demonstration of alternatives
▪ Presenting a problem in a humoristic way (media, drama) without first giving a solution	Time, money and presentation skills
▪ Effective use of tools like PHAST	Clear understanding and capacity to use tools
▪ Use of local leaders	Support from various levels of authority Good briefing

3.4.3 Marketing measures and prerequisites

One group defined marketing as

promoting solutions and creating demand

Measures

- Use humour to project message.
- Use local media.
- Use communal events.
- Create competition.
- Use marketing expertise of Coca Cola.
- Use social marketing.
- Effective advertisements.
- Make use of political structure.
- Attract entrepreneurs.
- Focus on the source of the problem.
- Make use of social pressure.
- Concentrate on the most effective selling-point or feature of the product.
- Develop the right mix of media.
- Form alliances with other attractions.
- Demonstrate the effectiveness of the product.
- Create competition and demonstrate the opportunity for profit.

Prerequisites

- Ensure that cost is affordable to users.
- Ensure social benefit.
- Ensure win-win paradigm.
- Availability of marketing organisations.
- Sufficient budget
- Promoters believe in the product.
- Culture sensitivity

- A range of products is available, and there is a demand for the products.
- Knowledge of target group and access to marketing skills.
- Target group is well-defined and reached.

Tasks

- Identify products. Consider
  - Product
  - Price
  - Promotion,
  - Place, and
  - Partnership (⇨ social marketing)
- Differentiate between various target groups.
- Cost effective and attractive products are available.
- Study the market and market opportunities.
- Develop marketing materials.
- Identify supply and delivery agents.
- Public opinion accepts the legitimacy of the profit motive in this sector.

Measures, and the corresponding . . .	Prerequisites
▪ Promote local (small-scale) private entrepreneurship.	Local technologies available. Local well-qualified contractors available. Other related and attractive business opportunities exist. Win-win arrangements exist.
▪ Arrange subsidies for contractors who are willing to build up sanitation facilities according to specifications.	Criteria for allocating subsidies are available. Communities have money and are ready to pay, or money is available from other sources
▪ Set up a community sanitation fund and foster competition.	Communities must be organised and well aware.
▪ Promote volunteer work and provide food, seeds or other in-kind payment for work done.	Mechanisms for such volunteer work already exist within the community and are identified. Valuation of volunteer work and public services.

3.4.4 Pressure

One group defined pressure as | creating acceptance |

Measures

- Subsidies
- Laws and decrees
- Penalties and fines
- Reduction of fees
- Charges based on "polluter pays" principle
- Ensure quality control of the product
- Reinforce field inspection
- Set up legal mechanisms to ensure bottom-to-top pressure.
- Make sanitation a public issue.
- Social pressure through the community.
- Control at the source.

- Make use of political structure.

Prerequisites

- Assessment of existing legislation and enforcement situation.
- Successful pilot projects.
- Clear objectives and strategy have been formulated.
- Qualified staff in the public services.
- Presence of sanitary and hygiene educators and motivators in the local area.
- Sensitivity to cultural aspects.
- Alternatives exist.
- Budget allocation – reliable finance available.

Tasks

Identify who is responsible. Define authority at all levels.

Guidelines

Use pressure where

- damage can be enormous
- damage is not visible
- benefit is not visible
- a fast response is needed.

Measures, and the corresponding . . .	Prerequisites
▪ Enforcement of laws, regulations and standards	Political will Legislation and technical standards on sanitation exist. Laws regulations and standards are known to all. Regulatory body exists. Commitment to policing.
▪ Pilot phase for solutions before applying pressure.	If pressure is to be applied, there must first be feasible solutions.
▪ Foster private sector involvement and competition.	Facilitate contract formulation between communities and private contractors or NGOs. Clear guidelines for contracting and inspections
▪ Clear contractual arrangements	Effective contract management and quality control.
▪ Set clear responsibilities at all levels.	The will to execute
▪ Creation of a functional control system.	Control mechanism
▪ Make law applicable by all (transparency).	Laws and benefits must be understandable and people should be aware of them.
▪ Set deadlines (time-limited incentives).	Use cultural context for enforcement

Chapter 4 Considering the case studies

4.1 Community awareness project, Viet Tri, Vietnam

Presented by **Ann Killen**

This case study was introduced with a PowerPoint presentation (on the CD) entitled "*The community that gives a shit*" (meaning the community that is concerned) and it tells about a water supply project that produced unexpected outcomes for sanitation. The project had already been closed, but in the workshop it served as a useful source of experience-based information and was used as a focus for discussion, sometimes with the approach: "If the project were still being implemented, what would you do?".

4.1.1 Background information

Vietnam, with a population of 84 million people, is undergoing rapid economic development. There is extensive industrial growth, though the agricultural sector is also very important. Many of the cities develop mainly along the main roads (ribbon development) so that they contain a mix of urban, peri-urban and rural communities.

Vietnam has a communist government and the vigorous private sector appears to consist mostly of small enterprises. Implementation and most decision-making is the responsibility of elected People's Committees which exist at all administrative levels – national, provincial, city, commune (ward), "*To*" (consisting of about 50 households) and "*Khu*"(10 households).

There are very few indigenous NGOs in Vietnam, but there are strong "mass organisations" – the Vietnam Women's Union (which is particularly powerful), the Vietnam Youth Union and the Vietnam Veteran's Union. These organisations are both top-down and bottom-up and operate at national, provincial, city and "*To*"levels. They are used to facilitate participation and disseminate information.

Viet Tri City lies 80 km to the north of Hanoi (the capital) and has 100,000 inhabitants (20,000 households) living in 12 communes. The water supply project referred to in this study brought piped water to eight communes and was funded by the German Bank KfW and the Vietnamese authorities. Eight thousand households were connected to the supply.

The objectives of the awareness project that was linked to the project were to

- Promote connection to the new water supply,
- Establish a Public Relations capacity, and
- Co-operate with other donor projects.The approach of the awareness project was based on three aspects:
- Public Relations training,
- Social marketing, and
- A PHAST (Participatory Hygiene and Sanitation Transformation) awareness programme - which has been introduced in Section 3.1.

The awareness activities were mainly based on community meetings and training, but also included

- Community planning,
- Development of picture tools,
- Community competitions,
- Monitoring of community plans, and

- Promotion of a revolving loan fund. (The seed money for this fund came from the People's Committees.) Local people at "*To"* level were paid to do the hygiene promotion work at "*Khu"* level. Only a few fully paid staff members were employed for this work.

The achievements of the project in 18 months showed that sanitation was, or became, a community priority. Within this period:

- 16,000 people were connected to the public water supply,
- 2,000 latrines were constructed,
- 1,500 latrines were repaired,
- 2000 bathrooms were either constructed or repaired, and
- more than 2000 wells were covered to prevent pollution entering them from the surface.When the pilot projects got started, surrounding communities heard about them and came to the project staff seeking assistance for their villages too.

Since the project was connected to water supply, it was closed when the water supply works had been completed, in spite of the interest in, and success of, the awareness activities related to sanitation. However the momentum that was generated by the project could continue because

- 80 motivators and 300 community members were trained in using the PHAST methodology
- Other communes and "*To*s" were interested in participating in similar developments, and
- The Women's Union was willing to continue to operate the rolling loan fund, at least to a limited extent.

The People's Committee is concerned to see health benefits resulting from the improvements that have been implemented. Unfortunately there appears to be no external support to continue this successful work; furthermore the Water Supply Company is not responsible for, or interested in, sanitation (though it appreciated the extra customers that resulted from the awareness project) and the provincial Department of Construction not currently looking at household sanitation (being more interested in sewered systems).

4.1.2 The outputs of the working group

Objective

The objective of the project was defined as

To improve health by promoting water supply facilities and responding to the demand of the community for improved sanitation facilities.

The context

The key points relating to the context were seen to be

- The people were using various sources of water, some of which were polluted or not reliable. A new water supply system was replacing an old one.
- Water supply, sanitation and solid waste management are not linked administratively. Sanitation was not initially part of this project
- The level of education and literacy is high.
- There is no local NGO, but the mass organisations support the social structure.
- Households prefer on-site systems; the development of a central drainage system appears to be delayed.

Strengths

- There is a strong community demand for sanitation.
- Involvement of the main stakeholders (Women's Union, People's Committee)

- Endogenous rolling fund for sanitation (i.e. not coming from an external source).
- Social marketing (at city-wide level) and PHAST at local level.
- Knowledge bank at community level.

Challenges

- No information about water-related infections
- Community involvement, not community management. How can the community play a bigger role?
- Continuing the hygiene and sanitation promotion.
- Linking water supply, sanitation and hygiene for the benefit of the community.
- Monitoring the construction of the latrines.

Transmission of infections

(Since there is no information available about infections and routes, these comments are based on assumptions.)

Diseases of concern (EWRI) Diarrhoea and Giardiasis

Paths of infection

- Water
- Flies
- Person-to-person
- Food
- Fingers
- Animals
- Soil
- Fluid
- Utensils

Barriers

- Safe disposal of excreta
- Breast feeding for babies
- Cleaning raw fruit before eating
- Safe kitchen practices
- Use of safe water
- Good storage of food
- Food is well cooked
- Hand washing after defecating
- Hand washing before handling food
- Safe disposal of solid waste (garbage)

Appropriate measures

Awareness

- Demonstrate good practices
- Community walks
- Public campaign
- Exchange visits
- Drama
- Continue with PHAST methodology
- Networking with sector partners
- Hygiene and sanitation education in schools
- Sanitation clubs in schools
- Public meetings

Marketing

- Develop the right mix of media (TV, posters etc.)
- Demonstrate successful behaviour and technologies
- Competition between communities
- Use humour in media
- Use communal events
- Use the expertise of Coca Cola
- Market the loans
- Target specific groups (men, women and children)
- Attract local entrepreneurs

Pressure

- Clear contractual arrangements (guidelines, control etc.)
- Make use of social pressure
- Set time deadlines (time-limited incentives)
- Reinforcement with community inspections
- Setting clear responsibilities at all levels

The next steps

- Conduct a baseline study
- Contact (with partners) multi-national companies

4.1.3 Discussion

- The use of excreta to fertilise fields and for fishponds has been banned in Vietnam.
- There is a composting plant for co-composting faecal sludge and solid waste, but the faecal sludge trucks are diverted unofficially to enrich the fishponds.
- The project did not promote any particular type of latrine, but encouraged households to make their own choices. There was a range of requests. Some households wanted improved kitchens and bathrooms.
- Vietnamese law requires all new buildings to be equipped with septic tanks for toilet wastes.

4.2 From practitioners to policy, Peru

Presented by **Rafael Vera**

4.2.1 The focus of the case study

This case study was concerned with the development of a national sanitation and hygiene promotion strategy for the rural areas of Peru, based on experience that has been gained in recent projects. A PowerPoint presentation can be found on the CD.

4.2.2 Background information

Peru has a population of 27.5 million people, mostly (73%) living in the urban areas. 54% live below the poverty line. The coverage rates for water supply and sanitation are shown in Table 4.1

Table 4.1 Access to water supply and sanitation in Peru

	Water supply	Sanitation	Wastewater treatment
Urban	90	60	18
Rural	62	30	
Total	75	55	18

An assessment of the sector in 1995 found that the low sustainability of much that had been done in the field of water supply and sanitation was caused by the following factors:

- Low community participation;
- Weak management and inadequate attention being given to operation and maintenance;
- The financial policy depended on subsidies;
- Undefined ownership of rural water services;
- There was no information system to enable learning from past experiences;
- Lack of sanitation strategy and hygiene promotion;

- Weak institutional framework.

Many of these issues have since been addressed. Coordination between the organisations and institutions involved in the sector has been developed. Decentralisation is also taking place, a law to decentralise powers having been passed in May 2003.

The Water and Sanitation Program (WSP) has been active in Peru. WSP is an international partnership to help the poor gain sustained access to improved water supply and sanitation services. Administered by the World Bank, WSP is funded by 14 governments, among them Switzerland. The WSP is particularly concerned with supporting policy development, ensuring sustainability, and promoting structured learning and networking. A recent World Bank project considered latrines to be the only appropriate technology and included hygiene promotion as part of the social strategy.

The current situation (2003) is that rural communities now have the opportunity to access quality sustainable water supply and sanitation services. This improvement is related to the following developments:

- Demand-driven approaches are being implemented.
- The law requires that national investments be oriented to ensure sustainability.
- Multilateral agencies working in the sector now have similar policies.
- Bilateral agencies are working to promote innovative approaches.
- A proactive Sector Coordination Group is operating.

The situation regarding sanitation technology can be summarised as follows:

- Rural sewerage systems will no longer be implemented, because of their high costs and the lack of house connections.
- VIP latrines are the most popular option but they are often little used and are not kept in good condition.
- Water-sealed latrines are considered a good alternative if water is available.
- Eco-sanitation is good but expensive and not suited to the local culture.
- The smell from simple latrines is a major problem and a study is in progress to try to reduce this problem.

In the field of hygiene promotion, there are initiatives to encourage hand washing and promote hygiene awareness in schools.

4.2.3 Outputs of the working group

Objective

The main purpose is to develop a national strategy for sanitation and hygiene education in rural areas within the water programme. This will include equipping rural areas with more appropriate sanitation facilities and encouraging the use of the existing facilities in a more sustainable manner. It will also involve the creation of laws.

Context

The key features of the context were identified as

- The current decentralisation process;
- A water supply strategy has been developed;
- Funds are available for pilot projects, and there are pilot projects in schools;
- The options for sanitation technologies are limited.

Strengths

The important positive points in the current situation are that

- The main stakeholders are willing to be involved;
- A good community-based approach has been developed in the water supply sector, and
- The pilot projects in schools have provided useful experience.

Challenges

- To make a national action plan based on the policy;
- Institutional strengthening for regional (decentralised) administrations;
- Ensuring effective community participation;
- Dissemination, education and awareness;
- Scaling up pilot projects in schools;
- Developing household-centred environmental sanitation (HCES);
- Engaging the private sector;
- Achieving the right balance between external and local funding;
- Monitoring;
- Training hygiene promoters.

Disease transmission

Hepatitis A

Transmission paths	Barriers
Polluted drinking water	Water supply - Source protection, water treatment, from tap to mouth
Contaminated food – raw food, food that is badly handled or cooked	Agriculture – safe handling of domestic animals/livestock, safe agricultural practice.
Flies	Sanitation – safe disposal of excreta, pest control
Person to person – bad hygiene practices, direct faecal-oral route, blood transfusions	Hygiene – hand washing, safe preparation and handling of food.
	Medical – safe blood screening practices, immunisation

Salmonella

Transmission paths	Barriers
Food – polluted drinking water, bad hygiene behaviour, contaminated irrigation water, dirty washing water, raw food	Safe irrigation/agricultural practice Safe handling of food, avoiding raw food Hand washing – quality and quantity of water
Flies	Sanitation – safe disposal of excreta, pest control
Person to person – hygiene behaviour Animals to persons - hygiene behaviour	Hygiene – hand washing, safe food preparation and handling, safe water handling

Appropriate measures

General

- Develop clear strategic concept.
- Gain support of implementers at all levels.
- Expose implementers to successful cases.
- Form alliances with other attractions (sectors or persons).
- Define indicators for monitoring and evaluation.
- Ensure funding.

Awareness building

- Learning from successful approaches
- Demonstrate good practice
- Community mapping
- Horizontal exchange
- Use public meetings and gatherings
- Make use of influential person
- Involve all stakeholders

Marketing

- Use of humour
- Involve right mix of media
- Local private entrepreneurship
- Create competition

Pressure

- Identify responsibilities
- Creation of functional control system
- Set deadlines (time frame)
- Clear rules and guidelines
- Adequate technical standards
- Adapt legislation
- Pilot phase before developing strategy
- Set up legal mechanism for bottom-up pressure
- Set up steering committee
- Make sanitation a public issue

The next steps

National action plan	Implementation	Monitoring & evaluation

4.2.4 Discussion

The following points were made in discussion of the group's output:

- The vision and attitude of some engineers can be a problem. After many years of training, engineers are not interested in working on latrines, preferring work that has a higher status and is technically more complex.
- The pilot projects in the schools have focused on washing hands with soap. Recently hygiene education has been introduced as a core subject.
- Malnutrition is an aggravating factor in the spread of disease.
- The cholera epidemic some years previously was caused not only by fish but also by contaminated water.
- The challenge is to train and pay hygiene promoters (including drama).

4.3 Enforcement of sanitation, Uganda

presented by **Herbert Nuwamanya**

4.3.1 Background information

This case study concerns the South Western Towns Water and Sanitation Project, which is working in 7 of the 56 districts in Uganda. The small towns or trading centres where most of the efforts are concentrated have populations in the region of 1,000 to 20,000.

On the national level, Uganda has a water supply coverage of 57%, and 60% of the households have satisfactory sanitation facilities, for a population of 24.7 million. The project aims to achieve 100% coverage of piped water and basic sanitation for 300,000 people in 54 towns by 2008, and to apply the principles of eco-sanitation. (Basic sanitation is defined as a pit latrine with a san plat.) At the start of the project (1996), basic sanitation coverage ranged between 8% and 60%. Traditional pit latrines, ventilated improved pit latrines (VIPs) and limited water-borne sewerage were the systems in use.

The project strategies are basically

- Training (also with local leaders);
- Sanitation baseline survey;
- Community sensitisation, including drama;
- House to house visits – to plan as well as to inform;
- Enforcement of the sanitation laws and byelaws;
- Promotion of ecosan toilets.

The project uses a combination of persuasion, promotion and pressure to improve sanitation and hygiene habits. The persuasion and promotion are provided by the village leaders, when they have been trained to explain the importance of hygiene and sanitation. They have proven to be very effective messengers. They can also provide pressure, because the concept of the project is that no water supplies will be constructed in a village until it achieves 100% sanitation coverage - a latrine for every household. This requirement enables the village leaders to apply some pressure on householders that would not otherwise be ready to build a latrine.

The average cost of a latrine is $ 100. The project provides a san plat (sanitary platform to be placed on top of the pit), made by the private sector at a cost of $3 – a 3% subsidy.

The achievements of the project include

- 90 – 100 % basic sanitation coverage
- New ecosan toilets built on a self-help basis.
- More donors have become involved.
- A 5-year national ecosan programme, including demonstration units and demonstration plots to show the value of composted excreta in agriculture.
- The current challenges were seen to be:
- Sustainability – ensuring that the 100% coverage of at least basic sanitation is maintained – keeping up with the construction of new houses and maintaining the latrines in a sanitary state and motivating people to continue to use them.
- Basic sanitation in problematic areas (rocky ground, flood-prone areas etc).
- Not everybody is involved in agriculture and so those who are not farmers may have no interest in eco-sanitation and the recycling of the nutrients in sanitized excreta.
- Cultural taboos oppose the reuse of human excreta and so it will be necessary to change these prejudices.

The President has said that a person without a toilet is worse than a thug. The reasoning is that a thug may, at most, kill one or two people, but many more may die from excreta-related infections as a result of open defecation and poor hygiene.

4.3.2 Outputs of the working group

Strengths

Approach

"Push" (negative pressure)

- Legislation, enforcement
- Social pressure from committees and local leaders, aided by the policy that there would be no water supply without 100% coverage of sanitation
- Minimal subsidy

"Pull" (incentives)

- Clearly a household-level approach – key local players are enabled. Closeness to households. Consideration of family situations
- 100% coverage of the chosen area
- Initial voluntary community inputs

Effects

- Willingness of the people to participate
- Educational effect on health and sanitation operation and maintenance, cost sharing and construction
- Community involvement in health and hygiene education
- Household participation

Tools

- Trained leaders going to the households
- Provision of options allows choice
- Common minimum standard

Long-term professional support through umbrella organisation (association of small town water supplies).

Challenges

Enforcement

- Effective law enforcement
- The laxity of the authorities in enforcing the law – enforcers want to be re-elected

Service Providers

- Enabling and empowerment of autonomous service providers at local level
- Increased private sector involvement

Economic viability

- Households without agriculture need market for composted excreta
- Solid waste management
- Dependence on foreign donors

Sustainability

- Does the project meet the actual needs and priorities of the users?
- Maintenance
- How to ensure that people keep using the latrines?
- Long-term monitoring and backstopping are required

Infection routes and barriers

The main excreta and water related infection is the group of diseases known as diarrhoeas. (Details of the most common causative organisms are not available.)

Potential routes (not scientifically confirmed)

- Person to person
- Flies
- Domestic animals
- Food
- Water

Barriers

For first four routes listed above

- Latrines
- Hand washing, domestic hygiene, access to water
- Clean environment

For water route

- Safe drinking water - promotion of boiling of drinking water, SODIS

Appropriate measures

	Awareness	Marketing	Pressure
Latrines	▪ Apply PHAST with local leaders ▪ Use humorous clips and drama for promotional campaigns ▪ Radio advertisements and messages ▪ Horizontal exchange	▪ Promotion of a range of technology options ▪ Demonstrate effectiveness ▪ Demonstrate the potential for profit to the entrepreneurs ▪ Awards for the best-performing towns (or households?) ▪ Link latrines with success stories	▪ Enforce legislation ▪ Develop minimum standards ▪ Contract management – Ecosan builders ▪ Time limits for incentives ▪ Continue conditional provision of water supply
Hand washing		▪ Link hand washing with success stories ▪ Demonstrate effectiveness	▪ Create social pressure ▪ Incentives for children with clean hands

4.4 Total sanitation approach, Bangladesh

Presented by **Abdul Motaleb**

4.4.1 The national situation

Bangladesh is a riverine agricultural country, prone to flooding, with a population of more than 125 million living in an area of 144,000 km^2. There are 65,000 villages. The water supply situation was previously regarded as a success story, because the installation of simple tubewells and handpumps enabled 97% coverage to be obtained. However, incidences of dangerous levels of Arsenic in the groundwater have forced many villages to look for alternative sources. The coverage of latrines is much less – it is estimated at 40% with an increase of 1% per year as new water-sealed latrines are constructed. This figure becomes more meaningful when the amount of excreta that is not disposed of properly is expressed as a load that would take 5,000 five-ton trucks each day to transport.

There is considerable national commitment to increasing sanitation coverage. A task force has been set up, including government departments and external support agencies, under the leadership of the Ministry of Local Government and Cooperatives. The National Action Plan involves committees at all levels – from national to union level.

Further information is available from a PowerPoint presentation and a poster, both on the CD. See also Section 5.4.2.

4.4.2 The Watsan Partnership Project

The Watsan Partnership Project (WPP), supported by the Swiss Agency for Development and Cooperation (SDC), is heavily involved in promoting sanitation. The approach that is used has three main pillars:

- Community mobilisation and management
- Affordable technology development
- Hygiene behaviour change

The marketing strategies of the project have been defined by the following principles:

- The creation of village development committees (VDC) through which the villagers would take action to improve their situations.
- The development of affordable "Watsan" products in consultation with the users/customers.
- Integrating partner packages (what different NGO partners have to offer) in one integrated WPP.
- The development of joint marketing messages and promotion campaigns that include village participation, hygiene changes, and water and sanitation options linked to suppliers.
- The development of income generating activities/products linked to watsan supplies.
- A plan for phasing out.

More than 100 villages have completed the total sanitation programme out of the 640 villages in the WPP. The goal is that each household in each village has a latrine, hence the name: "Total Sanitation Approach". Aims include to protect surface water bodies from pollution and to ensure a clean environment. The principles of the approach have been defined as

- The target is total sanitation (i.e. 100% of population have access to a latrine).
- Based on demand, not charity.
- Through awareness.
- No fixed technology, provision of options.
- Choice is based on affordability.
- Minimum requirement is to confine excreta in a sanitary way.
- Villagers plan, implement and monitor.
- VDC/Union Parishad/local government lead or champion.
- Partner NGOs facilitate and mobilise.
- Private sector marketing is encouraged.

This case study is concerned with one village, called Elamotpur, in the north of the country, with a population of 345 in 80 households. The people of the village are engaged in farming, daily labour, rickshaw pulling and small trading.

To determine the real water and sanitation situation of the village the WPP conducted an assessment using PRA techniques such as transect walks, social mapping, hazard mapping etc. Only eight households were found to have satisfactory latrines. There were, as a result, many cases of worm infestations and diarrhoea. A survey of facilities and habits was undertaken by the villagers in 1998, the results of which are shown in Table 4.2.

A Village Development Committee (VDC) was formed and trained to promote the sanitation programme in a participatory way. Participating NGO (PNGO) staff and trained VDC members conducted health education sessions, presenting the benefits of a hygienic latrine. The VDC was involved in preparing plans and monitoring. The community participated actively in these activities, the involvement of women being greater. Multiple channel dissemination was undertaken, with meetings for women, promotion at teashops for the men, and sessions in schools. Senior local figures were involved, such as the Imam, schoolteacher, traditional birth attendants, village doctor

and traditional doctor (kabiraj). Some households installed latrines but others were still not persuaded. More awareness-raising and motivational activities followed, with some positive results, but it became clear that some were not installing latrines because they could not afford them. The VDC set up a loan fund using contributions from the villagers and granted interest-free loans to the poorest families who otherwise could not afford a latrine. In this way all of the village households had their own latrine. All of the loan money was repaid in monthly instalments within a year. Hygiene practices also changed, as shown by the survey conducted by villagers in 2002 and reported in Table 4.2

Table 4.2 Changes in hygiene behaviour between 1998 and 2002

Facility or practice	Results of a survey conducted by villagers	
	Percentage complying (1998)	Percentage complying (2002)
Sanitary latrine in household	10%	100%
Covering food	50%	100%
Covering containers of drinking water	70%	100%
Keeping house yard clean	80%	90%
Keeping latrine clean	5%	90%
Hand washing with ash or soap after defecation	0%	90%
Children 3 to 5 years old defecate at a fixed place	0%	80%
Hand washing with soap before taking food	0%	10%

(Much of this information is taken from a brochure entitled "Total sanitation approach and practice", written by Abdul Motaleb and Shakil Ahmed Ferdausi, and published by SDC, Dhaka.)

4.4.3 Lessons learned

- Community participation is essential and should be through village-based institutions involving key community persons.
- Social pressure is very effective for those who are unwilling to use a hygienic latrine.
- Multiple channels are effective for message dissemination in respect of hygiene promotion.
- Initial support can expedite the sanitation activity.
- Interest-free loans can be provided to the poorest households so that 100% coverage can be achieved.

4.4.4 Into the future

More than 100 villages in the WPP area are now free of open defecation. Total sanitation is possible. The big challenge is how to scale up to national coverage.

Many stakeholders working in the water and sanitation sector in Bangladesh have already become involved in the total sanitation approach. Though the task of implementing this approach on the national scale is enormous, it can be achieved with concerted effort and close collaboration.

4.4.5 Outputs from the working groups

The **strengths** that favour sanitation and hygiene improvements and that were seen in this case study were listed as

- The village development committee
- Community mobilisation through an intensive

- The involvement of local traditional actors
- The voluntary participation of the villagers
- Participatory monitoring
- The partnership approach
- campaign
- Motivation at community and household level
- The range of affordable technological options
- Community loan system for the poor.

The **challenges** remaining in the communities that have been involved in the programme, and in extending the approach to the rest of the country were identified to be:

- How to address the needs of the "hard-core" poor.
- Literacy levels and access to information in rural settings.
- Adapting a rural model to a peri-urban setting.
- The vulnerability of surface water sources to multiple sources of contamination (i.e. the universal use of latrines does not guarantee that surface sources are safe).
- How to increase hand washing before preparing food and eating.
- Continuation and follow-up (to continue to encourage improvements in personal hygiene and to ensure that latrines are kept in good condition and used).

The **predominant infections** were stated as diarrhoeal disease and worm infections.

The **transmission routes** were identified as soil, person-to-person contact, surface water, flies, and domestic animals (cows, chickens, goats, dogs) and pests.

The **barriers** needed to prevent disease transmission were suggested to be

- Safe disposal of excreta,
- Proper hand washing (with soap, after defecation and before eating),
- Covering food,
- Safe management of animal waste, and
- Surface water treatment (though there was some question about this because of the difficulties of ensuring that high standards of treatment are maintained).

Recommended measures

Awareness

- Capitalisation of experiences
- Networking with potential partners
- Use of a mix of media
- Applying PHAST methodology.

Marketing

- Attract private sector latrine manufacturers
- Effective advertisements
- Use of humour
- Development of marketing materials.

Pressure

- Social pressure through VDC
- Laws and decrees
- Replicate local regulatory initiative
- Make use of political structure
- Develop and apply standards and norms.

The next step

- Carry out inventory and analysis of experiences
- Strategy formulation for scale-up
- National action plan
- Implementation
- Monitoring and evaluation.

4.4.6 Discussion

- Our discussions focus on latrines, but we often give little attention to the management of faecal sludge that must be removed from latrine pits.

- Diarrhoea is a major killer in Bangladesh. It is said to be responsible for one-third of all morbidity and deaths. Research suggests that 80% of disease is related to water and sanitation.
- The levels of Arsenic in the water coming from some tubewells (not all) force villagers to return to using surface sources, so it is important to protect surface water as much as possible from faecal contamination.

Chapter 5 Other inputs

5.1 Environmental sanitation – situation, challenges, outlook

Evening presentation by **Martin Strauss**

Although this presentation was made during one of the informal evening sessions, it is clearly very relevant to the theme of the workshop. The full PowerPoint presentation (of 84 frames and co-authored by Agnes Montangero) is available on the CD, so only some of the major issues are mentioned in this summary.

5.1.1 Sanitation – the crisis

A map showed at least seven countries in Africa and Asia where sanitation coverage in 2000 was less than 25%. Both the absolute number and the percentage of people in the world that do *not* have access to sanitation increased between 1990 and 2000, in spite of the efforts made to promote sanitation. There are sewerage systems where about 90% of the local households have failed to connect to the sewerage systems that pass their houses. Facilities and systems have failed because they were not acceptable to the users, not maintained properly or not satisfactorily designed. Flooding not only causes economic damage but also has health impacts.

5.1.2 Causes and challenges

The "flush and discharge" mentality and the centralised approach of the industrialised countries have been exported to low-income countries, even though they are totally unsuited to the institutional and economic conditions. The challenge is to ensure a better livelihood for all people through a much higher coverage of systems that are effective, acceptable, affordable and sustainable.

5.1.3 New principles

- Stakeholder involvement at all levels.
- Institutional reforms
- Decentralised systems
- Recycling of waste
- Cost recovery
- Use of incentives and sanctions

5.1.4 The stakeholders or actors

Experience repeatedly underlines the importance of involving stakeholders in decisions that affect them. User groups can play a key role. The links between stakeholders can take many forms. The private sector (including microenterprises) can fulfil many roles if there is a healthy relationship with the public sector.

5.1.5 Strategic – technical approaches

Institutional arrangements need to be improved. If wastes can be used as fertiliser, collectors can be paid for discharging loads, providing an incentive for good management. Excreta has considerable value as a fertiliser, but health and environmental considerations must also be considered in the provision of appropriate treatment and the setting and enforcement of reasonable standards.

There is a range of options to be considered, including whether on-site or sewered systems should be used, whether sewered systems should be centralised or decentralised, and whether toilet wastes (blackwater) or urine and faeces should be managed separately. Cost guidelines for various systems are provided. Often it is appropriate in a large city to use a mix of various systems.

Examples of promising technical solutions are discussed. Whilst contamination of water supplies is always a concern, there are satisfactory ways of protecting water resources in most situations. There are new approaches to sewer design and the treatment of wastewater and faecal sludge. These options are presented in a useful way, with some guidelines to assist in the selection between them.

The presenter ended with the following three recommendations:

- Stakeholder identification, involvement and sustained working together.
- Choosing appropriate strategic and technical solutions (option mix) and approaches.
- Small enterprise involvement in service provision.

5.2 The showcases

As mentioned in Section 7.3, participants who were not presenting case studies were asked to prepare and present a poster that describes one aspect of their work that is relevant to the theme of the workshop. On the first day each participant was allowed two minutes to present his/her poster. Later in the week some of them were discussed in small groups. The posters were photographed and so are available on the CD.

In Section 5.2.1 there is a list of the showcase posters that were presented. Section 5.2.2 provides summaries of the deliberations of the small groups that sought to apply the concepts presented in the workshop to the situations described in the showcases.

5.2.1 List of the showcases

(The showcases are listed in the order in which they were presented. The "Yes" or "No" on the right indicates if there is more information on this showcase in Section 5.2.2)

Name of presenter	Theme of showcase	in Sec 5.2.2?
Alfred Mink	Operation Lifeline (UNICEF), Southern Sudan	No
Jacques Bovier	This shit drama – Let us put our heads together and we may find solutions	No
C. B. Ramesh	Helvetas Water Resources Management Programme in Nepal	Yes
Guy Morand	Faeces management in Haiti – from externally driven latrine construction to community driven faeces management	Yes
Tansa John Gamnje	Rural water supply and sanitation in Cameroon	Yes
Hasan Zulic	(Brochure on current project) Corruption is a major issue	No
Nathalie Sémoroz	Water supply in Huambo, Angola	No
Lotta Arnesson	Hygiene and sanitation promotion in rural and peri-urban areas, Cabo Delgado, Mozambique – Five pillars approach	Yes
S. M. A. Rashid	Promotion of rainwater harvesting in Bangladesh	Yes
Koussé Koné	ASP – Eau; Support to the private sector in Mali	Yes
Gerald Eder	Questioning the need to always link sanitation with water supply	No

Name of presenter	Theme of showcase	in Sec 5.2.2?
Eva Kouassi-Komlan	Water distribution in peri-urban areas of Ouagadougou, Burkina Faso	Yes
Franz Stössel	The challenge to develop a new water strategy for SDC	No
Neil Herath	The carrot and the stick in sanitation development in Sri Lanka	Yes
Bernhard Fischer	Key questions on sanitation	No
Rosalie Castro	Private sector and CBO participation in human waste issues	No
Manuel Thurnhofer	Treatment of domestic wastewater in El Salvador	Yes
Frank Bouvet	Hygiene education and sanitation in Eritrean schools	Yes
Abeysinghe Lalith	An integrated approach to sanitation for plantation workers, Sri Lanka	Yes

5.2.2 Applying workshop concepts to showcases

Showcases that referred to concrete situations were selected, so that small working groups could consider how the ideas that had been presented and discussed during the workshop could be applied to these particular situations.

In introducing this activity, the Moderator explained that the objectives were:

- Translating the insights of the workshop into action, and
- Sharing experience.

The workshop participants were then allocated to particular groups and were given a choice between three options for their consideration of their particular showcase.

1. **The biggest success measures**
   What were the measures that were the biggest success?
   Describe the measures in detail.

2. **The biggest challenge**
   What is the biggest challenge?
   Select appropriate measures to deal with this challenge.
   Identify the next steps.

3 **The most useful lesson**
What is the most useful lesson that you have learned from this workshop?
Explain where you could use this lesson in your particular showcase.
Identify the next steps.

The output of each group was presented as one or two posters on flip chart paper. Photographs of these posters can be found on the CD. Brief summary points from each presentation are written below. Showcases are in the order of the presentations.

Abeysinghe Lalith - An integrated approach to sanitation for plantation workers, Sri Lanka

Having tried unsuccessfully to upgrade the living conditions of migrant plantation workers by working with the trade union and management, a successful partnership was developed with a young people's group (ages 16+). A group of well motivated youth leaders was trained. The training of these leaders, which can be described as the most successful measure, included a six week training course and a nine month field assignment.

Franck Bouvet - Hygiene education and sanitation in Eritrean schools

The first measure is to set up a national steering committee to establish a co-ordination system. Developments should proceed at three levels – national, sub-zonal and school/community. Since there is no relevant law it is necessary to develop and enact a public health law. There is also a need for institutional development and awareness building.

Lotta Arnesson - Hygiene and sanitation promotion in rural and peri-urban areas, Cabo Delgado

Suggested measures:

Awareness – Training at "boss" level.
Training of field staff in transmission routes and barriers, environmental sanitation, strategic planning and the PHAST method.

Marketing - Tee shirts with a sanitation message for the facilitators, and badges showing latrines.

Pressure - Use existing means, including financial pressure, and follow-up in the field, including random visits.

C. B. Ramesh - Helvetas Water Resources Management Programme in Nepal

The challenges are: replacing polluted water sources, increasing household latrine coverage and improving personal hygiene. Measures that can be used to overcome these challenges include:

- latrines as precondition for water systems,
- agricultural demonstration plots for compost from latrines,
- training WATSAN committees and local leaders,
- scaling up awareness campaigns, including street drama and house-to-house visits,
- schools competitions,
- local language radio programmes that include humorous messages on hygiene.

Tansa John Gamnje - Rural water supply and sanitation in Cameroon

Business opportunity: Councils are about to introduce sanitation as a complementary component to water supply programmes.

Issue: How to plan and start up a sanitation programme as a consultancy.

Basic baseline assessment – simple checklist then participatory assessment

Development of strategic concept – disease routes → required barriers → measures

Brainstorming on likely measures:

- use village leaders and schools for awareness enhancement (PHAST);
- initial incentive for basic latrine elements (sanplat);
- training of local latrine builders (small private sector);
- horizontal exchanges between local village leaders;
- mix of media e.g. use popular football clubs.

Eva Kouassi-Komlan - Water distribution in peri-urban areas of Ouagadougou, Burkina Faso

Two parallel water vending systems were operating in the periurban area under consideration; one system often used water from unprotected wells and delivered it by handcart using containers that were not clean. The other used safe water and was delivered by bicycle trailers in clean containers, but at a cost that was 25% higher than the first system. The challenge was

how to encourage people to insist on buying the safer water. The following measures were proposed:

Awareness

- the Health Unit Committee should make people aware of the risks associated with using the unsafe water.

Marketing

- the water vendors that use the improved system should promote the benefits of safe water;
- CREPA should look for ways of reducing the price charged for the safe water,
- the Committee should establish a low-interest loan scheme to enable more vendors to get improved equipment.

Pressure

- The local administration should improve the open wells and then charge for water abstracted, to remove the financial incentive that encourages use of unsafe water.

The next steps

- Study the costs of the proposals (CREPA).
- Meet with the water vendors to discuss the situation (Committee).

Koussé Koné - ASP – Eau; Support to the private sector in Mali

The project is supporting small entrepreneurs to market san plats and provide services related to sanitation.

For developing awareness, the following means were suggested: drama groups, involving teachers, TV, local radio and women's associations.

The following challenges were identified:

- disposal of faecal sludge from pit latrines;
- disposal of solid waste (garbage);
- financing the second phase of the project;
- developing ownership of the project by the local committees.

Support for micro- and small enterprises:

- training in construction of latrines;
- training in business management skills;
- provision of credit for training and materials.

Neil Herath - The carrot and the stick in sanitation development in Sri Lanka

In Sri Lanka many donors are active in water supply and sanitation, and they have a variety of subsidy arrangements, some very lucrative. Local people often do not build a latrine – even if they can afford to do so – until they get a subsidy. People also build expensive latrine superstructures. There is a lack of legal pressure to encourage improved sanitation.

Challenges

- to get people to want latrines;
- to make subsidy arrangements more consistent.

Guy Morand - Faeces management in Haiti

The biggest challenges are to move from projects that only involve water supply to projects that include sanitation and hygiene improvements, and to get communities to take more responsibility for watsan projects.

The most useful lessons from the workshop have been:

- PHAST methodology
- the necessity of strengthened co-ordination between stakeholders, and
- the importance of an effective legal framework at local level.

Next steps were proposed for three groups of actors – service providers, the community and Helvetas.

The next steps for service providers:

- moderation, technical information, planning methodology, PHAST
- formulation, co-ordination and management of projects
- construction, training and social mobilisation

The next steps for the community:

- analyse environmental (living) situation, define main problems and possible solutions, prioritise solutions and choose one;
- elaborate project, prepare detailed project proposal;
- execution, control of contract implementation.

The next steps for Helvetas:

- coaching, preparation of community projects,
- establish links between stakeholders, information sources and experts,
- advising on planning methodology, selection of service providers and execution,
- co-financing, control of financing agreement.

Manuel Thurnhofer - Treatment of domestic wastewater in El Salvador

The town concerned was abandoned during the war, but the inhabitants returned after two years and organised themselves to rebuild and develop their town. The wastewater treatment plant is simple. The aim is to use the sludge. Since the income generation capacity of the people is low, it is important not to add unnecessary costs.

Context: After the war there was a strong commitment to rebuild with community labour, but now the young people are less committed to community work.

The biggest challenges are to find management model that suits the changing environment and to ensure sustainability on the basis of community involvement.

The following measures are suggested:

Awareness

- Encourage debate within the community regarding the future management model
- Develop the wastewater treatment plant as a model to show to other communities

Marketing

- Build strategic partnerships
- Seek contributions to community development from emigrants
- Provide income generating activities

Pressure

- Make further support conditional on the reuse of wastewater.

S. M. A. Rashid - Promotion of rainwater harvesting in Bangladesh

Rainwater harvesting was for a long time a traditional means of water supply in Bangladesh, so the poster was headed "Back to the future". The proposed measures were as follows:

Awareness

- Baseline survey
- Key messages - different messages for different groups, at different events, using different media

Marketing

- Billboards (health message)
- Demonstration models (different technologies)
- DIY models (pro poor)
- Advertising – "rainwater = white rice"
- Private producers
- Adapting the product to the "market".

Pressure

- Social pressure (VDC, peers, schools)
- Political
- Policy regulation.

Challenges

- Scaling up without a subsidy
- Marketing and advertising best practice.

5.3 Metaprogrammes

Contributed by **Tonino Zellweger**

(Whilst this section does not directly refer to sanitation, it does provide some useful insights into what happens when people discuss together and even on the operation of teams. Since the participants received it with considerable interest, it is recorded here.)

While the Moderator was visiting the various working groups he noticed that disagreements and differences of opinion were not often about concepts and facts, but more about approaches to the topics and methods of running the groups. To help the participants be aware of the reasons for some of the conflicts, he introduced the topic briefly on Thursday afternoon and discussed it in more detail in the informal evening session.

Most quarrels are caused by different ways of thinking

Here, "ways of thinking" does not refer to beliefs, but rather the ways in which our brains function – how we process information and react to challenges and assignments. The ways in which we think are called "Metaprogrammes" and they are normally installed in our brains by the age of 10, and won't change thereafter. They should not be thought of as good or bad, each has its own strengths and contributions. The ideal situation is when each metaprogramme is put to appropriate use.

Twenty-five of these metaprogrammes have been identified, but only seven were presented to the workshop. We each have different combinations of these 25. The following comments are based on a poster that is available on the CD.

Name of metaprogramme	Explanation and discussion
Chunk up or chunk down	"Chunk-uppers" look first for the details and then work up to an overall view. They do not like to start with formulating a concept. "Chunk-downers" start with an overall view and work down towards the details or components.
Proactive or reactive	A proactive person is happy to start with nothing, and to offer his own ideas. A reactive person likes to be given a set of options and asked to choose between them. We should ask for ideas from a proactive person, but propose

ideas to a reactive person.

Abstract or concrete

A person with an abstract way of thinking likes concepts, theories, generalities. A person who thinks in a concrete way needs to start with a clear picture of a particular context and framework, and likes to have specific examples and clear targets. An abstract thinker often develops charts that show all links and interrelationships, perhaps without considering much what are the practical implications of all these links.

Through time or in time

How do we think of time in a spatial sense? Do we think of the past as behind us or in front of us? Or is it to the right or to the left? Does time go from left to right or right to left, or does the future stretch out in front of us, or is it behind? Often this can be seen in the gestures that we make when we are speaking about time.

"In-timer"

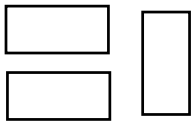
"Through-timer"

The "in-timer" sees one thing at a time, and may be completely absorbed (pre-occupied) with it. Such people are not good planners but they like surprises.

"Through-timers" are generally good planners, but they are not as flexible and do not like surprises.

People may be partly one and partly the other, reacting and performing differently in different domains.

See the difference or see the likeness



Some would say that two are the same, or even three are the same, because they look for similarities. Others would immediately observe that one is different. Do we instinctively look for differences or for similarities?

Moving towards or moving away from.

Do we think in terms of what is being achieved or what is being left behind? Is sanitation beneficial because it improves health or reduces disease? Some organisations prefer to express titles and objectives in positive terms, not negative terms (i.e. a more attractive environment, not less pollution).

Renewers and completers

This difference in the way we think may be one of the greatest causes of loss and delays in development work. Some people are good at starting from zero and building where there is nothing. They do not like to take over what someone else has done. These are the renewers. Others like to pick up a job that someone else has been doing, and continue, making minor improvements where they see the need, and so are called "completers".

The difference can be illustrated by giving a group of people some modelling clay, and asking them to make something. After a short time each person must pass his work on to the next person. A renewer will flatten the clay shape that he/she has received from the previous person and start again. A completer will continue with the idea that the previous person has started to express, and improve on the existing shape with small changes.

The implication for development work is the following: When the first phase of a project is starting, it will be useful to employ a "Renewer" as the team leader, since (s)he will be good at developing and implementing new ideas. However, if a new team leader must be appointed for the final, winding-down phase, and a "renewer" is appointed, that person will try to start afresh, not

accepting the methods and approaches that have already been developed, but wanting to reshape the project according to his/her own ideas. It would be much better for the final stage to employ a "Completer" who would take time to find out how the project has been running and seek to continue in much the same way.

Exercise: The variety of ways of thinking was shown by an example. Everyone in the audience was asked to add 27 and 38, and then describe to a neighbour exactly how they had done it. Then the methods were described to the whole group, by the people to whom the methods had been explained. There was a surprising range of methods. A similar exercise performed in a class of children had uncovered 16 different ways of performing the mental arithmetic, in a class of 22 children.

In small group work, it often happens that members who do not think in the same way as the dominant method in the group, stop contributing to the discussion, not necessarily because they disagree with the ideas that are being presented, but rather because they do not follow the ways of thinking (metaprogrammes) that are most influencing the group discussion. It is not the content itself that causes the conflict, but rather the diverse means of processing it – a result of the different *ways* that individual brains may deal with common stimuli.

5.4 Summaries of evening presentations

The presentation by Martin Strauss on "Environmental Sanitation – Situation, Challenges, Outlook" has already been summarised in Section 5.1.

5.4.1 WARM-P Water Resources Management Programme of Helvetas, Nepal

by **Bohari Chandra Ramesh**

During the long experience of Helvetas of water supply and sanitation projects in Nepal, there have often been disputes over water sources. This presentation described the latest project of Helvetas, active in 9 of the 75 districts in Nepal, to develop comprehensive water resources plans. This approach, started in 2001, works together with Village Development Committees (the second lowest administrative units, representing about 700 households) to produce Water Use Master Plans (WUMP). So far, 14 of these plans have been produced. The process of preparing a WUMP involves collecting data on all the sources within the administrative boundary and preparing a prioritised list of water projects, including water supply, irrigation, hydropower and environmental projects. Helvetas then supports water supply projects, and other agencies are invited to support the other aspects. The coverage of sanitation in the area is estimated to be only 15%.

Related sanitation projects put emphasis on the provision of household toilets, but also encourage the provision of shelves for keeping utensils clean and pits for garbage. Awareness building is a key element, with meetings and drama being used. The area is very remote, with no internet access.

5.4.2 SDC-Watsan Partnership Project, Bangladesh

presented by **Abdul Motaleb**

The presentation was supported by a PowerPoint presentation that describes the project well and is available on the CD. The water supply situation in rural Bangladesh is overshadowed by the problem of Arsenic in many of the shallow groundwater supplies. Symptoms of Arsenic poisoning may take ten years to manifest. Villagers like the taste of groundwater and have lost the culture of protecting surface water sources, so it is not straightforward to develop alternative supplies. (Rainwater

harvesting in Bangladesh was covered by one of the showcase papers [Section 5.2].) The houses of the poorest people do not have impervious roofs so roof catchments are not an option for them.

The functional structure of the project includes three main NGOs – one working on hygiene behavioural change, one on community management and the third on the development of affordable technology. Working under them are 15 partner NGOs. Key features of the project have been the capacity building of the partner NGOs and the formation and strengthening of the Village Development Committees. A multiple channel dissemination approach has been used for creating awareness, including women's meetings, meetings at tea stalls to contact the men, involving key community leaders (imams, teachers, doctors) etc, and programmes for children.

This presentation is linked to the Bangladesh case study reported in Section 4.4.

5.4.3 Integration of water and sanitation in the Department of Rural Water Supply

presented by **Sekhesa Mapesho**

This presentation described collaboration between the Ministry of Health and the Department of Rural Water Supply in Lesotho to promote sanitation in two pilot projects, one in a mountainous area and one in an urban area. Later, external financial support was conditional on sanitation being included in water supply projects, and this further encouraged the development of strategies for using local skills in latrine building. Aspects such as supplies of components, payment of builders, community awareness and types of latrine are all discussed. The needs of the elderly and disabled are also being considered. The full paper is available on the CD.

Chapter 6 Summary of findings - Keys to possible ways out

The process

Figure 6.1 shows the process that was used in some of the working group sessions. The first step in combating disease in a community is to identify which diseases are causing the most damage, so that it is then possible to determine how the disease is spreading, so that barriers to the transmission can be set up. In order to ensure that the barriers are put in place and sustained, it is necessary to identify measures that will be effective in involving the community and other stakeholders in maintaining these barriers. These measures maybe based on an increased *awareness* of the mechanisms and impacts of disease transmission (Section 3.1), promoted using *marketing* techniques (section 3.2), and encouraged by positive or negative *pressure* (the carrot or the stick, Section 3.3). This done, one can move on to the next step in improving the well-being of the community.

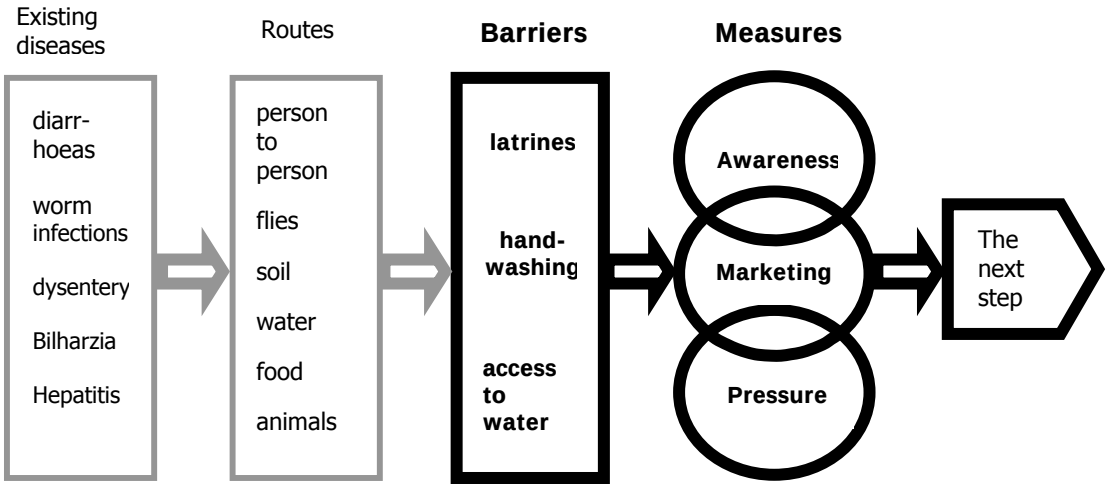


Figure 6.1 The Process

Whilst this process is clearly very rational, it appears that the first stages may not often be necessary. Gastro-intestinal diseases (diarrhoeas) are a major cause of death and disease in towns and villages that do not have adequate sanitation, and the barriers shown in the figure – latrines, hand-washing habits and access to water – are needed everywhere. It can therefore be argued that efforts should be concentrated on setting up and maintaining these three crucial barriers, and on developing and using measures in the fields of awareness, marketing and pressure to ensure that these barriers are effective.

In the past, efforts to improve the situation have tended to follow the hierarchy:

1. Water supply
2. Installation of latrines
3. Hygiene habits

Water supply – an obvious need

It is easy to see reasons why. Water is fundamental to life and so the need and the benefits are easily recognisable. Who can fail to be moved by the joy on the faces of those who draw the first

bucketful from a convenient and safe source and no longer have to spend hours hunting for water and carrying it home? A water supply is a concrete installation that can be photographed and counted in order to demonstrate achievement. Yet often the water is not stored in a hygienic way and not used as it should be to protect from disease. Behaviour and habits are a vital link in the chain. **There is evidence to show that sanitation and hygiene habits can have more effect on health than the construction of a water supply alone.**

Sanitation in the background

After the water supply comes the sanitation programme in many cases. Latrines are often an obligation, the price to pay for getting a water supply. They do not carry the visual appeal of a child revelling in a flow of fresh water. (How often do we see photographs of huge smiles on the faces of children who have just used a latrine for the first time?) Latrines can be dark and smelly, and enshrouded in taboos or embarrassment. Too often they are not seen as a basic need. Yet they are concrete facilities which can be counted and photographed, and so included in project reports and fund-raising brochures. Are they used? Are they kept clean? What happens when the pit is full?

With both water supply and sanitation, the key to success is beliefs that lead to habits.

Changing beliefs and habits

The process of changing habits often takes time, especially if it is necessary first to gain the confidence of the community. However, workshop participants were told that culture can be changed and new habits can be established, and that the time required may be less than we think. It is not a hopeless or eternal task. But we do need to find ways to greatly increase the scale at which this is happening, if we are to reverse the current trend of increasing numbers that do not have access to sanitation and are dying from preventable excreta-related diseases. The campaign against AIDS has shown that public opinion can be informed and changed, but this campaign also shows how much effort must be put into publicity and persuasion to achieve a change. Can a campaign on a similar scale be mounted to persuade the poor of the need for good sanitation – both habits and facilities? What resources are needed to generate the awareness, find ways to persuade and provide, and develop mechanisms of pressure that will motivate individuals, agencies and governments to tackle this health problem in a new way? Apart from the financial resources, this suggests the need for very large numbers of people - agents for change - if the targets are to be met. We need to become publicists, salesmen, advocates. The WASH publication that was distributed – "Please tear up this publication" – leads in this direction.

Messages and measures need to be suited to the community concerned. The right mix of awareness-raising approaches, marketing and pressure (legal and/or social) is needed, and it is important to involve the community concerned in the search for effective approaches and combinations. To illustrate the need for combinations: people must be aware of laws or incentives and why they exist, otherwise they will not be effective.

It takes time – to understand the local situation and the interests and preferences of a target group, to gain their confidence and raise their interest, and to develop procedures and train messengers, so that the work of changing habits can begin. The length of the journey should not deter us from planning the route, gathering resources and setting out.

It also takes perseverance. The workshop heard of a case where there was a trained sanitation promotion team, but the funding for their work was cut. Such valuable resources (i.e. a team of trained awareness workers) should be appreciated and used on an on-going basis. Positive habits need periodic reinforcement. Latrines need to be maintained and pits and septic tanks emptied. The barriers to disease prevention need to be maintained, strengthened and, where necessary, rebuilt.

Indicators

Projects need indicators to demonstrate that they have been effective. Changes of habits are not easily quantified as project indicators, but the Bangladesh case shows that this can be done. The numbers of latrines constructed can still be an indicator, especially if the new owners have invested time or money in their construction (so that they are more likely to value and use them). Another indicator can be the incidence of excreta-related infections, but unfortunately statistics for such diseases are often not kept. There is a need for a simple tool (guidelines, checklists, posters etc.) for a baseline study that determines both the incidence of key diseases and the habits of the community concerned.

Where to start?

There is no simple answer regarding where to start, but there is certainly a need in many countries to change the attitudes of sector professionals and decision-makers who, for many reasons, have a bias towards larger construction schemes and more sophisticated technology. They prefer top-down approaches and prefer to think in terms of concrete rather than habits. This mentality can be blamed for the current situation in which so many are without sanitation, and excreta-related diseases claim so many lives.

The best messengers with the right message

The workshop was told of a very effective television "short" that showed Nelson Mandela talking to a child about sanitation. We also heard how the President of Uganda had equated someone who refused to have a latrine to a criminal, because of the life-threatening impacts of indiscriminate defecation. Village leaders, once trained, can be very effective in communicating and motivating. Film stars, musicians and football teams can all add weight to the message. Religious leaders can be effective allies in opening doors to sanitation. Television and other media can be powerful if the message and presentation are clever and appropriate. Culturally sensitive humour is a useful tool.

Excreta as fertiliser

Both urine and faeces have considerable value as fertiliser and soil improver, and it makes ecological sense to return these materials to the soil, completing the nutrient cycle. Excreta is also used in fish ponds. There are health risks associated with the use of untreated faeces, both for farmers working in the fields and for people who eat the produce unless it is sufficiently cooked. If faecal matter is composted or stored long enough so that the infective organisms die off, it is safe enough to use. Information and effective control measures are needed to manage these risks.

Ecological sanitation

Ecological sanitation is concerned with using the natural fertilising value of excreta, and minimising pollution and the wastage of water and energy. Its message is for both north and south, but the majority of people in both hemispheres may not be ready for it. Taboos, cost and convenience may deter many from installing "ecosan" toilets and using the excreta in the proposed way. If farmers understand the benefits and safety of using urine and composted faeces, they will value this approach and use toilet facilities in the correct way. The private sector could become more involved in emptying composting toilets, seeing composted excreta as a resource and a business opportunity. However, promoting ecological sanitation in some settings could be like telling people that they need a car when a bicycle would meet their needs and suit their resources, and a stepwise development, beginning with a simple latrine, might be more appropriate than an insistence on immediate transition to ecological sanitation. Many participants stressed the importance of offering a range of

sanitation alternatives, rather than one latrine design for all, so that selection can be made according to a variety of social and economic factors (including ability to pay) and so that each household has a sense of ownership and responsibility.

Positive and negative influences

Many factors can create interest or reluctance in connection with sanitation. Convenience, privacy and social status may play more of a role than disease prevention in some circumstances. Cost can be a major deterrent, but low-interest loan schemes have been very effective. Smell is sometimes a major discouragement, and the workshop heard how this problem had been overcome in Peru and Switzerland.

The private sector

The private sector is involved in manufacturing "sanplats" (sanitation platforms), pour-flush pans and composting toilets, in constructing latrines and in emptying pits and septic tanks. Private consultants are executing awareness-raising projects, managing programmes and designing facilities. What incentives can be provided to encourage sustained involvement of the private sector? How can competition between entrepreneurs be used to motivate quality and cost-effectiveness? What means can be used to ensure that faecal sludge is deposited in the right place, where it will not cause disease or pollution? How can innovation be encouraged and rewarded? How can households develop effective links with private sector service providers?

Benefiting from experience

There is great value in demonstration. News about success spreads. In Viet Tri people came from other communities to ask for improvements for their own sanitation arrangements. Pilot schemes need to be scaled up, and this process is helped by visits to see what has been achieved. The funding for such visits may be small compared to project costs, but perhaps often it is not available. In addition to learning about successful pilot projects, we also need to hear about successful initiatives for scaling up.

As individuals we learn from our mistakes, but it is more difficult to share lessons from our mistakes with others and to gain access to information about other projects that exposes weaknesses and shortcomings. What can be done to avoid making the same mistakes that others have made? There are several strong reasons why a project might not wish to publicise its failures and difficulties, but there are also good reasons for releasing such information. Is an anonymous website a possibility?

Subsidies

Several participants raised objections to subsidies and were pleased to emphasise what had been achieved without subsidies. Whilst subsidies may help a project manager to achieve the target number of latrines more easily, a dependence on subsidies can restrict the scope of sanitation extension, as households wait for an opportunity to get the best subsidy. Subsidies from external sources can discourage communities from solving their own problems – for example by setting up a credit fund using their own resources. Subsidies may be needed in the early stages of a project, but the target should be self-sufficiency if global sanitation targets are to be reached.

Participation

It is easy to nod in agreement when we are urged to build more participation into our planning. It is easy to write the popular phrase "involvement of all stakeholders". It seems rather more difficult to incorporate participation into our programmes, allowing the time and flexibility needed to prepare

projects that are acceptable to the people most concerned and that have the greatest chance of ownership and sustainability. Awareness, marketing and pressure are conventionally all "top-down", but the PHAST methodology offers an alternative approach in the realm of awareness-raising. Marketing, to be effective, needs to observe, ask and listen. Even pressure must take account of the attitudes, interests and awareness of the grass-roots level. We have all heard and been impressed by accounts of the power of participation. Are we prepared to be doers rather than just hearers?

PART II THE METHOD

Chapter 7 Preparation

7.1 Selection of theme and inputs

The preparation of this workshop began two months after last year's event. Water resources management was proposed as the topic for this year's workshop. Planning was started. However, the Workshop Moderator sensed that, though there were good reasons for the topic that had been selected, it did not have the emotional support of the planning group. Around that time, Armon Hartmann was challenged by his wife to come up with practical solutions, in response to a video on sanitation that they had watched together. The video referred to the large numbers of children that are still dying because of poor sanitation, and his wife asked him why the situation was so bad and what more could be done. So he proposed a new topic for the next Aguasan workshop. He persuaded the others in the planning group that the workshop should consider what can be done to improve the tragic situation caused by the lack of sanitation, and how it will be possible to reach the target of halving the numbers of people without access to good sanitation, by 2015.

It was then necessary to select structured inputs and Resource Persons. There was a need to be clear about the links between sanitation and disease, and Martin Strauss of SANDEC was the obvious choice for explaining these links because of his extensive work in this field, and the close involvement of SANDEC with Aguasan. He was also asked to review the technologies – both for latrines and for the collection and treatment of faecal sludge.

Understanding the problem from the viewpoint of technology would definitely not be enough. It would be necessary to look at ways of motivating people – people of all ages, leaders and administrators – to build and use latrines and change their hygiene habits. **Awareness** is an important tool, to help people to understand the links between latrine use, personal hygiene and disease. But is awareness enough? Others consider that **marketing** is important, developing products that customers like, and creating demand for these products, looking into issues of persuasion, cost, product design and promotion. A third view is that **pressure** is needed to encourage change - both carrot and stick, incentive and enforcement. So resource persons were sought to argue the case for each of these three approaches – awareness, marketing and pressure.

Ann Killen from Australia kindly agreed to provide input and guidance on the subject of generating the awareness and understanding that would promote sanitation. In the field of marketing, the example of a simple system, developed in Switzerland, for managing dog faeces was seen as a useful pattern. Skat has always had close links with the prestigious St Gallen University, and so it was appropriate that an expert in marketing (Michael B Mueller) from that University should present the marketing aspect. To talk about the application of pressure of various kinds – enforcement of regulations, incentives, financial instruments and the like – Markus Antener was approached because of his extensive experience in wastewater management in Zürich City and the success of that city in employing these measures. He agreed to share some insights, so the team of resource persons was complete.

7.2 Preparation of case studies

The successful approach developed in Aguasan workshops is to look at a limited number of case studies in considerable detail, and consider how ideas that are presented could be applied in the context of each case study. Not only does this provide good opportunities for the participants to learn from the experiences presented in the case study, but it also encourages participants to make realistic and practical proposals that could be implemented in a defined situation. It is also expected that the case study presenter gets some inspiration and new ideas from the discussions about the particular case. Four cases were selected, but at the last minute one of the presenters was unable to come. At this late stage Ann Killen was asked if she would be prepared to fill two positions at the workshop – as Resource Person for awareness and presenter of a case study – and happily she did, presenting an interesting and positive case from Vietnam. The other case studies were from Peru, Bangladesh and Uganda, each one very distinct from the others.

The case study presenters were each asked to prepare a short (five minute) presentation of their case, on the basis of which the participants would decide which case study group to join. Longer presentations were to be prepared to give the working groups more information about the particular case study. The instructions to the case study presenters can be found on the CD.

7.3 Preparations by other participants

In the past, workshop participants have been asked to bring only a short questionnaire form on which they were asked to write the answers to three or four personal questions, as an introduction. This year, for the first time, participants were asked to each bring a poster – a "showcase" – to illustrate a relevant aspect of their work and serve as an example for discussions related to the workshop theme. The instructions that were sent to each participant are available on the CD. Some participants had difficulty in identifying topics from their current work that were related to the theme of the workshop. Participants were asked to introduce their showcases in only two minutes, and the posters were displayed on the walls of the workshop room throughout the week, to encourage and support informal exchanges.

7.4 Workshop organisation

Preparation and coordination of content & workshop steering committee	Armon Hartmann, SDC Franz Gähwiler, HELVETAS Martin Strauss, SANDEC Karl Wehrle, Skat Consulting (chair)
Facilitation / Moderation	Tonino Zellweger
Secretariat – Rotschuo	Julian Jones, Skat Consulting
Secretariat – St Gallen	Gisela Giorgi, Skat Consulting
Financing of organization and programme	The Swiss Agency for Development and Cooperation (SDC) Bern

Chapter 8 The programme of the workshop

8.1 The main sessions

8.1.1 Monday 23 June

start	finish	topic	presenter	reference[2]
11.00	12.00	Arrival, a chance to meet informally		
14.00		Welcome; introduction to the programme and objectives	KW	1.2.4; CD
		Overview of the programme	TZ	CD
	15.00	Presentation of the context	AH	Sec 1.2.2
15.00	16.00	Excreta, Health and Sanitation	MS	Ch 2, CD
16.30		Self introductions and presenting showcases	All	5.2; CD
17.25		Short presentations of case studies	CSP	Ch 4
17.45		Formation of working groups	TZ	CD
20.45		Informal evening presentations Environmental sanitation – situation, challenges, outlook	MS	5.1; CD

Further details

14.00 In his welcome, Karl Wehrle mentioned that Aguasan had been operating as an informal group of sector professionals and organising workshops for 20 years. There had been more applications that there were places, showing that though the subject is unattractive in itself, it is recognised as a crucial one. He then reviewed the objectives and components of the workshop building up the poster "Framework and objectives" which is on the CD.

16.30 The preparation team, resource persons and case study presenters introduced themselves with the help of a poster showing their photographs, and the other participants had two minute each to introduce themselves and their showcase poster, which was then fixed to the wall of the workshop room for the duration of the workshop.

17.25 Each case study presenter was allowed five minutes to present her/his case using either a poster or excerpts from a PowerPoint presentation.

17.45 The participants were then given the opportunity to indicate their choice of case study, by writing their names and their first and second choice of case study. Since the largest number chose the Vietnam case study, the Moderator asked for volunteers to move from that group to the group of their second choice. In this way a roughly equal distribution between the case studies was achieved. The CD shows the poster that was used for this purpose.

20.45 This comprehensive presentation was in many ways a core input to the workshop, so a short summary has been included in this report in Section 5.1.

[2] This column explains where more information is available – either in another part of this report (in which case the chapter or section number is given) or on the accompanying CD.

Key to presenters						
	MA	Markus Antener	MBM	Michael B Mueller	KW	Karl Wehrle
	AH	Armon Hartmann	CSP	Case study presenters	TZ	Tonino Zellweger
	AK	Ann Killen	MS	Martin Strauss		

8.1.2 Tuesday 24 June

start	finish	topic	presenter	reference
08.30		Review of previous day's programme		
09.10	10.10	Presentation of cases in groups		
10.35	10.50	Brief review of key health-sanitation links	MS	Ch 2
10.50	12.00	Case study groups: Visualising case studies and questions on disease transmission		
14.00	14.30	Case study groups: Preparation of posters		
14.40	17.00	Plenary: Sharing of results of group discussions		Ch 4
17.00	18.00	Presentation – "Raising awareness – one way out"	AK	3.1; CD
20.30		Informal evening presentations:		
		The Water Resources Management Programme, Nepal, by B C Ramesh		5.2; 5.4.1
		SDC Watsan Partnership Project, by Abdul Motaleb		5.4.2; CD

Further details

09.10

Instructions for presentation of cases:

Objective	Each group is acquainted with the context, the intentions and the activities of its case
Task	▪ The case presenter explains to the groups what is important - about the context - about the objective - about the activities ▪ The case presenter tells the group what (s)he would like to achieve, ▪ The group members listen and reflect on the background of their own showcases. ▪ Each one notes the three most important - strengths - challenges of this case.
Time	one hour
Result	individual notes

Key to presenters						
	MA	Markus Antener	MBM	Michael B Mueller	KW	Karl Wehrle
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	AK	Ann Killen	MS	Martin Strauss		

10.50

Instructions for "Visualise and answer questions":	
Objective	All participants understand the logic of the four cases and are able to compare them.
Task	▪ Each group visualises the important aspects of its case, including - the context - the objective - the main strengths the main challenges ▪ Answer the following questions: 1. What are the predominant Excreta and Water Related Infections (EWRI) in your case? 2. What are the transmission routes in your case? 3. What barriers are/should be put up in your case, to reduce EWRI? ▪ The group members listen and reflect on the background of their own showcases. ▪ Each one notes the three most important - strengths - challenges of this case
Result	Two (three) pinboards (or charts) with all cards glued on.
Time	Discussion and pinning ⇨ 12.00 Charts ready for presentation 14.30
Presentation	15 minutes 15 minutes discussion

8.1.3 Wednesday 25 June

start	finish	topic	presenter	reference
08.30	09.00			
09.00	10.00	Marketing – the case of Robidog	MBM	3.2
10.20	11.30	Pressure – a successful means	MA	3.3
11.30		Preparation for excursion		
13.00	22.30	Excursion		8.2

Key to presenters						
	MA	Markus Antener	MBM	Michael B Mueller	KW	Karl Wehrle
	AH	Armon Hartmann	CSP	Case study presenters	TZ	Tonino Zellweger
	AK	Ann Killen	MS	Martin Strauss		

8.1.4 Thursday 26 June

start	finish	topic	presenter	reference
08.30	09.00	Review of previous day's programme		
09.00		Collection of insights from the excursion	TZ	8.2.2
9.15		Group work "3 approaches"		
14.00		Introduction to "Metaprogrammes"	TZ	5.3
14.30		Group work "Barriers and appropriate mix of measures"		
17.00	17.30	Market for explaining outputs of last group work session – Posters on display with one member of each group to explain them to visitors		
17.30	17.45	Completing workshop evaluation questionnaire forms		CD
17.45	18.00	Further discussion on health aspects	MS	2.9
20.00		Informal presentations		
		- Rural water and sanitation in Lesotho; Sekhesa Mapesho		CD
		- Metaprogrammes;	TZ	5.3

Further details

09.15 Instructions for "3 approaches" group work:

This exercise was not done in the case study groups, but in groups that were reformulated so that each group had at least one representative of each case study group. (The groups were formed by seating participants in their case study groups, to which a colour was assigned. Small cards with numbers 1 to 4, of the colour of the case study group, were handed out sequentially to the members of each group.)

Objective	The participants identify a large number of measures to help overcome barriers to the implementation of improvements.
Task	1) choose a facilitator 2) list the measures you noted during the three inputs - awareness building - marketing - pressure 3) For each measure name the prerequisites / conditions
Result	up to 2 charts (with legible writing!)
Time	⇨ coffee break
Note	▪ Be precise ▪ The measures won't be presented in the plenary.

Key to presenters						
	MA	Markus Antener	MBM	Michael B Mueller	KW	Karl Wehrle
	AH	Armon Hartmann	CSP	Case study presenters	TZ	Tonino Zellweger
	AK	Ann Killen	MS	Martin Strauss		

14.30 Instructions for group work: "Barriers and appropriate mix of measures":

Back in case study groups, the participants worked to integrate and mix measures selected from the range that had been produced in the earlier session. Each group was given prints of the photographs of the boards produced in the morning.

Objective	To find appropriate mixes of measures for the four cases presented.
Task	▪ Choose the two most important EWRI in your case. ▪ Describe the transmission path ▪ Name the barriers. ▪ Select the appropriate measures. ▪ Identify the next steps.
Result	information presented on two pinboards
Time	90 minutes
Presentation	Exposition, with a member of the group always at the stand to explain to visitors.

8.1.5 Friday 27 June

start	finish	topic	presenter	reference
8.30		Review of the previous day's programme		
		Preparation of working groups		
9.20	10.30	Working groups discussing some of the showcases		5.2.2
11.00	12.00	Presentations of the showcase working groups		5.2.2
14.00	14.20	Short presentation of Ecological Sanitation	MS	2.10
14.20	14.40	Suggestions of topics for a future workshop	TZ	Annex 2
14.40	15.00	Plenary evaluation of workshop	TZ	8.3
15.00	15.30	Closing comments and presentation of certificates	KW	
		Close of workshop		

Further details

Showcase working groups: The previous evening, the steering group had reviewed the posters and selected those which seemed most suitable for the proposed working group discussions. However, it was agreed that presenters of other posters could be given the opportunity to opt in if they wished. 10 were selected. On the Friday morning one other participant asked for his showcase to be considered, so the other participants were divided between the 11 showcases. The working groups were given just over one hour to prepare outputs according to one of the three sets of questions listed in Section 5.1.2, and were asked to prepare up to two posters on flip chart paper, for presentation in up to five minutes by the person who prepared the showcase.

The showcase posters and the posters prepared by the working groups are available on the CD.

Key to presenters						
	MA	Markus Antener	MBM	Michael B Mueller	KW	Karl Wehrle
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	AK	Ann Killen	MS	Martin Strauss		

8.2 The excursion

Instead of being briefed in detail in advance, the excursion was presented as a string of surprises, and very little information was provided to the participants before departure at 13.00 on the Wednesday.

8.2.1 Visit to OEKAG – innovative sanitation systems

The first stop was at the home of Mr and Mrs Morandini, which was also the office of OEKAG Wassertechnik [Schweiz] AG, an architects office specialising in innovative approaches to the management of stormwater runoff, wastewater and excreta. They are working to fill in the gaps between local engineers, plumbers and the requirements of the environment.

They have been working with the Swiss federal water research laboratories (EAWAG) to develop ways of reducing runoff flows for a new building by retaining and using rainwater. They have also been investigating ways of treating runoff from highways, especially for removing heavy metals.

We were shown methods of reducing water consumption, including a toilet that uses only 2 litres for a short flush and 4 litres for a full flush, and discharge-limiting devices for taps. Lower water consumption results in many benefits including lower abstraction rates, less energy consumption for pumping and treating potable water and wastewater, and smaller pipes for water supply and wastewater collection. One possible drawback of low wastewater flows is that there is insufficient flow to flush wastewater pipes; this problem has been overcome with a siphon chamber (of a type that has been used in Sweden for over 25 years). The chamber collects greywater from washing fittings and kitchens until about 23 litres is stored. By means of a siphon the water is then released in a rush so that all solids are effectively flushed through the pipes.

One energy-saving device was forbidden by Swiss law until last year.

We were shown a model of a device that is used for rainwater harvesting. It discharges the first flush before collecting the subsequent flow. Another model showed the design of a new type of septic tank – operating on the cyclone principle – which is more suited than the conventional type to handling high surge flows, and which uses 70% less concrete.

Several types of composting toilet were also on display. Particular features of these models included

- multiple chambers so that there is ample time for die-off of pathogens before it is necessary to remove the composted faeces;
- efficient ventilation systems so that there is no smell nuisance and the composting process is well aerated (using wind-operated or electrical ventilation and strict design requirements for the layout and materials of the vent pipe);
- wood "compost-aid" material to be added to the faeces to provide carbon and to promote an open structure that produces odour-free aerobic conditions;
- no requirement for separation of urine.

A toilet unit with three boxes costs CHF 2000 (about US$ 1400). More information about these composting toilets can be obtained from the supplier in Norway via their web site: www.vera.no or from the OEKAG site (which is in German) www.oekag.com.

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8.2.2 Tropical House

The next visit was to a huge greenhouse which grows tropical fruit and fish on a pilot commercial scale.

A large gas pipeline runs from the Netherlands to Italy, and at intervals of about 150 km it is necessary to operate booster stations to increase the pressure of the gas. These booster stations generate considerable heat. The compressors use only 33% of the energy consumed, and the local canton law says that 80% of the energy should be used. The designers of the pipeline were faced with the question as to how the waste energy should be used. Using it for heating residential houses was not an economically viable proposition. The solution was to use the heat for generating electricity and for heating a large greenhouse or tropical house that is used for producing tropical fruit and fish. Water is collected from the roof and heated, and warm water from the fish tanks is used to irrigate the fruit trees and other plants. The present tropical house is regarded as a pilot scale operation; based on experience with this installation it is estimated that a larger operation would pay back the investment, tax and interest within 10 years. A tropical house covering one hectare would need between three and five staff to run it.

The facility uses no artificial fertiliser and no antibiotics for the fish. Waste biomass is composted, so there is no waste. A composting toilet has also been installed.

The tropical house attracts one to two groups of visitors each day. More information can be found on the web site http://www.seecon.ch/e/projects_e.html. Some photographs from the visit are on the CD.

8.2.3 Other visits

The third visit was a short stop at an old farmhouse in Geuensee to see a traditional latrine. The excreta are stored in a vault and mixed with cow manure, to be spread periodically on the fields. When the present occupier (Mr Egon Albisser) moved to this house the smell from the latrine was very bad, but with lime and good management there is now no nuisance.

The final visit was to the farm of the Wyss family at Hunzikon. The farm had 36 cows and 140 pigs. A computer controlled the amount of feed that each cow received, according to the volume of milk that the particular cow produced. The cows were kept inside during the day to avoid biting flies. The farm also had a small museum of old farming equipment and several sets of cowbells. The area of the farm was not large enough to assimilate all of the manure produced by the animals, so some of the slurry was transported to another canton, to a farm that had no animals, so that the slurry could be spread on the farmland without exceeding the capacity of the land to use the nutrients.

Finally we were entertained to an excellent dinner, in the company of some older members of the community, who could remember when life was very hard and simple (for example, when there was no hot water to wash with, and the children usually had no shoes.) A last surprise was the arrival of a brass band which entertained us with some lively music and even inspired some of us to dance. The workshop participants really enjoyed the friendly atmosphere and the warm welcome.

Key to presenters						
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8.2.4 Relevant insights from the excursion

On the morning following the excursion, the following observations were made on the basis of what had been seen and heard during the visits:

a) In relation to the visit to OEKAG

- Excreta management is possible using simple technology.
- If there is no profit to be made, even the best solutions will not be introduced.
- Alternative technology must be affordable.
- If the profit margin for a plumber or a construction firm is less for a new technology than for the equipment that is conventionally used, it may be difficult to introduce the new technology.
- Conflicting instructions (e.g. over urine separation) may discourage the introduction of a new technology.
- Easy and low-cost access to good water hampers the introduction of a new technology.
- It is difficult to introduce a technology that requires the user to do more work.
- Pressure can help to create a demand.
- It is hard to change a paradigm.
- Laziness, habits and tradition are all obstacles to change.
- Culture is not a fixed entity.
- Ideas can be taken up and realised more cheaply in some countries than in others.

b) Visit to the Tropical House

- To survive, farmers need to find new niches.

c) Visit to the old farmhouse pit latrine

- The old pit latrine is still working well.

d) Visit to the farm

- Environmental pressure means that sludge (liquid manure) from one farm must be taken from one farm with many animals to be spread on a farm in another Canton where there are no animals.

8.3 Plenary evaluation of the workshop

An evaluation questionnaire form had already been circulated (a summary of the findings can be found on the CD), but a further exercise – interactive and in a plenary session – was conducted by the Moderator. It was the first time that this method had been used at an Aguasan workshop.

First, participants were asked to identify aspects of the workshop that should be evaluated. The following list was drawn up together:

1. Did we meet the objective?
2. Personal benefit
3. Overall satisfaction
4. Were the methods used appropriate?
5. Programme design
6. Quality of case studies
7. Degree to which participants expectations were met.
8. Participation

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9. Quality of inputs by resource persons
10. Benefit from showcases
11. Benefit from excursion
12. Utilisation of the showcases

The Moderator then drew a chart on flip chart with a radial arm for each of the criteria that had just been listed. This is reproduced in Figure 8.1. A photograph of the sheet is on the CD.

The evaluation was conducted in this way: The Moderator gradually moved his pen from the centre (poor) to the extremity (excellent) of each radial arm in turn. The participants were invited to shout "Stop" when he reached the point which described how they would rate the workshop according to the particular criterion. Where there are several marks this signifies a range of opinions. The participants who had an extreme position or felt strongly about a particular issue were invited to approach the chart and write their opinion at the appropriate place. (Because of the lack of space in this diagram, each point of view is assigned a code letter (a to i) and the comment is shown below the diagram.)

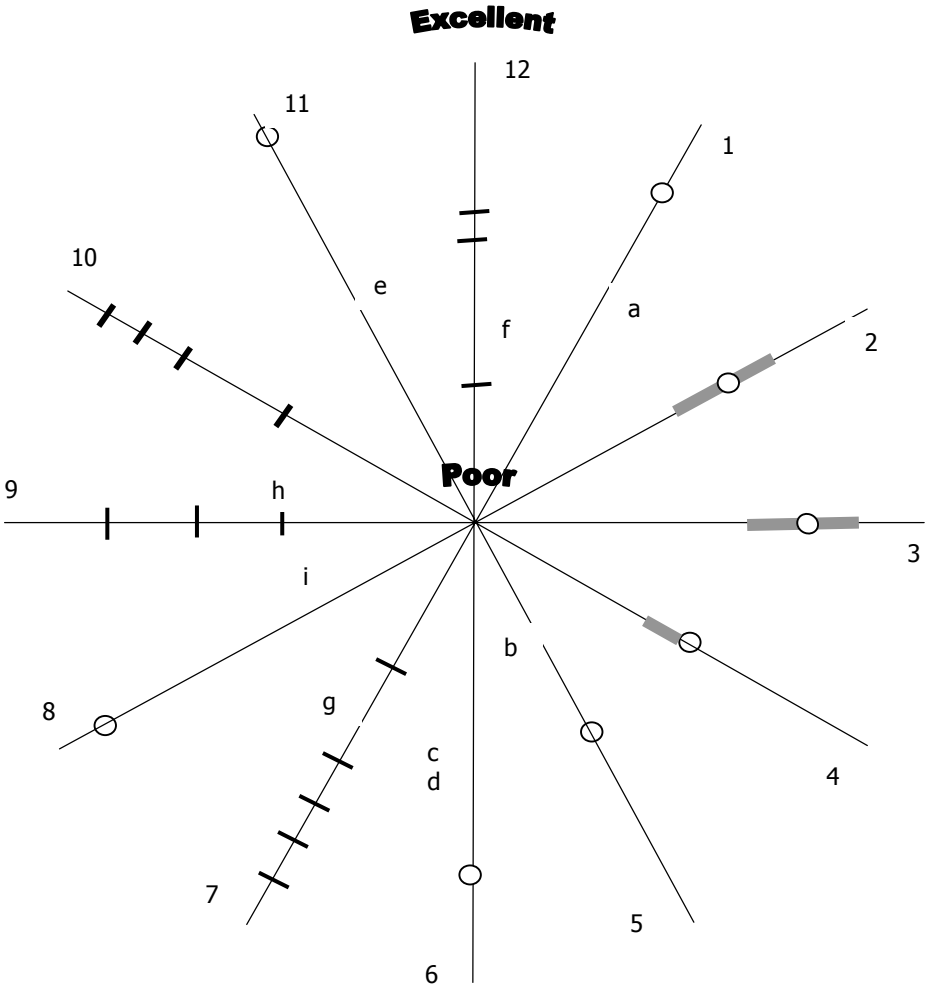

Figure 8.1: Workshop evaluation chart

Key to presenters	MA	Markus Antener	MBM	Michael B Mueller	KW	Karl Wehrle
	AH	Armon Hartmann	CSP	Case study presenters	TZ	Tonino Zellweger
	AK	Ann Killen	MS	Martin Strauss		

Comments

Code letter	Criterion	Comment
a	1	The household-centred approach was missing
b	5	Not enough time
c	6	There were hardly any fresh insights; too normal
d	6	Important data were missing
e	11	Solutions to our problems cannot be found in Switzerland
f	12	There was too little time for the show cases, too much for 'theory'
g	7	The title was a little misleading, there was a lot on health, and less on awareness, marketing and pressure
h	9	About 30% was conventional lecturing
i	8	The strict time schedule limited participation; there was no chance for relaxing. We spent a lot of time in the dining room

Some comments about this method of evaluating a workshop

- Some people are reluctant to show their opinions in front of the others.
- If the Moderator had moved from "Excellent" to "Poor" (instead of in the opposite direction), the results would have been different.
- An alternative method would be for each person to stick pins along each axis to show their individual opinion.

Key to presenters						
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	AK	Ann Killen	MS	Martin Strauss		

ANNEXES

Annex 1 List of participants

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Annex 2 Suggested topics for a future workshop

In a plenary meeting, the following topics were suggested for a future workshop. The planning team promised to consider them at their next meeting.

- Community mobilisation and management
- Quality management in water and sanitation projects
- Water resources management
- Water pollution reduction
- Results and consequences of the International Year of Freshwater
- Financing strategies and procedures in the water sector
- Water, sanitation and environmental protection
- Improved public health – measures to be taken up
- Drinking water sources – management and protection
- Best practices in rural water and sanitation services and management
- Cost recovery in sanitation – the challenge
- Successful community-based experience
- Community management of water and sanitation programmes
- Linking sanitation and biological agriculture
- Institutional corruption in the WES sector
- Economic and financial challenges in sanitation
- Strategic partnerships in marketing
- Knowledge management in water and sanitation
- Integrated water resources management at sub-catchment scale
- How to improve and develop low-cost technology for water supply and sanitation
- Ecological sanitation
- Project financing cost recovery. Cost recovery for long-term operation and maintenance
- Entrepreneurship in urban and rural sanitation
- Lessons learned from emergencies in water supply and sanitation
- Enforcement of standards and legislation
- Post-project sustainability of water supply and sanitation
- Price and value of water and wastewater
- Metaprogrammes in water supply and sanitation

Annex 3 Guide to the accompanying CD

Various text files – including this document – are made available on the accompanying CD-ROM in portable document format (.PDF). If necessary, a copy of Adobe's Acrobat Reader can be downloaded at no charge via the following page on Adobe's website:

www.adobe.com/products/acrobat/readstep2.html.

Some files on the CD also require a suitable PowerPoint viewer. If Microsoft PowerPoint is already installed on your system, you do not need a viewer to consult files on the CD. If necessary, the latest viewer can be downloaded at no charge from Microsoft:

www.microsoft.com/office/000/viewers.asp.

Finally, certain image files are made available in .JPG format and require a suitable image viewer or an Internet browser. If necessary, a suitable browser can be downloaded at no charge from Microsoft:

http://www.microsoft.com/windows/ie/default.asp

The contents of the CD can be accessed using your usual file management software. On Windows-based systems, this will normally be your Windows Explorer software. Simply navigate to Ω:\ (where "Ω" indicates the drive letter assigned by your system to your CD or DVD drive) and double-click the files you wish to open.

Always check with your system administrator before attempting any software installation (or lengthy download) for your system.