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Contents

Second draft

CRITERIA
FOR SUCCESSFUL SANITATION PROGRAMMES

Prepared for

The Working Group

On

Hygiene and Sanitation Promotion

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CRITERIA FOR SUCCESSFUL SANITATION PROGRAMMES*

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MEANING OF SANITATION :

Development of any criterion for identifying a successful sanitation programme, presupposes an understanding of the meaning of sanitation. The term "Sanitation" has been interpreted and used by different people in different ways. It is, therefore, no surprise that a clear-cut understanding of the interventions, which can signify its success, is virtually lacking. The International Drinking Water Supply and Sanitation Decade (1981-90), although talked about providing all people with better access to sanitation, emphasized on the ***service coverage***. The World Summit for Children (1990), which set the goals for child survival, development and protection (called the Summit Goals) looked at access to ***sanitary means of excreta disposal*** as the basis to measure the progress under sanitation. The Rio Conference (1992) considered sanitation as part of the broader environmental issues. Prof. John Pickford uses the word 'Environmental Sanitation' to include ***excreta disposal, sullage disposal and drainage and refuge disposal***. Till recently, most of the countries viewed access to latrine by households as a generic indicator of sanitation coverage, although of late there has been a distinct shift in their approach to defining the term 'sanitation'. The Eighth Five Year Plan document (1992-97) of Govt. of India, used the concept of ***'Total Sanitation' to be coterminous with 'Cleanliness'***. The Working

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* The views expressed in this note are those of the authors and not necessarily of the organization in which they serve.

Group on Sanitation Promotion (1994) suggested 'sanitation' to encompass all those measures that would be necessary to achieve "*safe interaction with human excreta", including drainage, hygienic behaviours, excreta reuse, pit emptying and disposal*. All these definitions have looked at 'sanitation' from different angles with varying degree in their scope and contents.

SANITATION AND HEALTH LINKAGE :

It is now well recognized that access to latrine is not the same thing as access to sanitary means of excreta disposal (which have several other connotations) nor adoption of improved sanitary practices as a part of behavioural change. Epidemiological investigations have shown that even in the absence of latrines, diarrhoeal morbidity can be reduced with the adoption of improved hygiene behaviours (see Fig. I). Several studies across the globe indicate that the impact of promotion of personal and domestic hygiene on diarrhoeal morbidity varies from 11% in Zaire to 48% in U.S.A. (See Table I). In Bangladesh, similar studies show that children with more contaminated hands were three-times more likely to have diarrhoea than those with less contaminated hands. There seems to be a strong association between the mother not washing her hands before food preparation or after cleaning her child and increased risk of diarrhoea in the child. It is also now established that the quantity of water (required to have proper domestic and personal hygiene) plays a very important role in reducing the disease incidence rate ; mere quality of water is not enough to guarantee the same. All these findings point to one thing i.e. sanitation goes much beyond latrines and even beyond the other hardware associated with it and hence sanitary means of excreta disposal cannot be a single indicator to measure the success or failure of a sanitation programme.

PROBLEM IN DEFINING THE CRITERIA :

If the definitions mentioned above are any indication, there could be a range of criteria which one may consider to assess the success of a Sanitation Programme. Two suggestions are worth examining in this regard; one, by the Working Group on Sanitation Promotion and the other by WASH/EHP. Let us have a look at the definition suggested by the Working Group on Sanitation Promotion. By using this definition we can say that a successful sanitation programme is one which encompasses all those measures that would be necessary to achieve safe-interaction with human excreta, including drainage, hygienic behaviors, excreta reuse, pit emptying and disposal. WASH/EHP defines successful sanitation programme as one that improves health, is sustainable at community and institutional levels, is cost effective and increases effective coverage levels. Both these definitions have certain things in common but differ widely in their approach to the problem. For example, while linking sanitation with health, the Working Group has relied heavily on inputs whereas WASH/EHP has expressed the success in terms of health impact. It may be mentioned that the health impact indicators of a sanitation programme is not easy to define and measure, particularly in the short run. It may look more appropriate to look at sanitation as a package of services which taken together can influence the health of a person and the community. In other words, an input oriented approach to defining the criteria may look more practical. Similarly, while examining the parameters for the success of a sanitation programme, its environmental impact should not be lost sight of. Besides the success of a sanitation programme is also very much dependent on the way it is implemented and the flexibility it has in catering to the needs of the people.

THE CRITERIA DEFINED :

As may be seen from the foregoing analysis, the success of a Sanitation Programme will depend upon a host of factors. This brings to the fore several questions which need to be answered while evaluating the programme. How far has the programme adopted a package approach to promoting sanitation? Does it allow any flexibility in the technology choice? Has it adopted a demand driven approach (through greater peoples' participation) or a supply driven approach (through heavy subsidy)? Does it differentiate a high risk population group from the rest? Is it environmental friendly and so on ? Let us analyze these points carefully since they contribute to making the sanitation programme a success.

1. Sanitation as a package :

A package approach to sanitation has become more important now than ever before. This is mainly because, the health benefits expected from a sanitation programme are very much dependent upon the adoption of all the elements of this package instead of treating them in isolation. Such a package can consist of seven components viz. **i)** ***safe handling of drinking water (from source till use)***; **ii)** ***disposal of waste water***; **iii)** ***safe disposal of human excreta (including disposal of child excreta)***; **iv)** ***solid waste disposal (including disposal & management of animal waste)***; **v)** ***home sanitation and food hygiene***; **vi)** ***personal hygiene (including handwashing)*** and **vii)** ***sanitation in the community***. While the first six relate to sanitation at household-level, the last one refers to a clean environment in the settlement. It is well-known that sanitation at household level and at community level are very much inter-linked. Thus, a programme which has a package approach to improving sanitation has a better chance of success than that which treats these components in isolation.

2. Sanitation Up-grading Approach :

The 'Regional Informal Consultation for Hygiene and Sanitation Promotion' organised by the WHO Regional Office for South East Asia at New Delhi, in May 1993, strongly advocated for a programme based on affordable sanitation alternatives rather than thrusting upon people a single technological option. This approach envisages a sanitation upgrading sequence (Fig.2), improving local systems and practices. Between indiscriminate open defecation and pour-flush latrine, one can identify a range of options to suit different socio-economic population segments in a given area. As resources become available, local systems can gradually be improved. This means, simple improvements should not be disregarded because they fall short of the ideal. This flexibility in the choice of technological option can result in accelerating sanitation coverage (particularly the service coverage). The 'Do-it-yourself' latrines currently promoted in Bangladesh has led to a rapid increase in the coverage from 10 per cent in 1989 to 26 per cent in 1992. Experience from Medinipur (West Bengal), India reveals that by offering 12 different designs of sanitary latrines with a varying price range, there was a geometric progression in the coverage (from 6,500 in the first year to 27,000 in the second year to 58,000 in the third year)

3. The Demand Driven Strategy

There is growing realization that a Demand Driven Approach is more effective, sustainable and can contribute significantly to the service coverage level than a Supply-Driven Approach which is rather short-sighted. The subsidy-linked programme, in many countries, have run into rough weather mainly because of inadequate funds to meet the large requirements and non-use of sanitary facilities by the beneficiaries. It is estimated that over 2 billion population in the World need to be provided with sanitary facilities. If the goal of universal access to sanitation is to be achieved, the investment required for this purpose far exceeds the internal resources of the Government and the external agencies as well. It is therefore essential that alternate delivery systems, with no visible subsidy, may have to be developed to accelerate sanitation coverage. This calls for encouraging private initiatives to take part in the programme

with the market mechanism playing an important role. Creation of revolving fund and linking the same with credit schemes, establishment of production centres and delivery outlets like Sanitary Marts, making the skill on various technological options available at grassroot level etc. are some of the interventions that a programme can think of to make it a success.

4. Focus on high risk population

It is now admitted that full latrine coverage is something which may not be feasible in the immediate future. This will call for identifying those segments of the population which are at risk and need to be covered on priority basis. Areas with high population density, higher cropping/irrigation intensity with a little or no open land for defecation are at great risk. In this regard, the new priority suggested by the Regional Informal Consultation, New Delhi (1993) is worth considering. " ***Hygiene promotion for all and full latrine coverage for high risk population***" .

5. Sanitation to be Environmental Friendly

One of the tests of a successful sanitation programme could be to see that it does not create any environmental health hazard. There are apprehensions of the ground water getting contaminated due to low-cost leach pit latrines. Also, there are complaints about surface water contamination, nuisance from flies and unsightly conditions. It is therefore necessary that a sanitation programme, which aims at improving the environment should not be accused of being unfriendly to it. Care has to be taken to ensure the following :-

(i) It does not contribute to surface soil and water contamination; (ii) Does not contaminate springs and wells; (iii) Checks the access of flies and animals; (iv) Allows freedom from smells and unsightly conditions; (v) Uses less water; (vi) Does not use soak-aways; and (vii) Disposes and treats all waste water.

6. Registered gender specific behaviour change by majority.

Sanitation Programmes can only be successful if they live to measurably improved sanitation practices by a sufficiently large number of people. Research by Batman et al gives an adoption by 75 % of the population as the point where an impact on public health could be proven. Moreover, such practices need to be adopted by a cross section of the population, that is, men and women, boys and girls, in the different socio-economic and cultural strata. Field studies show lesser usage of latrines by children and this defeats the whole purpose of providing latrines for safe disposal of human excreta. This means that successful sanitation programmes use a gender approach whereby access and contributions are equitably divided over by men and women, boys and girls.

From what has been discussed above, we can say that a successful sanitation programme is one which :

- has a package approach,
- allows flexibility in the choice of technology,
- is demand driven for greater sustainability,
- focusses on 'high risk' population,
- is environmental friendly &
- shows registered gender-specific behavior change by a majority

AN ACRONYM FOR THE CRITERIA IDENTIFIED

For the purpose of remembering the criteria suggested above, an attempt has been made to develop an acronym, **"PUSHER"** where 'P' stands for package approach with seven components, 'U' for the upgrading approach with flexibility in technology, 'S' for smallest subsidy for greater replicability and sustainability, 'H' for Hygiene promotion for all and latrines

for high risk population, 'E' for making sanitation environmentally friendly and 'R' for registered gender-specific behavior change by a majority. All these factors can really push a sanitation programme to reach greater heights.

HOW TO USE THESE CRITERIA

Ideally, one may take a holistic view and take all the above mentioned criteria while evaluating the success of a sanitation programme. Alternatively, one can look at each criterion or a combination of them to make such an assessment. While doing so it is essential that a set of measurable indicators are developed for each criterion. One may think of even giving some weighage to the six criteria and the indicators identified within each criterion. To assess the above mentioned criteria, a number of specific indicators are recommended :

Indicator for criteria 1, Package with 7 fields of sanitary behaviors :

% of households and schools in area X which between period Y and Z use safe sources and handling of water and safe methods of human excreta disposal, waste water disposal, solid waste disposal, food hygiene and personal hygiene, esp. handwashing.

This indicator allows a programme to see if more people begin to use more sanitary methods. The essential indicator is behavior - physical improvements without behavior change has no impact. What are improved methods for the supply and drawing of water, disposal of human excreta etc. needs to be defined locally. A simple pit latrine or digging and burying can be an improvement when it replaces open defecation or a latrine over a watercourse. Care is needed to define "improved" realistically. Many sanitation programmes set such high standards for sanitation improvements, that they cannot be achieved by 75 % of the total population, at least in high risk areas, which is the needed percentage for an impact on public health.

Indicators for criterion 2, Upgrading approach with flexibility in technology :

All users have a choice on what facilities they will install, use, maintain and finance, on the basis of the users' realities. % women and men informed, consulted and trained. %

males/females taking part in decisions and functions, % males/females doing physical work and % males/females involved in hygiene education

These indicators deal with the participation process in choosing the sanitation technologies. Underlying is that decisions on use are made by the users, not by the agency, and that both men and women need to be involved in decisions on what they want to install and how much they are willing to pay. The agency's tasks is to ensure that men and women are both informed and are enabled to make wise decisions. Because the decisions are the users', and to the agency's they have to be based on the user's own frame of reference and not of that agency. The gender indicators reveal the degree to which women, as key sanitation managers, are reached with information and take part in decisions, training and functions. It also measures if the responsibility for health and hygiene and for cleaning is not imposed only on women and girls. When no participation and gender procedures exist and interviews and group discussions in the field reveal that male and female users have not had a say in the choices that were made, community participation is not implemented properly.

Indicators for criterion 3, Smallest subsidy for achieved change :

Per household unit cost for measurably achieved effective change in selected sanitation behaviors in area X during period Y-Z

This indicator gives the total cost, that is of technical plus social inputs, per household which effectively uses improved sanitation methods and practices as defined by the programme and the communities participating in the programme. A low per household cost is not useful when it is not coupled with effective use. But a high per household cost with effective use indicates a low sustainability and replicability of the overall approach.

Indicators for criterion 4, Hygiene promotion for all and latrines for high-risk populations

% of safe sanitation facilities and practices adopted and sustained in households and schools in

area X in from year Y to Z and continued after the project/programme has been completed.
Percentage of high risk environments where latrine programmes are carried out

The first indicator shows that better sanitation practices and methods are adopted and used, but also that they are sustained, even when the project or programme is completed. The programme obviously used or created capacities which allow self-reliance. Set off against population growth the indicator also shows whether achieved levels of better sanitation are being maintained.

From epidemiological research it is known that especially the use of more water for hygiene and the washing of hands after excreta disposal and before food handling are behavior changes with a great potential impact on health. The increase in water consumption coupled with an improvement in selected hygiene practices is an indicator for greater water use for health. The presence of the means for handwashing is an indicator for the degree to which actual handwashing is practiced. The latter can be formulated as the percentage of household and schools with water and cleaning agent (brush/ashes/sand/soap) for handwashing at or near defecation place and palaces of cooking and eating.

The second indicator, on high risk areas, ensures that limited funds for latrines are spent where they have the greatest impact. Indicators for high-risk environments are : areas with dense settlement and risky sanitation practices; high percentage of low income households; high contamination of drinking water sources with human excreta.

Indicators for criterion 5 , environmentally friendly :

The programme does not create new environmental risks, such as contamination of water sources and vector breeding places.

This indicator ensures that the sanitation programme does not create new risks, for example when raw sewage is collected but not treated before disposal, because latrines cause the contamination of groundwater or new breeding places for vectors are created.

Indicator for criterion 6, registered gender-specific behavior change

% of man, women and children who use improved sanitation practices and facilities in a consistent and hygienic manner. % of households and schools in area X where sanitary practices and facilities continue to be used and maintained in and after period Y - Z.

For an impact on health, improved sanitation methods need to be used the year round by all members of the family. If only women use sanitary methods, not children and men, no public health impact can be achieved. The same is true when most infants' excreta are unsanitarily disposed off, or when children use latrines at home but not in schools. And if sanitary excreta disposal takes place at home, but not in the field in water catchment areas, excreta wash into water sources which are used also for drinking. How exactly to define 'consistent' and 'by all' depends on local conditions and practices and is best defined together with the users.

The second indicator looks at the long-term effects of the programme on sanitary practices and use and upkeep of facilities. It shows the sustainablity of the introduced practices over time, including when external support is phased out.

MEASUREMENT

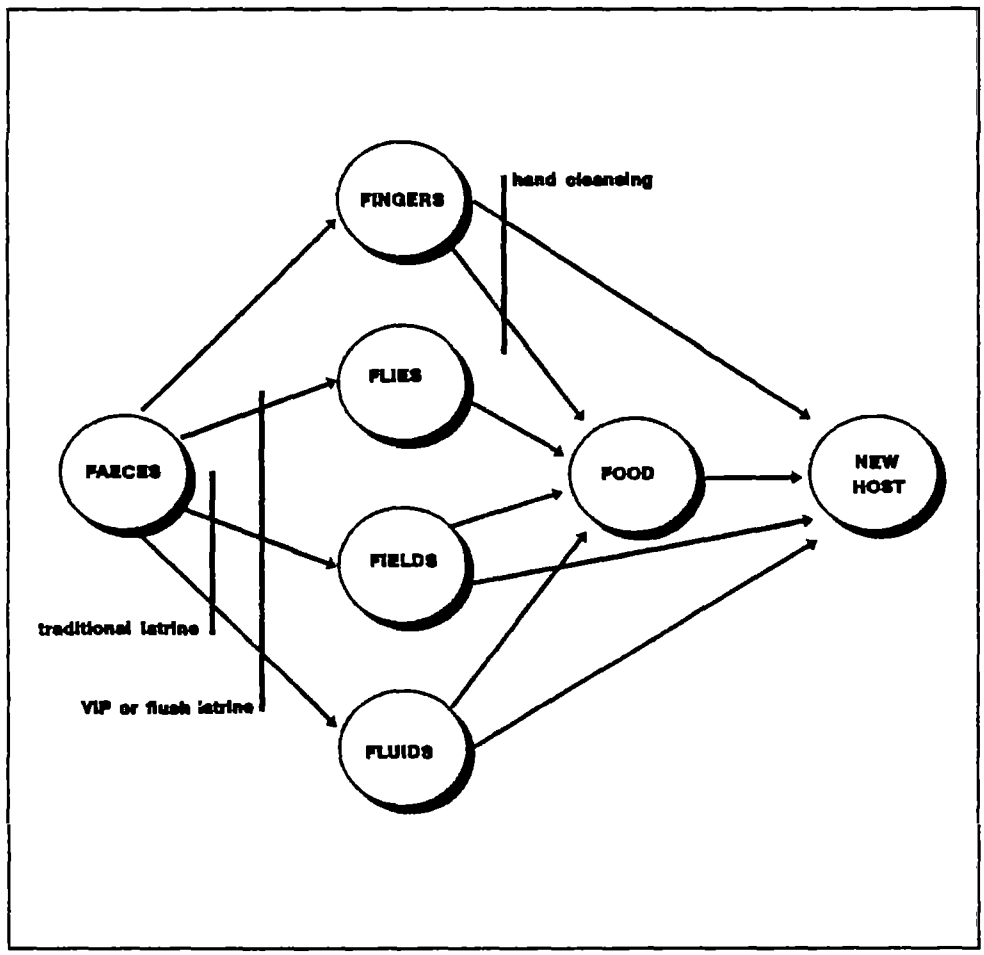
Sanitation behavior is difficult to investigate, especially when the time allowed for study is a matter of weeks and not months or a year. The topic does not lend itself to casual conversation or direct questioning; careful planning and the adoption of unobtrusive and sensitive investigative techniques are called for. Anyone wishing to carry out evaluations of sanitation must be familiar with the area and the people and should have been trained in the use of appropriate methods and tools; the shorter the time available, the more knowledgeable the evaluators need to be. Female project staff are needed for communication with female users.

To produce valid results, a choice and combination of methods need to be used, and not a single method. Table 2 gives a summary of the methods for assessing sanitation related behavior and

activities. All methods chosen need to be easy, valid (=measure what is intended) and reliable (= the same measurement by different persons or at different times must give the same result). Hence it is essential that measurement methods are objective and that it is ascertained with men and women in the population. Besides, the observed practice or facility is indeed what it is thought to be. For example, water in or near a latrine may be for flushing or cleansing and not for washing hands. Concept like 'clean' or 'safe' are not objective, when those doing the measurement can use their subjective judgement to rate a particular condition or practice.

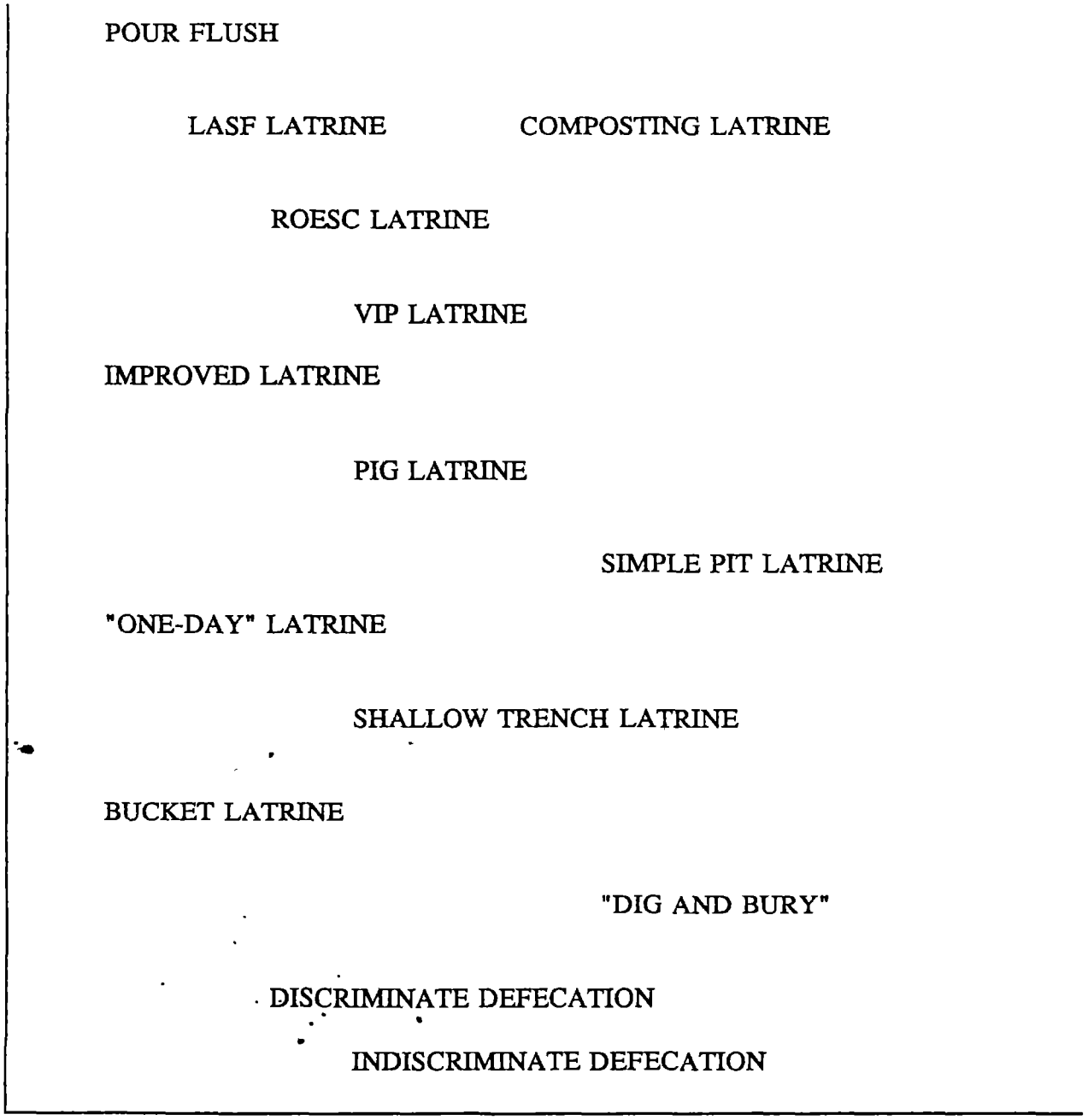
Measuring can be done by trained project staff. It can also be part of self-managed process of change by the communities, schools and neighborhood. This implies that how much and what is measured with what frequencies and how this is done is decided by the people. Specialists in evaluation techniques help to choose good local indicators, set up a realistic data collection system, develop suitable formats and condense and use data for use by the community and the programme. Research in East Africa has shown that suitable hygiene indicators to be measured as part of sanitation programmes are the disposal of children's faeces in households with or without latrines and handwashing with soap, ash or another local alternative at critical times.

Fig.1. Potential barriers to transmission of disease from excreta :
a modified version of the F-Diagram



Source : Wagner and Lanoix 1958, modified by Winblad, 1993 (Unpublished) - Quoted in the findings of a Regional Informal consultation, New Delhi 19 - 21 May'93, WHO Regional Office for South-East Asia, New Delhi, September'93

Fig 2 Sanitation upgrading approach



Helping households and communities to move up the sanitation ladder; and move upward is an improvement

Source : Wagner and Lanoix 1958, modified by Winblad, 1993 (Unpublished) - Quoted in the findings of a Regional Informal consultation, New Delhi 19 - 21 May'93, WHO Regional Office for South-East Asia, New Delhi, September'93

Table : 1
Impact of the promotion of personal and domestic hygiene on diarrhoeal morbidity
(Huttly S, 1992)

Location	% Reduction in diarrhoeal morbidity	Reference
Handwashing		
Burma	30	Hand & Hlaing
USA	48	Black et al.
Bangladesh (Urban)	35*	Khan
Combination		
Bangladesh (Urban)	26	Stanton & Clemens
Bangladesh (Rural)	>40**	Alam et al.
Guatemala	14	Torun
Zaire	11	Haggerty et al.

* Impact on Shigellosis

** Impact seen in both intervention and control areas : reduction due to intervention is approximately 17 %

Table 2

(To be extracted from Water Line ,
Vol 13, No. 3, PP 6 - 9 and inserted after Table 1)

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International Water and Sanitation Centre

Centre international de l'eau et l'assainissement

From promotion to a process of advocacy, social mobilization and communication for sanitation.

Paper submitted to the third meeting of the Working Group on promotion of Sanitation, Water Supply and Sanitation Collaborative Council, in Switzerland

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April 1995

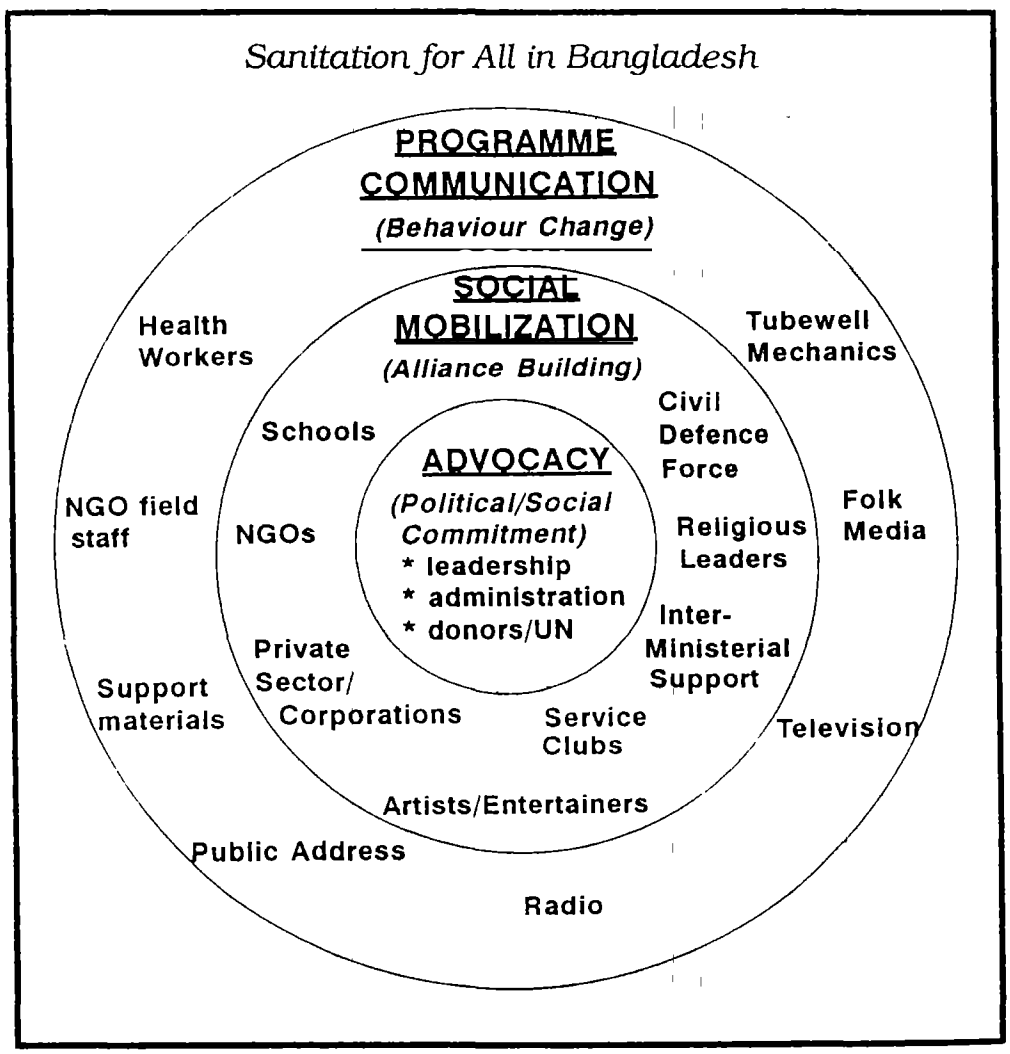
Contents

Introduction

This paper contains an analysis of earlier work of the Collaborative Council Working Group on IEC adding an analysis of recent literature and field experience in China on advocacy for sanitation.

For promotion of sanitation we can learn a great deal from communication experiences in the health sector. McKee 1992 and Hubley 1993 provide the best inside of the process of development communication: advocacy, social mobilization and programme communication.

McKee provides definitions and a synthesis of advocacy, social mobilization and programme communication from page 162 - 190. This is since 1989 being applied also in the Sanitation for All in Bangladesh campaign and is visualized in his diagram below.



He also gives an insight account of the mix of Advocacy, Social Mobilization and Programme Communication for the Expanded Programme on immunization since 1985 (McKee p 110 - 138).

The subheadings he uses illustrate how the campaign was organized:

- EPI and the print media
- the electronic media
- stars for children
- corporate mobilization
- intra- and inter-ministerial collaboration
- NGOs and other partners
- national immunization weeks
- EPI communication
- field worker needs assessment

Interesting tables for promotion of sanitation are:

122 Summary of advocacy activities
124 Summary of operational partners
126 Other social mobilization partners
131 EPI Programme Communication
133 + 134 Who persuaded you to get your child vaccinated (national + urban)
137 EPI Communication overview

McKee warns that changing hygiene is more difficult than immunization, and therefore may take longer time. Essential is that we establish political will through advocacy, that we mobilize a wide spectrum of allies in order to make a difference, and that we have well-trained fieldworkers at community level for motivation for change (McKee, 1992, 162-173).

McKee also stresses the differences between commercial marketing with social marketing, which should be taken into account in the promotion for sanitation or more precise safe interaction with human excreta:

Commercial marketing	**Social Marketing**
Standard formulae to apply	Complex strategy needed
Products have clear and strong identities	Social products are attached to complex abstract values
Products are often immediately satisfying	Social products are less immediately satisfying
Successful market share increases by 2 to 3 percent	Aims at achieving large market shares of 30 to 90 percent

Motivated by profit	Not motivated by profit
Normally sells positive purchasing action	Sometimes involves avoidance behaviour (counter-marketing)
Aimed at people with purchasing power	Frequently aimed at poorest or least-educated communities

Getting issues on the agenda

A priority in health promotion is to get issues on the 'agenda' of politicians so that they will take them seriously and initiate action, says Hubley 1993 (p204). Textbooks advise that priorities are decided according to needs, prevalence of the disease, costs of treatment, feasibility of prevention and felt needs of the community. "However, decisions by politicians and government officials are rarely made according to this 'rational' planning model. They are usually made in response to different pressures according to the *status quo* - what has been the practice up to now;
influence of friends;
allocation of funds from central government;
influence of pressure groups such as professional bodies, commercial companies, trade unions and political parties;
external pressures such as prices of imported goods;
wishes of aid organizations such as the World Bank and International Monetary Fund;
newspapers and television;
and public opinion".

"Priorities are usually based on short-term pressures and rarely consider longer-term issues such as health and environment. Of course we cannot expect health to be the only issue that the government should consider. But we can try to influence the public to support health promotion and ensure that politicians are fully informed about the health implications of their decisions".

Hubley's definition of communication in health education and health promotion (p 18) illustrates how he sees awareness raising play a role for various target groups.
"Communication is an essential part of all health promotion activities in order to:
- have a dialogue with communities ....;
- influence decision-makers to adopt health promotion policies and laws;
- raise awareness among decision-makers of issues of poverty, human rights, equity, environmental issues;
- ensure that the public gives support to government health-promoting policies;
- communicate new laws and policies to the public;
- raise public awareness of issues in order to mobilize community participation;
- develop community action on health issues".

How effective are mass media?

Hubley has also interesting things to say about the use of mass media (p 146). "Mass media messages tend to be general and are not relevant to needs of individual communities. It is also difficult to be selective and target one age-group. And unlike face-to-face approaches there is no direct feedback. However, if carried out well, mass media has the advantage of being able to reach a large audience rapidly - and does not require an infrastructure of fieldworkers. Although many people prefer face-to-face communication, lack of time, shortage of fieldworkers and difficulties of transport can make mass media the only realistic way of working.

Mass media are sometimes used poorly with a lack of audience research, dull programmes and inappropriate messages. In fact, well-planned mass media health education cam achieve a great deal:

- *Behaviour change* - when it concerns a 'one-time' behaviour such as attending a immunization drive, simple to perform or the community is favourably disposed to implement it and is merely requiring a trigger for action.

- *Agenda setting* - bringing an issue to the public's attention so that they being talking about it and raising it at meetings.

- *Creating a favourable climate of knowledge and opinion* - media can provide specific knowledge about issues that will influence felt needs of communities; they can provide a favourable background for community-based programmes and health education activities.

- *Telling people about new ideas* - media can make people aware of new discoveries of innovations such as oral rehydration. Whether people will actually act on this information depends on the idea, its complexity, whether it meets a perceived need in the community and whether enabling conditions and factors are in place.

Attracting attention

Factors that make communication attract attention fall into two groups: physical and motivational characteristics:

PHYSICAL:

- size, e.g. of the whole poster - we are more likely to notice a large poster or book than a small one; size of letters, title words;
- intensity - bold headings in a sentence, a poster;
- high-pitched sounds
- colour
- pictures - photographs and drawings.

MOTIVATIONAL:

- novelty - unusual features, unfamiliar and surprising objects;
- interest - interest/felt needs of audiences and perceived relevance to audience - people look at things they are interested in and want to know something about:
- deeper motivations - appeals to motivations and drives of audience (e.g. sex, money, status)
- entertainment and humour (p 56).

Communication stages

Successful communication for WES and health improvement through the modification of the human, social and political factors that influence behaviours, must pass through several stages (p 47):

Stage 1: Reaching the intended audience
Communications should be directed where people are going to see or hear them. Study your audience, what their listening, reading and viewing habits are.

Stage 2: Attracting the audience's attention

Stage 3: Understanding the message (perception)

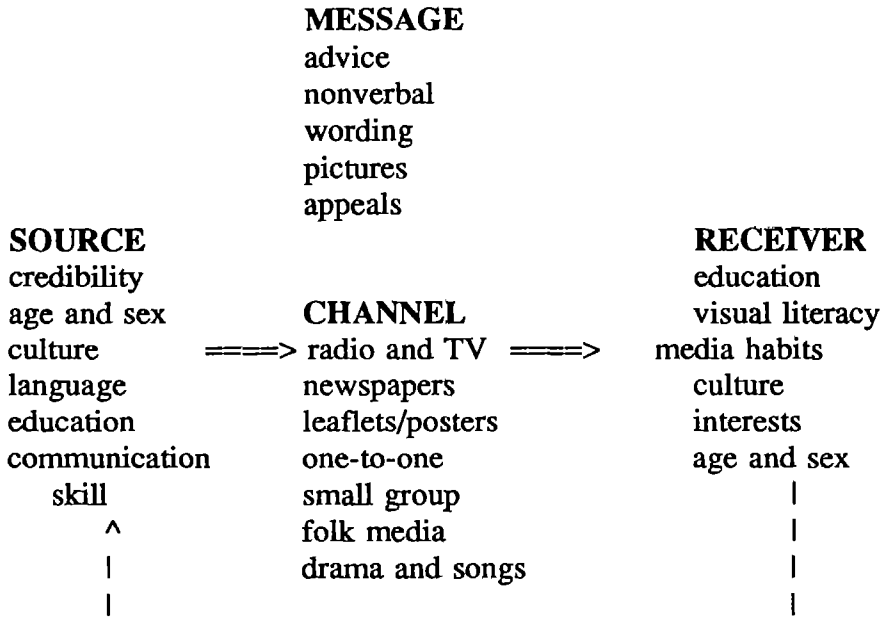
Stage 4: Promoting change (acceptance)
The nature of the source and content of the message can influence whether people believe and accept the massage.

Stage 5: Producing a change in behaviour

Stage 6: Improvement in health
A person may have a favourable attitude and want to carry out the action, e,g, bring the child for immunization, use ORS. However, pressure from other people in the family or community may prevent the person from doing it.
Another reason a person may not perform a behaviour is a lack of enabling factors such as money, time, skills or health services.

Components of successful communications

In preparing a communication programme for sanitation it is helpful to consider a range of factors which influence success. This should be done separately between the receiver, source, message and channel. Hubley lists these factors in the following figure.



Characteristics of effective health communication

Hubley defines the following characteristics (of effective health communication (p 65):

- Promotes actions that are realistic and feasible within the constraints faced by the community.
- Builds on ideas, concepts and practices that people already have.
- Repeated and reinforced over time using different methods.
- Adaptable, and uses existing channels of communication - for example, songs, drama and storytelling.
- Entertaining and attracts community's attention.
- Uses clear simple language with local expressions and emphasizes short-term benefits of action.
- Provides opportunity for dialogue and discussion to allow learner-participation and feedback on understanding and implementation.
- Uses demonstrations to show the benefits of adopting practices.

Lessons on organizational aspects of health communication campaigns

In an analysis of organizational aspects of six health communication campaigns Backer and Rogers (1993) pp 216-217, identified 12 generalizations.

"1. *Prestige* - The prestige involved in a health communication campaign is a factor in a campaign's success.

2. *Insider-Outsider Relationships* - Effective relationships between "outsider" and "insider" organizations contribute to the success of health communication campaigns.

3. *Re-Invention* - Campaign elements are frequently re-invented and modified as organizations contribute experiences from other campaigns in which they have participated, and as a general campaign approach is fitted to local community conditions.

4. *Long-Term Institutional Change* - Strategies for long term institutional change in organizational culture, and for creating permanent organizations to replace temporary systems, are used by organizations involved in a campaign to facilitate long-term behavioural change in their target audience.

5. *Consensus Vision* - A campaign is more likely to be successful if it has an overall vision statement that represents a consensus among the organizations that collaborate in the campaign.

6. *Charismatic Organizational Leaders* - Charismatic leaders of organizations involved in health communication campaigns help organizations collaborate in successful ways.

7. *Interorganizational Collaboration* - Interorganizational collaboration can speed the diffusion of an innovation through a health communication campaign approach.

8. *Organizational Career Path* - Participation in a health communication campaign can affect the career path of individuals in the collaborating organizations.

9. *Organizational Culture Conflict* - Differences in organizational culture, such as those between government and private organizations, can limit he success of health communication campaigns unless these differences are overcome.

10. *Timing* The timing of a health communication campaign is a crucial factor in its success, and timing often rests on the activities or decisions of organizations involved in the campaign.

11. *Reframing* - Reframing health communication campaign behaviour in terms of organizational theory can facilitate understanding of the key factors in a campaign's success.

12. *Interorganizational Control/Decision-Making Issues* - Transorganizational issues of collaboration, control, and resistance among groups of organizations affect the chances for the success of health communication campaigns".

The evaluation showed that a national mass media campaign can have a substantial impact on family planning behaviour if the messages are well-designed, are of a very high quality, and are transmitted with sufficient frequency during prime exposures times for the intended audience.

The Turkish campaign had different impacts in various subaudiences, according to their level of formal education. This finding supports the strategy of audience segmentation, the fine tuning of messages for specific audience segments.

Other lessons learned are:

1. High-quality, creative, professionally produced materials can capture the attention of a substantial majority of a national population.

2. The sensitive topic of family planning can be promoted publicly via the mass media in a manner that creates support for the concept and offsets criticism and opposition to family planning.

3. Entertainment is effective in gaining and holding an audience's attention and in eliciting personal involvement in a campaign.

4. Messages reiterating a general theme and then giving specific behavioural recommendations can influence knowledge and attitudes, as well as overt behaviour.

5. An intensive, well-planned media campaign for family planning, increases clinic attendance, and contraceptive practices.

6. Even a well-designed and executed campaign does not have the same impacts on all audience members.

7. Baseline surveys and other formative evaluation methodologies such as focus-group interviews contribute to the design of a successful campaign.

Costs of communication programming

Experience from other sectors show that the costs for effective communication programming can form a sizable part of the total programme costs. Between 30 and 40 percent of the international/UNICEF executed immunization campaign was spend on communication (Richard Jolly 1992, personal communication). Turkey's Mass Media Family Planning Campaign 1987-1989 (US AID funded) amounted to US $231,637, the imputed costs of free TV time and publication advertising space was approximately US $2,110,000. Typical communication activities in national diarrhoeal disease programmes account for 10-20 percent of the programme budget (WHO 1987).

The Social Mobilization for Sanitation programme July 1992- June 1995 in Bangladesh funded by DANIDA/SDC and implemented by DPHE with UNICEF support costs US $3,962,652, or 6.4 percent of the budget for the total programme. The Indian Government has in its Eighth Five Year Plan 1992-1997 earmarked a mandatory 10 percent of the Central Rural Sanitation Programme for IEC.

Ikin in his paper presented to the Working Group on Promotion of Sanitation stressed already that promotion is not free. Looking at commercial promotion and advertising he quotes the example of BMW promotion/advertising campaign for Mercedes cars."It is said that BMW spends over 30 percent of its income on promotion".

A briefing package for decision makers in China

From a mission in January 1995 to document the experiences with advocacy for sanitation in Henan province in China the following elements emerged for use in a briefing package for decision makers.

There are four key benefits coming from improved latrine use:

Better manure for the farmers
Better crops
Higher income
Improved health

Why is improvement of latrines considered to be important?

From 1989 to 1994 improved latrine construction in Henan province increased from 1% of the households in the villages to 29%. At the end of 1994 nearly 5 million households were using the double urn funnel-shaped latrine, which has been developed, tested and demonstrated in the province in the 1980s.

The reasons why high government and party leaders in Henan have paid attention to sanitation are a mix of perceived ***economic, political and public health benefits***.

Vice Governor of Henan Province, Zhang Honghua, during the 10th meeting of the NPHCC in February 1994, explained why the *provincial Party Committee and provincial government leaders* pay great attention to improvement of latrines:

- it vigorously develops agriculture,
- it improves health conditions in rural areas,
- it is 'doing good deeds' for the masses, and
- it builds closer relations between the party and the masses (Zhang Honghua, 1994).

It is also good for China's reputation

The negative effects of dirty latrines and toilets on China's international reputation also play a role. Minister Chen Minzhang in his opening speech to the 1993 Nationwide Rural Area Improved Latrine Experience Exchange meeting in Puyang city warned that tourists complain to him and in letters to the leaders of the state, that the good impression of the beautiful China is lost because of the dirty toilets. And although in 1992-1993 the toilets in cities have improved considerably, it was still a big problem for China's bid to host the Olympic Games.

The 1994 edition of the popular travel guide "China - A travel survival kit'(Lonely Planet p 132-133), illustrates the reputation of Chinese latrines and toilets. Its 'toilets' section starts with: " Some travellers have give up eating (for a while at least) just to avoid

having to use Chinese toilets". It goes on to say that "some public toilets look like they haven't been cleaned since the Han Dynasty".

The Patriotic Health Campaign Committee in Henan is showing that it can be done differently. Public toilets in Puyang city and latrines in many village households have been improved and are being kept clean.

Key messages for cadres and masses

To popularize the double jar funnel-type latrines in Henan province, the provincial PHCC has used a mix of media: meetings, newspapers, periodicals, wire radio, television and videos.

The Vice Governor of the province and other PHCC promoters used a few key messages explaining to cadres as well as villagers, why latrine improvement is important.
For the *cadres* these messages include:

a. it increases agricultural production,
b. it contributes to national quality,
c. it helps China's "reform and opening" policy,
d. it enhances China's international reputation,
e. it contributes to Health for All by 2000,
f. it improves health knowledge, changes prevailing habits and customs.

The key messages on improved latrines for the *masses* include:

- it is good for health, beautifies the environment in rural areas, and decreases diseases;
- it increases production through better fertilizer, improves the soil, and realizes high and stable yields in agriculture;
- the input needed is small, the benefits are high.

Benefits

Households which have an improved double urn latrine identify clear benefits from the improved latrine. In general, women mention 'no smell' and 'no flies'. Men usually identify 'better manure' as benefit number one, leading to higher crop production and higher income.

In one of the earliest demonstration villages, Chihuazhuang in Yucheng (1,401 population, 315 households and 100% improved latrine coverage in 1989/1990) the village leader found the manure to be very effective for his apple trees. "The apples are much bigger and sweeter". He later said that his apple production is 20-30% higher than before, bringing in 20 fen per pound additional income.

In 1993, the health and economic benefits were reported by Dr Xu Guoxiong. He calculated that a family of four, collecting 2000 kg of urine and faeces per year, increased wheat

production by 16%, and corn production by 26%. In money terms, this would mean that 121 Yuan additional income could be earned, and that the initial investment would be recovered within a year. "This kind of benefit is rather direct, it can be seen and touched by every farmer. The farmers are convinced, and accept the improved system, and are therefore becoming one of the basic reasons for the vitality of the double jar toilet".

What made the Henan experience work?

The lessons learned can be summarized as follows:

1. ***Get the policy right.***
Given the right policies set at the national level the provincial authorities translated those into action plans with targets at the provincial level.

2. ***Get the design right.***
The design is technically adequate, affordable and acceptable to the farmers, local materials are available.

3. ***Get high level commitment for improved latrine promotion.***
From the Governor and Vice Governor of the province, to the village leaders, their commitment to the programme has been essential.

4. ***The beneficiaries pay most of the costs of improved sanitation.*** Only small subsidies and incentives are provided to get maximum participation of targeted villages.

5. ***Strong focus on promotion at all levels,*** making use of the clear economic and convenience and health benefits. The use of good demonstration assists in this process.

6. ***Ensure proper organization using the existing structures,*** right at the village level, and involving all possible allies.

7. ***Latrine promotion work takes a lot of time.*** It can not be done in a hurry, and requires constant attention.

Although from the construction side the Henan province latrine improvement work can be called a success, a number of problems still need to be overcome. They concern insufficient maintenance and effective use of the latrines, and hygiene education. As a result, only half of the improved latrines in Henan province were found to be sanitary in a 1993 nation wide survey on sanitation. The lack of a communication strategy, insufficient use of mass media and insufficient monitoring of effective use are among the other weaknesses which need to be remedied.

The major challenge ahead for the Henan province is to develop a revolving fund and other credit options to spread the latrine improvement to reach the poorer villages in the province, beyond the better-off and medium villages which were covered in the 1989 - 1994.

In early 1995 the new Vice Governor in Henan province announced a next latrine improvement campaign. The goal is that 80% of the population constructs and uses an improved latrine by the year 2000.

Appendix 1 Key elements for messages on sanitation

In the Communication in Water Supply and Sanitation resource booklet a range of key elements for messages, and information on allies is provided.

It concerns basic elements for message development for policy makers, sector professionals and users.

Policy makers

Access to safe water and sanitation facilities is a basic human right.

World Health Organization recognizes that improvements in water and sanitation facilities constitutes the most effective measure in controlling cholera, typhoid, parasitic and other endemic diseases.

Effective integration of technical and social factors water supply and sanitation is essential to maximize social and environmental health benefits.

Eighty per cent of all diseases, or four out of five cases of sickness, in the developing countries can be attributed to unsafe water and inadequate sanitation.

Sector professionals

Better coordination among government departments, and among implementing agencies contributes to more effective water supply and sanitation programmes.

Exchange of information offers important opportunities for efficient development of water supply and sanitation projects.

Alliance building and coalitions with other sectors are needed to tackle the multiple tasks in water supply and sanitation.

Users

Health
Water is essential for life, and disposing excreta a daily bodily function.

Access to safe water and sanitation facilities is a basic human right.

Improved water and sanitation technologies will only lead to health impacts if linked with appropriate behaviour and proper use.

Water is precious and sanitation facilities are necessary, and are worth paying for.

Management
Water and sanitation facilities belong to the community, and individuals in the community must assume responsibility for them.

Allies

All those who influence or control the principle channels of communication must be challenged by the water sector to assist in creating informed community demand for, and participation in, the provision of safe water supply ad adequate sanitation. Teachers and educators, mass media, government and community leaders, non-governmental organizations, employers and business leaders, artists and entertainers, and religious leaders are all playing a vital role in the process of involvement and empowerment for water and sanitation.

Teachers and educators

sub-goal: no child should leave school without knowing that safe water and adequate sanitation convenience is not only convenient, but also a life saving basic need.

Field examples:

in Uganda all primary schools now teach basic child health knowledge as part of Science lessons (including safe water,

in China the All China Women's Federation runs 120,000 parents schools where 5 million parents learn about pregnancy, child birth, child health, hygiene and sanitation.

in Democratic Yemen mothers learn through literacy classes about hygiene, sanitation and diarrhoeal control.

Artists

In Lesotho, a "Theatre for Development" acting troupe uses active audience participation in plays to under-score the importance of improved sanitation and hygiene. A project evaluation in the Mohales Moek of this participatory approach revealed increased discussion and awareness of VIP latrines and heightened demand.

Media

in Algeria the national newspapers "El Moujahahid" and "Revolution Africaine" run regular features, news stories, editorials and cartoons covering the government's drive to reduce infant mortality through among others improved water supplies, sanitation and hygiene.

since 1980 the Ministry of Health in Nicaragua has printed and distributed over 3 million of comic books on health topics such as diarrhoea, hygiene, water supply, sanitation and malaria.

Religious leaders

in Bangladesh 1944 Imams were trained in 1992 to assist in creating awareness relating to water, sanitation and hygiene among the rural poor.

in Thailand Buddhist monks trained in primary health care help give advice on basic hygiene and sanitation, water supplies and family planning to millions of faithful followers.

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International Water and Sanitation Centre
Centre International de l'eau et l'assainissement

Why sanitation is not a popular subject

Dick de Jong

IRC International Water and Sanitation Centre

April 1995

Content

Introduction

From a literature review on sanitation in three databases (IRCDOC, Geobase, TROPAG/RURAL KIT) it becomes clear why sanitation is not a popular subject.

Not for **villagers** (relieving oneself is a personal affair + cultural, social sensitiveness - compare for example Shit video with the Sanitation video Namibia and see example of social cultural taboo of sharing a latrine in Henan province three generations with grand father and daughter in law + Luo in Kenya, Almedom and Chatterjee 1995 p 8),

Not for **engineers** (subject with hygiene behaviour too complicated, water solution much more glamorous and rewarding than sanitation solutions, no career possibilities - see clipping from NETWAS newsletter + complaints Uno Winblad about lack of scientific attitudes and journals).

Not for **politicians** (water systems bring in publicity and votes sanitation not - only when cholera or plague epidemics break out, Peru 1991, India 1994, and cause damage to the image or economy, politicians take quick action on hygiene) - see De Swaan 1989 pp 130 - 149.

Historical lessons from the industrialized world

De Swaan, Abraham (1989) describes in "In care of the state, Health care, education and welfare in Europe and the USA in the Modern Era" the historical development around public water supply and sewerage systems in the industrialized world.

Current citizens prefer to see their faeces disappear behind them, as quickly, completely an unobtrusive as possible. And a certain attachment to one's faeces is considered to be a sign of childish anal fixation, De Swaan p 142. But less than 150 years ago it was common behaviour to store faces, use it as fertilizer or sell it to passing farmers. Yes, in the West, excreta disposal meant money, and this explains, with the costs of the sanitation reform, the resistance to the connection to the sewerage system, which deprived the people of their own production and let them pay for it as well.

Only when excreta in the West had lost these evident social functions, Freud came to analyze a continuing attention for excreta as an individual psychological "fixation". Gleichman 1979 quoted by De Swaan points out that this sanitary reform in cities contributes to a "reform in the language": "With the increasing distance between waste and human excreta, and with the increasing chains of interaction between people and their waste, people get less opportunity to talk about these issues".

Almedom and Chatterjee (1995) report that sanitation-related behaviour is also difficult to investigate. It is time consuming and "the topic does not lend itself to casual conversation or direct questioning. Careful planning and the adoption of unobtrusive and sensitive investigative techniques are called for.

Barriers to progress: why sanitation does not happen

The barriers identified by the Working Group on Promotion of Sanitation also hold lessons why sanitation does not get sufficient attention. The barriers are varied and complex, but the working group identified the following nine linked and overlapping categories:

Lack of political will

Low prestige and recognition

Poor policy at all levels

Poor institutional framework

Inadequate and poorly used resources

Inappropriate approaches

Neglect of consumer preferences

Ineffective promotion and low public awareness

Women and children last

There are also more general demand and taboo factors which in most cultures are barriers to progress:

- Little effective demand
- Cultural taboos and beliefs.

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Search done in IRC Doc on "Sanitation" 31 March 1995

In the context of the Awareness/advocacy project the author analyzed the periodical holdings in IRCDOC on "sanitation". Under classification 3@ we have 1347 postings, on journals and newsletter we have 1772. The two searches combined result in 209 articles, of which 105 are from 1990 to 1994. The articles in IRCDOC were from 97 periodicals.

Two specialized magazines (on water and sanitation) scored highest on articles published.

Waterlines (independent articles, quarterly, 2500 circulation) published 23 articles.

The now defunct Source (UNDP supported programmes information, quarterly) published 12 articles.

Other periodicals that published some articles on sanitation are:

GATE	9 (GTZ, appropriate technology, quarterly, ... circulation, DM 24 p year)
Bulletin of WHO	9 (WHO, health and epidemiology, bimonthly, US$ 141)
Asian Environment	8 (Manilla, international pollution control, quarterly, ... circulation, US$ 12 ind, US$ 24 org)
Water Science and Technology	8
Indian Journal of Environmental Health	7 (NEERI, Indian engineering, quarterly
World Health Forum	6 (WHO, health, quarterly, ... circulation, US$60)
Water and Waste-Water International	6 (USA, no outside articles
H2O	5 in Dutch only

The Geobase search

A search in Geobase on latrines and toilets from 1990 resulted in 52 postings of which only 24 were relevant. Her the epidemiology side of WES among the scientific journals was scoring highest with 12 articles:

Int. Journal of Epidemiology	5

Working Group Sanitation Dick de Jong 21/04/95 file:info.san

East Afr. Medical Journal	2
Environment and Behaviour	1
Journ. of Environmental health	1
Journ of Tropical Medicine	1
Parasitology	1
World Health Forum	1

The water science field published 5 articles on sanitation

Science, Technology and Development	2
Water Science and Technology	2
Water resources Research	1

Other articles were published in:

Environment and Urbanization	1
Environmental Geology	1
Review of Urban and Reg. Dev. Studies	1
Waterlines	2

Only 4 articles between the two databases overlap (2 Waterlines, 1 World health Forum, 1 Int. Journal of Epidemiology).

Selected items on Sanitation from Highlights 3,4,5 1994

Contents

HIGH INVESTMENT VERSUS LOW-TECH

One of the continuing debates in the sector is that of high investment versus low-technology projects for solving sanitation problems. Here we **summarize the arguments** in this debate based on the experiences of two projects in **Brazil.** The **high investment project** concerns the long-discussed operation to clean up Guanabara Bay in Rio de Janeiro. The project has been given the go ahead by the Inter-American Development Bank (IDB), which is to contribute US$ 350 million to the estimated US$ 793 million cost of the project. An additional US$ 286 million will come from Japan's Overseas Economic Cooperation Fund (OECF), and the balance from the Brazilian government.

Major Consequences

The major consequences of the bay's environmental degradation have been:
- reduced commercial fishing (down 90 per cent);
- destruction of mangrove swamps;
- water unsuitable for bathing;
- catastrophic, costly floods;
- outbreaks of waterborne diseases like schistosomiasis, leptospirosis, infectious hepatitis, typhoid/paratyphoid fever, and gastroenteritis; and
- garbage-blocked water courses and dry river beds used for housing.

Institutional Aspects

Water supply and sewage are centralised in the state-owned CEDAE water and sewage company. According to a recent World Bank study on sustainable urban development in Rio de Janeiro, CEDAE's current technology - imported some 100 years ago - is completely obsolete. Network controls are slack, much water and energy is wasted, there is little adaptation for irregular residential settlements, and the interaction with Funacao Estadual de Engenharia do Meio Ambient (FEEMA), the state's environmental protection agency tends to be hit-or-miss.

Water Sources and Sewage

The Guandu River supplies some 80 per cent of good quality water for Rio de Janeiro and the Baixada Fluminense lowlands. Sewage networks cover 30 per cent of the Rio de Janeiro area, serving 70 per cent of the population, with the Atlantic ocean, and the Guanabara and Sepetiba Bays being the final destination of the sewage. The rivers running through the Baixada Fluminense suffer from a lack of infrastructure, and often become open sewers.

Garbage Collection

In Rio de janeiro, garbage is collected by the COMLURB urban cleaning company. Disposal is largely in low-cost sanitary landfills. Although the Rio de Janeiro garbage collection service is generally good, ballooning populations demand better disposal facilities, preceded by selective collection and recycling. Recycling and composting plants currently being launched or built offer valid alternatives for close-to-saturation current dumps.

Clean-up Project

The clean-up project aims to improve the quality of life for some **7.3 million inhabitants** of the basin. **Three million** people will be **directly benefitted** by sanitation project and clean water supplies. A 1,300-km sewage pipeline network will be installed, increasing from 2.8 million to 4.2 million the number of people who will treat their sewage instead of discharging it directly into rivers. The project includes building sewage treatment plants in Alegria, Pavuna, Sarapui, Sao Goncalo and Paqueta Island. Icarai and Gevernador Island will have their treatment plant capacity increased. Through sewage treatment plants, garbage collection, and recycling facilities around the bay, the state government will treat approximately 7.3 cubic metres per second of untreated sewage that is currently discharged into the bay.

Tenders

The state government will invite national and international tenders to build the five new sewage treatment stations, install the 1,300-km pipeline collector, 86 km of water mains and a 276-km network for distributing clean drinking water, plus the installation of 525,000 hydrometers. Around 1,700 families that presently live in bayside slums will be relocated to new housing projects. To reduce the effects of rainy season floods upon 73,000 people who live near the bay, a massive dredging project is planned. In addition, recycling and compost units will be built to collect and treat 700 tonnes per day of solid waste.

High Water Consumption

One expert estimates that water consumption in Brazil is quite high because up to 30 per cent of the water supply is lost due to leakage, illegal use and inefficient metering. In Rio de Janeiro, of the 3,450,000 m^3/day of drinkable water, 50 per cent is lost or consumed through illegal connections. Given this background of wastage and inefficiency, experts are interested in an alternative approach.

Ilha Grande Bay

The Ilha Grande Bay clean-up scheme provides an example of a **more people-centred approach**. Ilha Grande Bay, almost three times larger than Guanabara Bay, was granted a loan of **just US$ 5 million** from the World Bank, a sum matched by the municipal authorities. The **mayor of the city** of Angra dos Reis (a city with a population of 100,000) states that the solution to basic sanitation cannot be reduced too the implementation of technical projects. In a city where only 15 per cent of the population is served by a sewage network, **community participation is fundamental**. Through community participation, **people become aware** of the relationship between basic sanitation and collective health, and they assume responsibility for the operational efficiency of the system implanted as a collective task.

Public Education Campaign

Before the approval of the World Bank loan, Angra dos Reis City Hall undertook a **massive environmental public education campaign** which included sending district representatives to identify community leaders and discuss sanitary and other social questions with them. As a result of this work, several People's Councils for monitoring budgets, the environment, urban development and health were created. The councils are composed of representatives from the private sector, grassroots community leaders and City Hall officials who participate permanently in the planning of the city's future development, including basic sanitation.

Low-Cost Solution

After analysing different types of sewerage system, the **council chose the condo-main as a low-cost solution**. A pilot project funded by City Hall chose 1,300 houses in seven communities and concluded that with community participation, **costs** could be reduced **from US$ 250 to US$ 49** per person. In order to enable each community to participate effectively in the administration and social control of the new municipal system, City Hall representatives held numerous meetings to disseminate information, thereby enabling the population to choose alternative routes for the sanitation project.

Condo-Main Systems

In condo-main systems, a collector tube passes through the properties, requiring less pipeline length to be laid at shallower depths. A number of houses will be interlinked by the collector pipe and the sewage will go to small and medium-sized treatment stations, also cutting costs. With the installation of a 307-km sewage network and a 56-km pipeline network, in addition to 20 new wastewater treatment stations, the 16 million litres of raw sewage flowing daily into Ilha Grande Bay is expected to be cut by half.

Cost Comparison

Costs per capita in Angra dos Reis are three times lower than in Guanabara Bay. Including

water, sewage and drainage services, the Angra dos Reis model will cost US$ 142 per person. This figure is arrived at by dividing US$ 10 million by the 700,000 people to be benefitted. In Guanabara Bay, per capita costs jump to around US$ 600 for the same services. (NB)

(Water and wastewater international, vol. 9, no. 3, June 1994, p. 10-11; Water and Environment, vol. 3, no. 29, p. 10-12)

SIMPLER/CHEAPER VIP LATRINES

Recently, **Zimbabwe**'s Mvuramanzi Trust has been experimenting with very low-cost adaptations of the VIP latrine. The simplest have lightweight shelters made of reeds or grass, or poles and mud. If the shelter is lightweight and the ground firm, a fully lined brick pit may not be required. A partial lining with bricks built up on a ledge cut in from the pit wall, half a metre from the top may be sufficient. Alternatively, a "ring beam" of large stones around the top of the pit reinforced with cement may be adequate.

Vent Pipe

A concrete slab with a squatting hole and a vent hole is needed to cover the pit. Altogether, only one bag of cement is used. A low-cost vent pipe can be made with local materials. The simplest are made of reeds wired together to form a tube. This then needs to be covered to make it airtight and water-resistant. Cement mortar can be used for this or alternatively plastic from discarded bags can be neatly wrapped around the reed tube and bound with twine. A further layer of grass over the plastic protects it from disintegrating in the sun.

More Durable Alternatives

Where bricks are available, they can ensure that the latrine lasts for a long time. In very low-cost versions, bricks used for the shelter do not need to be fired. Instead they can be dried in the sun. Ideally fired bricks should be used for the vent pipe. However, the cement tube described earlier is used to a sun-dried brick structure fitted with a grass roof.

Pit Lining

Whether bricks used in the structure are fired or not, for safety reasons the pit must be lined with fired bricks and cement mortar. Even so, it is still possible to build a durable VIP with fired brick lining using only two bags of cement.

Manuals

While low cost VIPS require more maintenance than standard, more expensive models, and do not withstand extremes of weather so well, they rely on traditional materials and skills rather than on imported materials and are therefore more easily built by rural communities. The Mvuramanzi Trust has produced a series of manuals on how to build low-cost VIP latrines. (NB)

Peter Morgan, Mvuramanzi Trust, Box A547, Avondale, Harare, ZIMBABWE, tel/fax: +263-4-335172

(Dialogue on diarrhoea, no. 57, June-August 1994, p. 4)

SANITATION IN EMERGENCIES

The key issues for sanitation in emergencies are restricting excreta disposal to certain areas and finding sanitation solutions that are acceptable to the people involved. It is also important to be sensitive to the fact that people living near an emergency settlement may not have adequate sanitation.

Controlling Open Defecation

As a first step, open defecation should be restricted to agreed areas outside the emergency settlement, away from where local people live, and at least 50 metres from drinking water sources. Separate areas should be set aside for men and women. Facilities for handwashing need to be provided nearby. Drainage channels may need to be dug out to stop excreta from being washed towards water sources.

Open Defecation or Trenches

Excreta deposited in the open must be covered with soil to prevent smells and flies. If open fields are used for defecation, excreta should be collected and disposed of in pits and covered over. Alternatively, trenches can be dug for people to defecate in. Trenches need to be kept clean and covered over with soil each day. Both systems - open defecation or trenches - require a large workforce who may require payment. Workers should be provided with equipment such as rakes, shovels and buckets, and protective clothing such as overalls, gloves and boots. They will also need facilities for changing out of soiled clothes and washing them. Controlled open defecation often goes against previous social habits. To work well, it requires the full cooperation of the community and monitoring to make sure that the system is working.

Latrines

As soon as possible after the emergency settlement has been established, latrines should be constructed, either on the basis of one latrine per family or one latrine for a group of families. Latrines should be at least 20 metres away from sources of drinking water, and pit latrines should not be sited uphill from wells or boreholes. Water supplies in emergency settlements need to be monitored regularly for faecal pollution.

Equipment and Materials

Organisations working in emergency situations should keep supplies of picks, shovels and spades which can be used immediately to dig latrines until local equipment can be brought. If materials for making squatting slabs and pit lining are available locally these should be used otherwise local initiative may be undermined.

Portable Communal Latrines

Oxfam has developed portable communal latrines for use in flooded areas. The latrine was developed together with the **University of Surrey** and the **Cholera Research Laboratories in Bangladesh**. Based on the principle of a septic tank, sludge from excreta

is kept for 8-10 days in a sealed rubber tank during which time microbes reduce pathogens such as <MI>Vibrio cholerae<D> to a harmless level. The sludge is then emptied. Each of these latrines can serve the sanitation needs of 1,000 people on a long-term basis. However, they may require at least 3,000 litres of water a day for flushing effluent between two tanks.

Community Participation

Technical solutions to emergency sanitation must be accompanied by community participation in decision making and sanitation education to bring about behaviour change. People need to have the opportunity to question and advise and to maintain and manage new systems. (NB)

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(Dialogue on diarrhoea, no. 57, June-August 1994, p. 5)

RURAL WS&S PROJECT KARNATAKA CRITICISED

According to a **local Indian newspaper**, the Danida rural water supply and sanitation scheme, which is being implemented as a pilot project in Rajasthan, Orissa, Kerala and Tamil Nadu and Karnataka, is having **little impact** on the people because of the **gulf between planning and implementation.**

The project aims to supply an average of 40 litres of water per person and provide toilet and sewerage facilities in rural areas, the ultimate aim being improvement of health and sanitary conditions in villages. One of the main reasons for the failure of the rural sanitation schemes is that there is no attempt to train people on the use of the facilities provided.

Sanitation Component

The project in Karnataka planned to provide 2,000 lavatories in 45 schools, 965 washing stones near tube wells and tanks, 965 cattle troughs, 9,650 metres of drains in villages, and 81,600 metres of sullage drains to avoid stagnation of the water flowing from kitchens and bathrooms. But all these sanitation schemes have proved to be ineffective, though Rs 49.12 lakh has been spent out of a total of 81.63 lakh meant to sullage drains. Moreover, these drains have been so ill-planned that wastes flowing from one house settle before some other house.

Though the project planned to provide lavatories in 2,000 houses, so far, only 130 houses have got lavatories. According to the **officials, it is the lack of interest by the public** that is at the root of the problem. One official commented that **political interference and pilferage** by the contractor-official nexus, is the main reason behind the failure of the sanitation scheme. (NB)

(Deccan herald, July 16, 1994)

DRY-BOX LATRINE - AN URBAN ALTERNATIVE?

Most common sanitation technologies are difficult to transfer to the conditions prevailing in fast growing populations living in informal or illegal settlements in developing country cities. Pit-based systems like the VIP latrine and the pour-flush latrine require a reasonable amount of space, soil that can be dug, and a low groundwater level. Sewage systems are prohibitively expensive both to install and to operate. They require large amounts of water for flushing, pollute water sources and can only be effectively applied where there is planned urban development.

Human Excreta as a Resource

For urban areas in particular, alternatives are required based on the concept of human excreta as a resource. The dry-box latrine is such an alternative. Under favourable circumstances human faeces will gradually decompose and turn into a rich organic soil. In the process the volume is reduced and pathogenic organisms destroyed. In a pit or a vault decomposition is hampered because urine and faeces are mixed together. The mixture turns watery, liquid accumulates, the pit or vault rapidly fills up, lack of oxygen slows down decomposition and results in foul smells, and there is likely to be intensive fly breeding.

LASF

The dry-box system avoids these problems by separating urine and faeces and by not adding any water to the pit or vault. The Letrina Abonera Seca Familiar (LASF) developed by CEMAT in Guatemala is an example of latrine based on the dry-box concept. The LASF is normally built above ground. Its receptacle consists of two vaults, each with a volume of 0.6 m^3. There is a movable seat with a urine collector on top of the receptacle, or alternatively there is a fixed seat above each vault. From the collector the urine flows via a pipe into a soakpit. Compost is removed via ground level openings, normally covered by hatches.

Use

After using the latrine the user sprinkles ashes, soil or a soil/lime mixture over the faeces. The vault thus only receives faeces, ashes or soil/lime plus paper or leaves used for anal cleansing. (Compostable kitchen and garden refuse is not put in the vault as it contains too much water). Every week the contents of the vault should be stirred with a stick and more ashes added. Urine is infiltrated into a soakpit under the latrine or collected in a jar, diluted with 4-5 parts of water and used as a fertiliser. When the first vault is nearly full it should be topped up with soil and the opening in the platform closed. The second vault should now be used. A year later, or when the second vault is nearly full, open and empty the first vault. It will by now contain about 250 kg of relatively safe compost.

Lessons Learnt

The following lessons can be drawn from the LASF experience in Central America:

- there are no technological barriers to the widespread use of the dry-box system for human excreta disposal;
- the system can be used in crowded urban areas as well as on farms and in small rural communities;
- the main barrier is the common attitude that the dry-box represents an inferior technology fit only for the poor;
- a dry-box latrine is more sensitive to misuse and neglect than a pit latrine. It is therefore particularly important that dry-box users participate in decision making and training and receive follow-up support; and
- as the contents of the vault must be kept dry, the system is less feasible where people use water for anal cleansing.

Editorial Note

The article contained the following editorial note: "All sanitation technologies have strengths and weaknesses. One possible weakness of the dry-box latrine, identified in practice, is that users need to be motivated to ensure that urine and faeces are separated. The standard design may be more difficult for women and small children to use than it is for adult men. Therefore to work well, the dry-box latrine requires substantial promotion, training and follow-up." (NB)

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(Dialogue on diarrhoea, no. 57, June-August 1994, p. 6-7)

LATRINE BIBLIOGRAPHY

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Publications are listed in ascending order of sophistication and cost; i.e., the publications focusing on the most basic and affordable solutions and emphasising the building on local practice are listed "up front"

A - Publications containing overviews of on-site sanitation technologies

B - Publications covering one specific on-site sanitation technology, mainly

A

#	Title	Author/Publisher	Year	pp	Contents/Abstract	Remarks
----	*Glossaries:*					
	• Terminology of Water Supply and Environmental Sanitation - A World Bank-UNICEF Glossary (English-French)	P.J. Biron / The World Bank	1987	171		Includes latrine drawings
	• English-French Sanitation Glossary	Technology Advisory Group (UNDP/World Bank)	1985	50		

Col. Council working Group on Sanitation

---	*Critical Reviews:* • **Sanitation and Water Supply: Practical Lessons from the Decade**	S. Cairncross/UNDP-World Bank	1992	63	• Author's personal perspective and analysis of Decade efforts • "Principal lesson: success depends on response to consumer demand" • Importance of establishing promotion and education through comm. workers • Importance of building on technology already existing in the community; upgraded systems are more affordable and sustainable than newly introduced ones • Success of VIP and PF-latrines in a variety of cultures and environments	
---	• **Rural Sanitation** - Introduction to the Working Group Session on ~, Global Forum, Oslo, 18-20 September	Uno Winblad	1991	10	• Most latrine technologies used to date, VIPs in particular, are not affordable to the rural poor and not sustainable due to the dependency on foreign aid • Calls for new approaches, viz. no ESA-funded subsidies for family latrines, latrine self-construction by the user family, ESA and GO interventions focusing on R+D promotion, hygiene education, training • Take local practices as a starting point for latrine programs	
---	• Scaling-up Environmental Sanitation in Developing Countries	B. Brandberg / Workshop on Env. Sanitation, Linköping, Feb 3-4, 1994	1994	7	• Calls for new approaches and efforts ("scaling up") in promoting sanitation and spreading latrines: integrate latrines with other programs to save overhead cost, use the right messages, improve existing latrines, assist influential people first, hygiene education as a must, choose the appropriate technology, gradually phase out subsidies and technical assistance	

A 1	• **On-Site Sanitation: Building on Local Practice**	M. Wegelin-Schuringa/IRC Int. Water & Sanitation Centre, The Hague	1991	74	• Describes the steps required to devise solutions based on existing practice and technology; how to determine consumer demand, consumer resource potential and the social/institutional framework for improved sanitation • Technical sketches of the basic dry and wet on and off-site latrine options	
A 2	• **The Worth of Water** - Technical Briefs on Health, Water and Sanitation (with an introduction by John Pickford)	WEDC, Loughborough / Intermediate Technology Publications	1991	132	• Briefs on basic sanitation measures (water supply, excreta disposal, drainage, misc. public health aspects) • Simple technical sketches and instructions for the basic latrine options • Sanitation selection chart	
A 3	• **Affordable Sanitation for Low-Income Communities**	J. Pickford / 20th WEDC Conference, Colombo	1994	4	• A paper based on the author's forthcoming publication "Appropriate Sanitation for Low-Income People (IT Publications, London) • Discusses affordable and non-affordable latrine technologies and latrine components; sketches of basic l. types • Importance of building latrines with local material	
A 4	• **Sanitation Without Water**	Winblad + Kilama / Macmillan	1985	161	• Introducing relationship between sanitation and disease • Instructions on how to build the basic non-waterborne excreta disposal systems (VIP, "compost", PF-latrines), including the individual latrine components • Examples of "dry" latrine systems from Asia, Africa, Latin America, U.S., Europe	with glossary and index
A 5	• **Low-Cost Technology Options for Sanitation - A State-of-the-Art Review and Annotated Bibliography**	Rybczynski, Polprasert, McGarry / World Bank: Appropriate Technology for Water Supply and Sanitation	1982	184	• A comprehensive technology review and bibliography describing alternative approaches to collection, treatment, reuse, and disposal of wastes • Bibliography on on-site collection and treatments systems, on collection and off-site treatment options, on reuse, on grey water,. and on water-saving	with glossary and keyword index

A 6	• **Technical and Economic Options**	Kalbermatten, Julius, Gunnerson / World Bank: Appropriate Technology for Water Supply and Sanitation	1980	124	• Discusses the strategic required to implement technologies alternative to sewerage • Identification of excreta and wastewater disposal systems which are less costly than sewerage, yet with equal health benefits • Identification of technology selection criteria, and of important economic/financial and social/behavioural factors • System cost comparisons	
A 7	• **A Summary of Technical and Economic Options**	Kalbermatten, Julius, Gunnerson / World Bank: Appropriate Technology for Water Supply and Sanitation	1980	40	• A summarised version of A5 above	also in **French**
A 8	• **A Sanitation Field Manual**	Kalbermatten, Julius, Gunnerson / World Bank: Appropriate Technology for Water Supply and Sanitation	1980	87	• Sanitation selection criteria and algorithms • Detailed descriptions of on-site excreta and wastewater disposal systems (VIP, "composting" latrines, PF, aqua privies, septic tanks; communal facilities • Latrine and toilet superstructures and fixtures	
A 9	• **A Planner's Guide**	Kalbermatten, Julius, Mara, Gunnerson / World Bank: Appropriate Technology for Water Supply and Sanitation	1980	194	• Information, guidelines, instructions on how to design and implement "appropriate (sanitation) technology projects"; tools for engineers and sanitarians responsible for planning and implementing sanitation projects • Sanitation technology comparison, selection, identification of upgrading sequences, and health aspects as part of sanitation planning; economic analysis • On and off-site technologies, sullage management, off-site treatment	
A 10	• **Sanitation Alternative for Low-Income Communities - A Brief Introduction**	D. Mara / World Bank: Appropriate Technology for Water Supply and Sanitation	1982	50	• An abbreviated version of A8 above • Description of "low-cost sanitation technologies" • Methodology for low-cost sanitation planning (feasibility study structure; consideration of health, social, economic/financial aspects) • Upgrading sequences	

A11	• **A Guide to the Development of On-Site Sanitation**	Franceys, Pickford, Reed / WHO Geneva	1992	237	• An updated and expanded version of Wagner & Lanoix, Water Supply and Excreta Disposal for Rural Areas and Small Communities (WHO, 1958) • Part I: Health, sociological, financial and institutional aspects and overview of options for on-site sanitation • Part II: Technical details regarding the design, construction, operation, and maintenance of on-site technologies • Description of the planning and development processes related to projects and programs	with glossary and index **French** version in preparation
A12	• **Small Scale Sanitation**	S. Cairncross / London School of Hygiene and Tropical Medicine	1988	60	• A concise overview of the basic on-site systems (pit latrines, PF latrines, and septic tanks) and of waste stab. ponds), including details of design and construction • Lists aspects and factors for system choice: affordability, water availability, ground conditions, groundwater contamination risk, population density, upgrading, and reuse	with glossary
A13	• **Environmental Health Engineering in the Tropics** - An Introductory Text	Cairncross + Feachem / John Wiley & Sons	1993	306	• A comprehensive text structured in 4 parts, viz. - Part I: Health and pollution - Part II: Water Supply - Part III: Excreta and refuse: treatment, disposal, reuse - Part IV: Environmental modifications and vector-borne diseases • Description of the basic on-site systems, including some information on the design, construction and potential problems • Treats the planning issues of sanitation programs	with glossary, listings of water & excreta-related diseases and helminth life cycles

A11	• **A Guide to the Development of On-Site Sanitation**	Franceys, Pickford, Reed / WHO Geneva	1992	237	• An updated and expanded version of Wagner & Lanoix, Water Supply and Excreta Disposal for Rural Areas and Small Communities (WHO, 1958) • Part I: Health, sociological, financial and institutional aspects and overview of options for on-site sanitation • Part II: Technical details regarding the design, construction, operation, and maintenance of on-site technologies • Description of the planning and development processes related to projects and programs	with glossary and index **French** version in preparation
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B

B 1	• The Sanplat System	B. Brandberg	1990	16	• A lowest cost solution for a latrine squatting slab; uses 1/5 bag cement • Slab = 60x60 cm, made from R.C.C. with key-shaped drop hole and footrests • Can fit pit covers made from traditional materials	
B 2	The Latrine Project, Mozambique	Ministry of Public Works and Housing / The Int. Dev. Research Centre (IDRC)	1983	95	• A design and construction manual for the "Mozambique-type", dome-shaped, non-reinforced concrete squatting slab • Also reporting on existing latrine usage in Mozambique, and on institutional aspects of latrine construction	
B 3	• Low-Cost Blair Latrines - A Study of Recent Developments in Zimbabwe	P. Morgan / Blair Research Laboratory	1990	84	• Design, construction and material choice for low-cost VIP ("Blair") latrines; shows means how to reduce latrine construction cost • Clay bricks as an important material for latrines • Describes in detail the "Blair" latrine components and shows methods of construction	Many photographs and drawings
B 4	• The Ventilated Improved Double-Pit Latrine: A Construction Manual for Botswana	Nostrand + Wilson / Technical Advisory Group (UNDP/World Bank)	1983	47	• Provides details of construction of concrete-based double-pit VIP (VIDP) latrines and of their components, including specifications, lists of quantities and reinforcement plans • Provides instructions regarding latrine siting and pit construction as a function of soil stability	also published in French
B 5	• Rural Ventilated Improved Pit Latrines: A Field Manual for Botswana	Nostrand + Wilson / Technical Advisory Group (UNDP/World Bank)	1983	61	• Designs of single-pit VIP latrines with circular or rectangular, spiral-shaped superstructure	

B 6	• Handbook for District Sanitation Coordinators	Basaako, Parker, Waller. Wilson / Technical Advisory Group (UNDP/World Bank)	1983	122	• Institutional, lanning and village implementation aspects, based on the Environmental Sanitation and Protection Project of the Government of Botswana introducing VIP latrines	
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B 8	• The Design of Ventilated Improved Pit Latrines	D.D. Mara / Technical Advisory Group (UNDP/World Bank)	1984	73	• Description of single and double pit VIP latrines and their component parts • Touches on factors + criteria like housing density, water supply service levels, groundwater pollution risks and on sociocultural factors; provides design examples • Annexed: soil stability criteria, case studies, costing example	
B 9	• Ventilated Improved Pit Latrines: Recent Developments in Zimbabwe	Morgan + Mara / Technical Advisory Group (UNDP/World Bank)	1982	41	• Design and construction detailing for VIP latrines with spiral superstructures for rural and peri-urban application in Zimbabwe • Rural: rect. pit covered with timber logs and compacted soil; superstruc ture from mud and wattle, thatch, soil or bricks; vent pipe from reeds rendered with c. mortar and with fly screen • Peri-urban: round pit lined with c. mortar; R.C.C. squatting slab; spiral superstructure from ferrocement r bricks; a.c. or PVC vent pipe with fly screen	

B 10	• **Ventilated Improved Pit Latrines: Vent pipe Design Guidelines**	Ryan + Mara / Technical Advisory Group (UNDP/World Bank)	1983	16	• Discusses conditions and factors for optimum latrine ventilation based on studies in Botswana and Zimbabwe; decisive factors for draught induction are the local wind speed and direction and not the exposure of the vent to solar radiation • Min. vent pipe diameters: AC and PVC-150 mm; rural pies-200 mm; rect. brick pipes-230 mm; pipe to extend ≥500 mm above roof	also published in **French**
B 11	• **Ventilated Improved Pit Latrines: Zimbabwean Brick Designs**	Morgan + Mara / Technical Advisory Group (UNDP/World Bank)	1985	47	• Description of pit , superstructure and vent pipe design and construction based mainly on clay bricks; bill of quantities , cost estimates and detail drawings • Increased popularity of bricks vs. ferrocement and mud/wattle technology in Zimbabwe • Cost varying from US $ 50 to $ 250	
B 12	• Low-CVost Urban Sanitation in Lesotho	I. Blackett / UNDP/World Bank Water & Sanitation Program	1994	46	• Describes Lesotho's Urban Sanitation Program started in 1980, using VIP and VIDP latrine technology • Minimal subsidising, private sector latrine production and comprehensive promotion and hygiene education described as keys to success •	
B 13	• Fiches techniques d'ouvrages d'alimentation en eau et d'assainissement expérimentés avec succès par le CREPA	CREPA (Centre Régional pour l'Eau Potable et l'Assainissement à Faible Coût, Ouagadougou)	1992	56	• Design and construction details for VIP, VIDP, VIDP + shower, communal, PF latrines • Bill of quantities and technical drawings	in **French** only
B 14	• How to Build and Use a Compost Latrine	Winblad + Kilama / SIDA	1981	15	• Description of double-vault "composting" latrines, their component parts, their construction, and their operation by simple language and drawings	also published in **Swahili** and in **Amharic**

B 15	• **Letrina Abonera Seca Familiar (LASF)**	CEMAT, Centro Meso-americano de Estudios sobre Tecnología Apropiada	1990	37	• Description and construction detailing of double-vault latrines with urine separation developed by CEMAT with rural families in Guatemala • Instruction for use and maintenance • Information regarding the helminth die-off in the usable faecal material and on the "compost" use and quality	in Spanish only
B 16	• **LASF - Una Letrina para la Familia**	J. Schiere / Comité Central Menonita, Guatemala	1989	67	• Presentation of the refined design and construction for the LASF latrine introduced by CEMAT • Improved sitting commode with urine separation made from c.c.	in Spanish only (English summary)
B 17	• **Promotion of Rural Sanitation in Bangladesh with Private Sector Participation**	Chadha + Strauss / Swiss Development Cooperation	1991	165	• Informs about a willingness-to-pay survey in rural Bangladesh for single-pit latrines made from concrete ring and concrete squatting slabs with gooseneck; 2/3 of rural population cannot pay for the current subsidised version of the latrine • Investigates government and private producers latrine production: practice and future potentials • Reports on action research towards lowering the cost of production of latrines	
B 18	• The Design of Pour-Flush Latrines	Mara / Technical Advisory Group (UNDP/World Bank)	1985	36	• Describes the design, construction, O+M, and cost of PF latrines, including the leaching pits • Design examples	
B 19	• Manual on the Design, Construction and Maintenance of Low-Cost Pour-Flush Waterseal Latrines in India	Roy, Chatterjee, Gupta, Khare, Rau, Singh / Technical Advisory Group (UNDP/World Bank)	1984	109	• Provides details on hard- and "soft"ware for PF latrine programs in India • Detail drawings, bills of quantities and cost estimates	also published in French

B 20	• **Ferrocement Pour-Flush Latrine**	Trinidad + Robles / International Ferrocement Information Center	1987	36	• Provides details of design and construction of ferrocement squatting slabs including pans and of drain pipes	
B 21	• **Technical Guidelines on Twin Pit Pour Flush Latrines**	Min. of Urban Dev't., GoI + UNDP/World Bank RWSG-SA	1992	32	• PF latrines = technology-of-choice for GoI's Integrated Low Cost Sanitation Scheme/Liberation of Scavenger Programme • Provides detailed designs and construction guidance for superstructures, squatting pans, drain pipes and leaching pits • Provides guidance for PF latrine designs for special soil types and ground water situations; discusses O+M	

SAFE DISPOSAL OF HUMAN EXCRETA
LOW COST LATRINE TECHNOLOGY OPTIONS, BANGLADESH

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BACKGROUND

Today, about 35% of the population in Bangladesh are having and using sanitary latrines as a result of recent accelerated sanitation promotion in the country. Various low cost latrine technology options ranging from home-made pit latrine to waterseal latrine are currently promoted in Bangladesh to suit the financial capability of the people. Among the families who have sanitary latrines, 60 % built the home-made type and 40% water seal.(1) The majority of the rural people are aware of that diarrhoeal diseases are caused by indiscriminate defecation, poor hygiene practices and polluted drinking water.(2,3) Thus, the introduction of home-made latrine option coupled with intensive social mobilization is the major contributing factor to the acceleration of sanitation coverage.

Promotion of sanitation in Bangladesh started as early as 1962. Waterseal latrine was the only type of latrine promoted over the years until 1987 when the government adopted an Integrated Approaches (IA) of using safe water supply as an entry point to promote sanitation.

In order to provide a place where people can procure the water seal latrine parts and for wider promotion of sanitation, the Department of Public Health Engineering (DPHE) assisted by UNICEF established, in 1978, the production centres known as village sanitation centres (VSCs) to sell the waterseal latrine parts at a subsidized price. By 1990, there are 1000 VSCs in the country.

In spite of the subsidized cost for the sanitary latrine parts sold in the DPHE's VSCs at Taka 125 (US$ 3) for a set of one reinforced concrete cement (RCC) slab with waterseal pan and one concrete ring, many of the rural families still can not afford the cost. The majority of the people in the rural area are farmers and many of them are landless. The daily wage for an unskilled labourer is about Taka 40-50 (US$ 1 -1.25).

The paper is prepared as contribution to the WHO Sanitation Collaborative Council Working Group on Promotion of Sanitation, Geneva, Switzerland

Over the years, the demand of sanitary latrines has simulated the growth of latrine producers. A national survey on latrine producers and market situation in 1994 reported that there are a total of 4152 latrine producers in Bangladesh.(4) The number of private producers doubled in the last three years reaching more than 2500 numbers. It is interesting to observe that there are about 100 potters who produce traditional burnt claywares such as rings, cooking pots, water pitchers and toys etc. and are now also latrine producers. The burnt clay rings generally used as lining for hand dug wells are now used as latrine pit lining. Clay water pitchers are also being used as squatting hole and as pit lining.

LOW COST LATRINE TECHNOLOGY OPTIONS

Based on a 1994 nationwide survey (5), types of latrine built and used in the rural and semi urban areas can be classified as below:-

Type 1 Home-made (do-it-yourself) pit latrine --direct or off set pit with and without lining

Type 2 Simple pit latrine with RCC slab and squatting hole and concrete cover with handle (SANPLAT)-- direct and off-set pit with and without lining

Type 3 Simple pit latrine with concrete slab with burnt clay pan or cement pan without water seal-- direct and off-set pit with and without pit lining.

Type 4 Single pit water-seal latrine -- direct and off-set pit with or without lining

Type 5 Double pit water-seal latrine with lining

Some of the sanitary latrines constructed and used by the people are illustrated in Appendix A (Figure 1-5).

LATRINE CONSTRUCTION MATERIALS

The Bangladeshi people are creative. They make use of various kinds of low cost and local materials to build their latrines. The materials used are summarized as below:

<u>Squatting platform</u>

- Bamboo/timber with squatting hole
- Compacted mud platform with burnt-clay pot as squatting hole and/or burnt clay pan with or without waterseal (for off-set pit).
- Concrete platform (RCC slab) with squatting hole and concrete cover with handle (SANPLAT)
- RCC slab with cement pan or burnt clay pan (no water seal)
- RCC slab with cement pan and water seal

Pit lining:

- bamboo --full, half and/or split (mat)
- burnt-clay pitchers
- burnt-clay rings
- Bricks

Superstructure

- Dry leaves of banana, palm and/or trees
- Bamboo (full/half size or mat)
- Thatch or dry grass
- dry jute sticks
- old jute cloth
- timbers and tree branches
- Corrugated iron (CI) sheets
- Brick wall

For further reduction of cost, many rural latrines are built without roof. It is also reported that the rural people prefer roofless latrine for better ventilation. However, in some cases thatch, tin sheets or RCC slab are used for roofing.

LATRINE DESIGN CRITERIA

Although a range of sanitary latrine technology options are adopted and promoted in Bangladesh, the design criteria summarized as below are very simple. Most of the people are able to follow the standards but need to be reminded from time to time to dig the pit to at least 2 metres deep.

Platform: RCC slab --round shape, 1 metre diameter
RCC slab --square shape, 1 metre x 1 metre
Bamboo/timber or compacted mud platform -- square shape, 1 metre x 1 metre

Pit: Diameter --1 metre, round shape
Depth -- at least 2 metres deep with smaller diameter at the pit bottom if not lined.

COST OF SANITARY LATRINE

The average cost of a concrete slab waterseal latrine including simple superstructure is Taka 200 (US$ 5) to Taka 500 (US$ 12.5) depending on number of concrete rings (1 to 5) used as pit lining. While a do-it-yourself home-made latrine costs Taka 100 (US$ 2.5) or less or even NO COST if local materials such as bamboo and tree branches around home are used.

Cost of one set of RCC slab with waterseal pan and one concrete ring (12 in. height) sold by the private producer is on average Taka 150 (US$ 3.75). The cost of one concrete ring is Taka 60 (US$

1.5) from most of the private producers, while the cost of one burnt clay ring (6 in. heigh) is Taka 10-15 (US$ 0.25-0.375) from the private potters.

OPERATION AND MAINTENANCE OF LATRINE

The routine maintenance of the latrine is done by most family members. However, when the pit is filled up, the majority of latrine user families employ cleaner/sweeper to empty the pit and the excreta is buried into another pit, while some cover the pit with earth and shift the latrine to a new pit.

Some constraints which the people encountered are summarized as below:

1. Lack of space for shifting latrine to new pit.
2. Building a new latrine when the pit is filled is not cost-effective.
3. Cleaner/sweeper is not always available in some places
4. Unlined pit collapsed due to high ground water table in some place or after heavy rain.
5. Soil deposited from rat-holes accelerates the filling up of pit.

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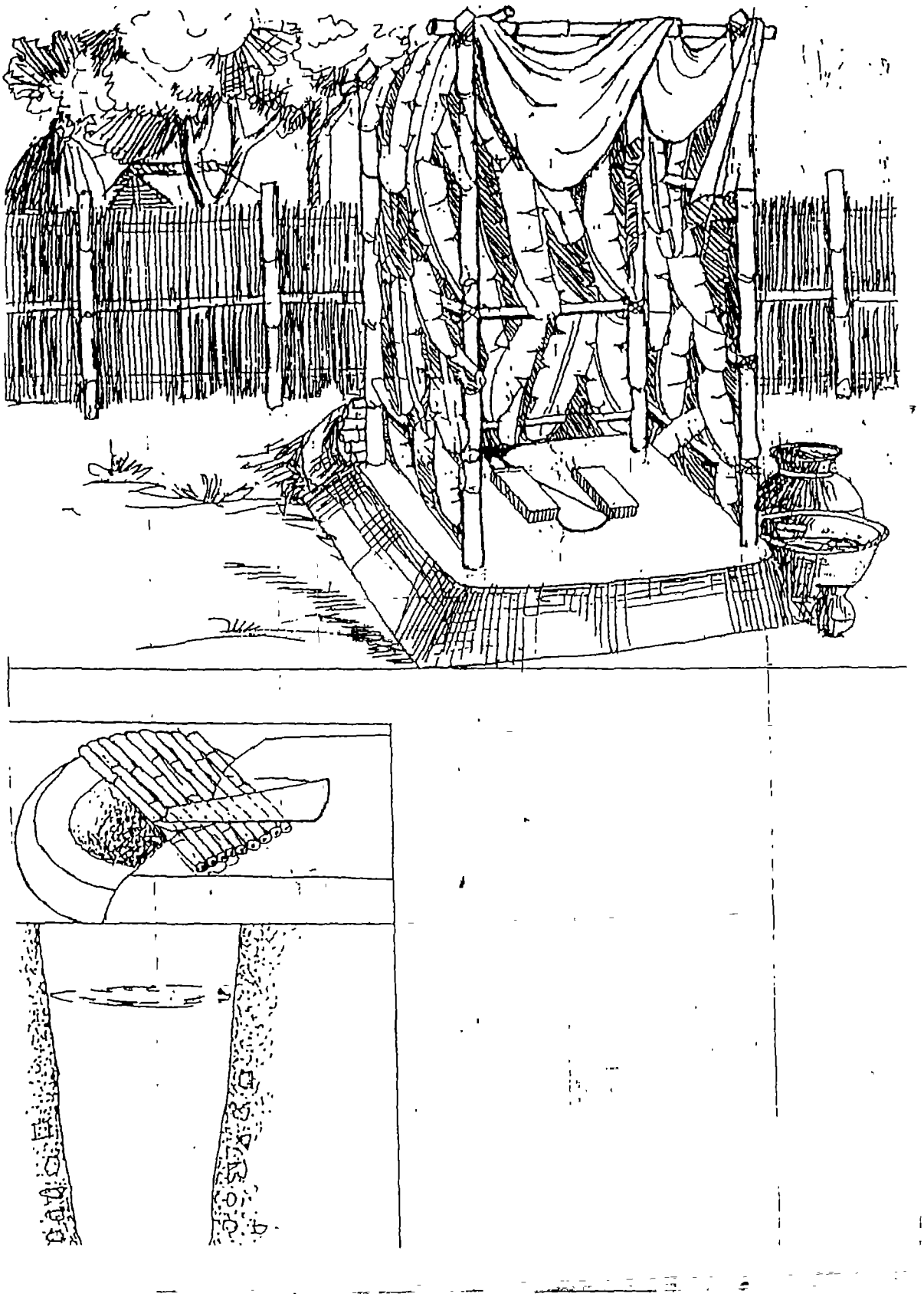

Figure 1. Home-made (do-it-yourself) Latrine (Bamboo/timber platform--off-set pit without lining)

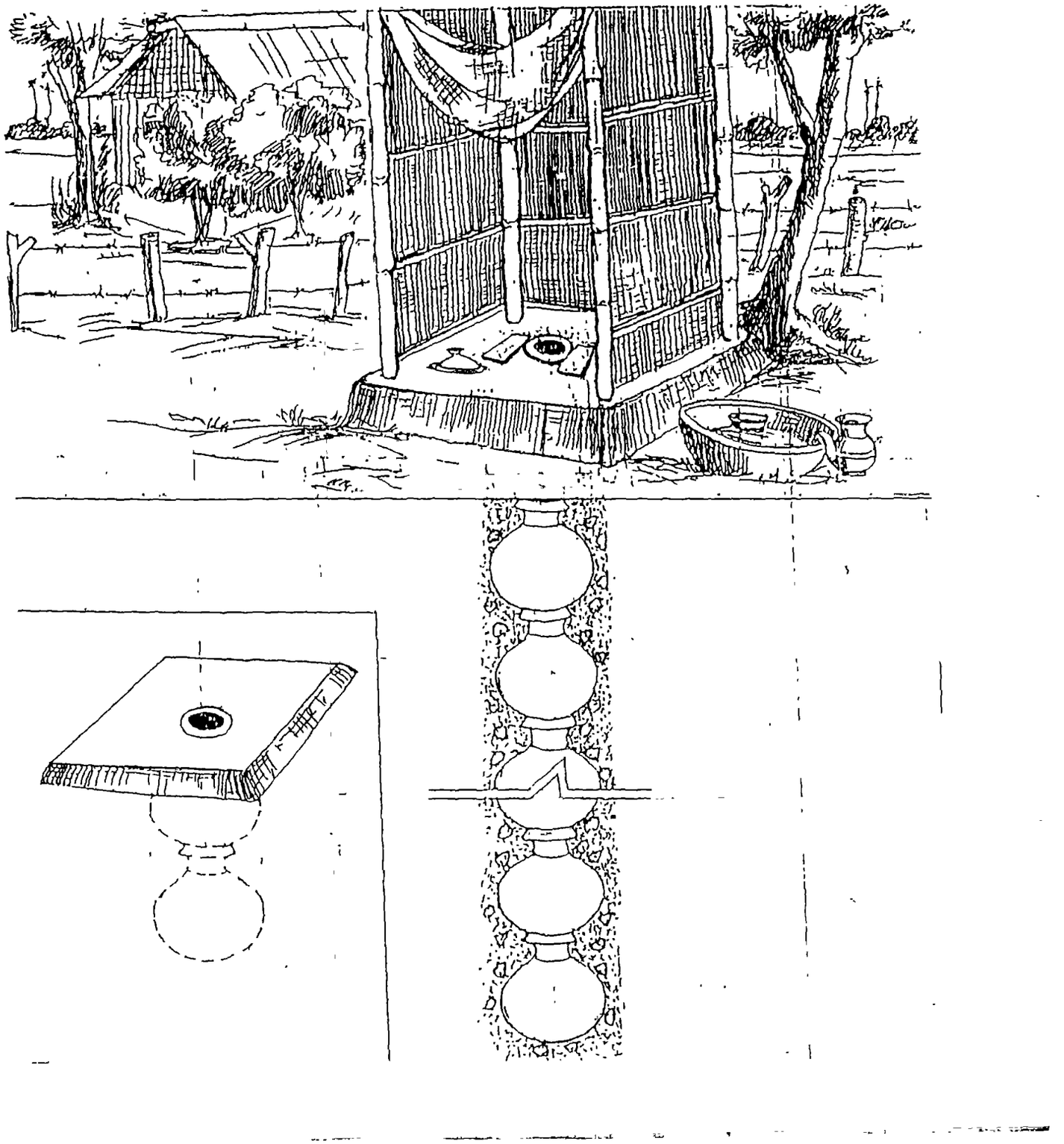

Figure 2 Home-made (do-it-yourself) Latrine
(burnt clay pot as squatting hole with clay cover--
direct pit lined with large burnt clay pitchers)

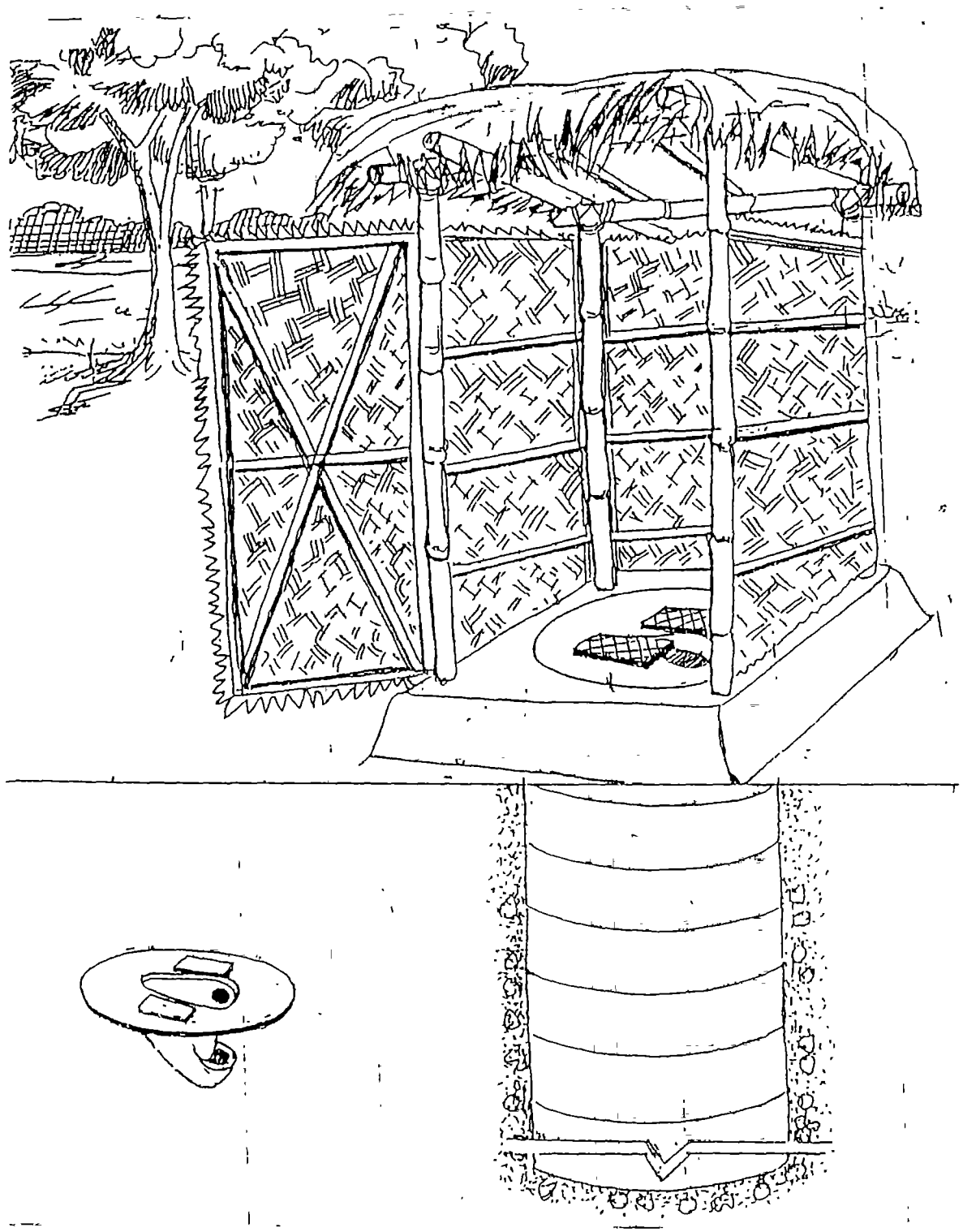

Figure 3 Single Pit Waterseal Latrine
(RCC slab with more than 5 cement concrete rings as pit lining)

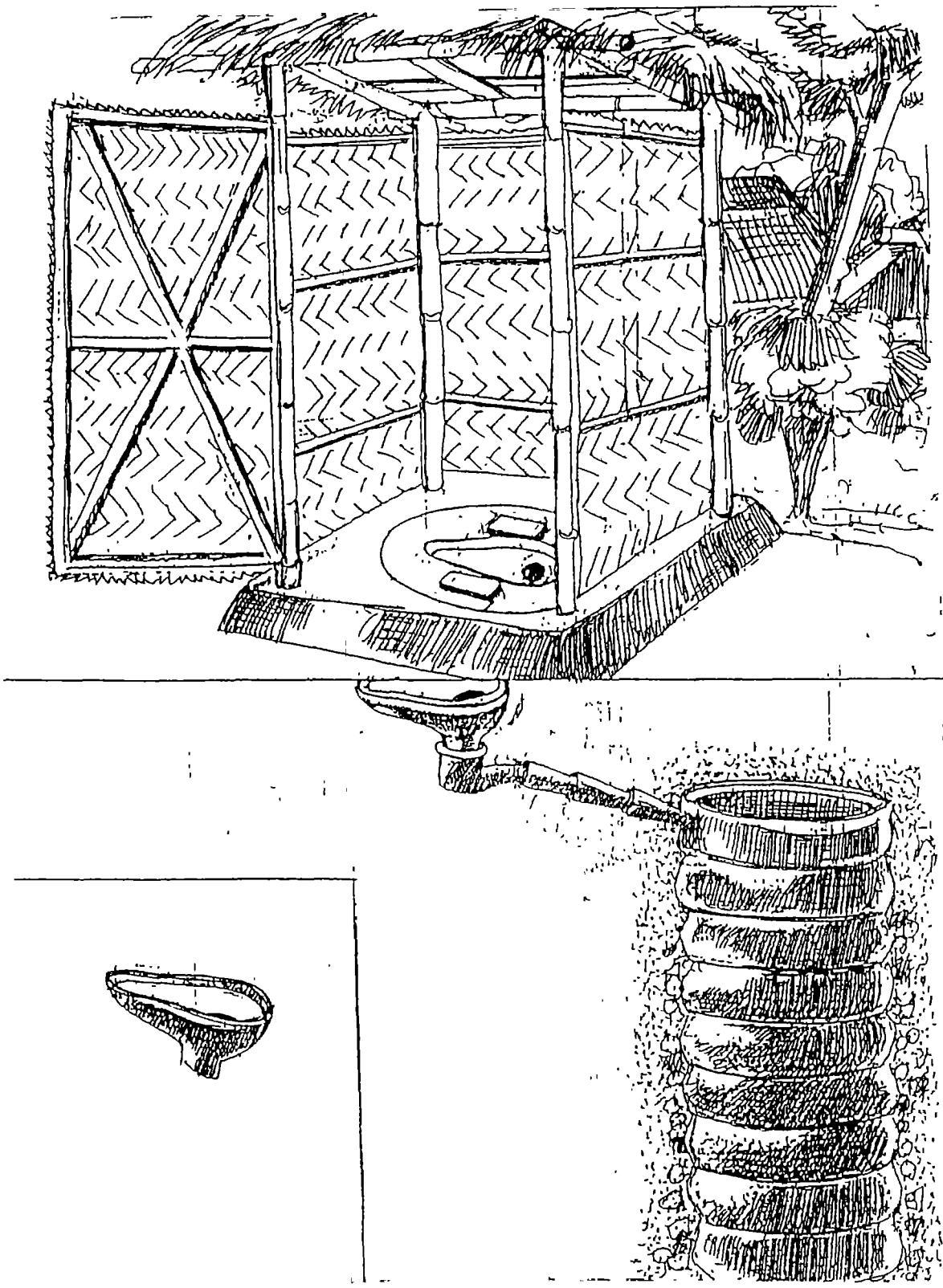

Figure 4. Single Pit Waterseal latrine
(RCC slab with burnt clay pan, water seal, connecting pipes and burnt clay rings as pit lining)

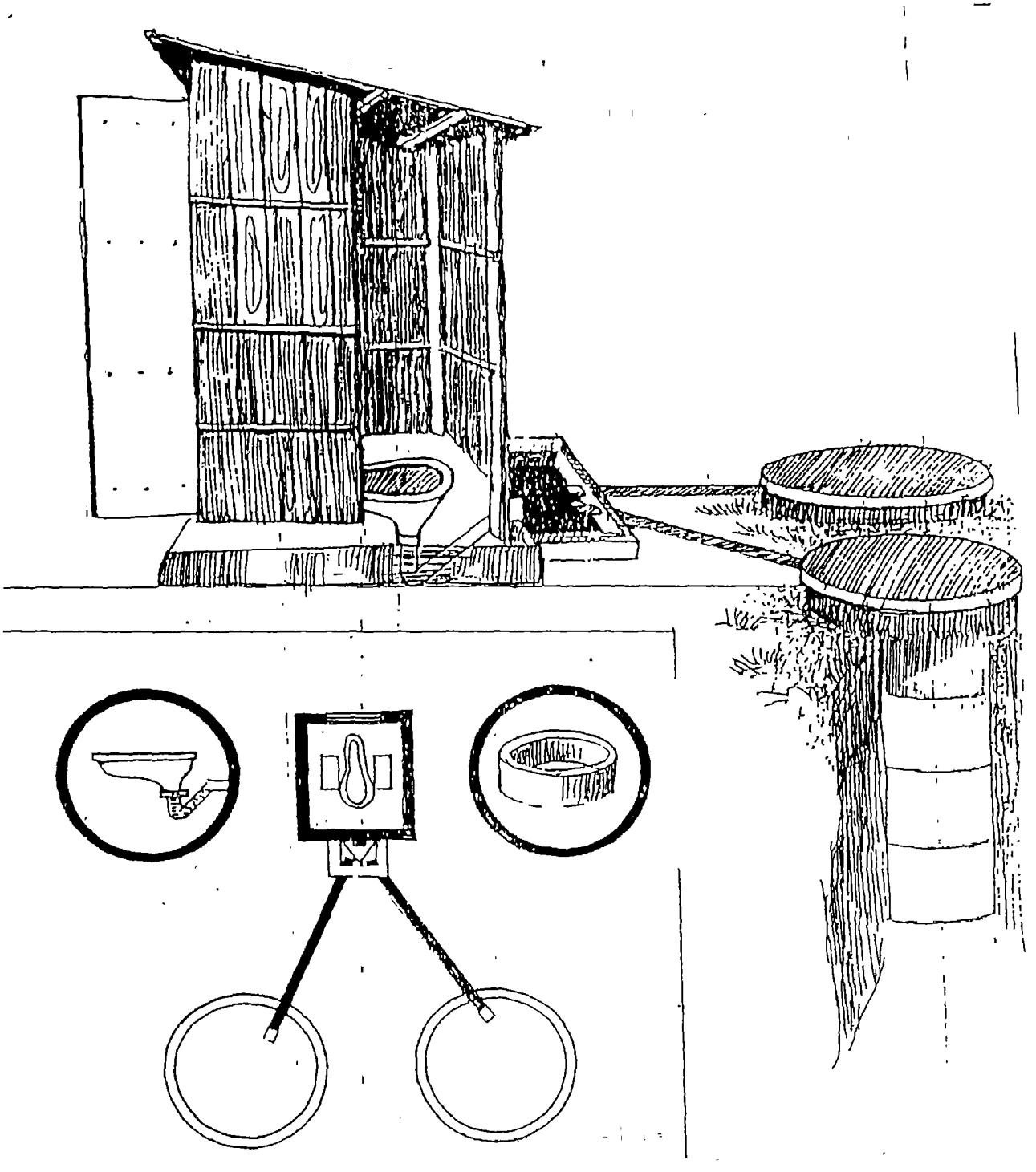

Figure 5. Double pit Water Seal Latrine

TOWARDS UNIVERSAL SANITATION, BANGLADESH

by
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March 1995

1. INTRODUCTION

Bangladesh has already achieved the universal coverage of water supply in the rural areas. Today, 85% of the rural population have access to safe drinking water within 150 metres at the average of 115 persons per operating public tubewell. Over 96% rural people drink tubewell water. Yet, communicable diseases such as diarrhoea and intestinal worm infections remain high. Every day more than 700 children under the age of five die of diarrhoea. It is obvious that improved public health can not be achieved by drinking safe water alone unless people take actions to clean up the immediate environment where they are living and adopt good hygiene to break the disease transmission routes.

Promotion of sanitation in rural areas began in the early 1960's. Progress was very slow. By 1989 only 10% of the rural population had latrines after more than two decades of promotion. However, accelerated progress has been made in the last few years and the government's mid-decade goal of 35% sanitation coverage was achieved during 1994 (Figure 1- Access to Sanitary Latrines in Rural Bangladesh). There is also impressive improvement on people's hygiene habit in terms of hand washing after defecation. Almost 70% people use soap/ash or soil as rubbing agent to wash hands according to the recent national survey in 1994.

The recent steady progress made on sanitation and hygiene in rural areas was attributed to, among others, the following key factors:-

* Intensive social mobilisation
* Introduction of "do-it-yourself" simple latrine option and
* High political commitment

This paper describes the evolution of strategies adopted by the Bangladesh government in implementing the sanitation and hygiene programme over the past several decades supported by UNICEF through funds from various donor agencies, particular DANIDA and Switzerland Development Cooperation (SDC).

This paper is prepared as a contribution to the WHO Sanitation Collaborative Council Working Group on Promotion of Sanitation, Geneva, Switzerland -- on the Theme of National Policy Environment--document outlines ways in which national policies have been reshaped.

2. HARDWARE FOCUS

2.1 Free Latrines

A village sanitation project assisted by UNICEF/WHO began in 1962. The single pit latrine with "Goose-neck" waterseal pan was introduced to Bangladesh from Thailand to suit the water-abundant environment in Bangladesh. It was assumed that poor people could not be persuaded to spend money on sanitary latrines, especially where open defecation has been practiced for generations. Reinforced concrete cement (RCC) slabs with waterseal pan were distributed free to project households, but over 70 % of these free latrine were not used. A large number of the "goose-neck" waterseals were broken by the users as people had not understood how the waterseal worked.

2.2 Subsidized Latrines

The first phase of a UNICEF supported Village Sanitation Programme began in 1975. The programme was framed, on a trial basis, to see if people would pay for their own latrines. One RCC slab with waterseal pan and 5 cement rings were sold at a heavily subsidized price of Taka 50 (US$1.5). The result was encouraging and the latrine usage increased to 60% and fewer "goose-neck" waterseals were damaged.

For wider promotion of sanitation, in 1978, the Department of Public Health Engineering (DPHE) assisted by UNICEF set up 100 production centres known as Village Sanitation centres (VSCs) at selected Thana Headquarters. The price of one RCC slab with waterseal pan and 5 concrete rings was sold at a lesser subsidized price of Taka 100 (US$ 3). Meanwhile, rural sanitation became a fully recognized element of DHPE's regular programme and a major training exercise was undertaken for staff at all levels. Local masons were trained in the production of waterseal latrines and then employed at the Thana VSCs. By mid 1985, all 460 Thanas in the country have a village sanitation centre. In order to have the production points closer to the communities, DPHE also set up VSCs in 540 selected Unions. By 1990, there are 1000 DPHE's VSCs in the country.

Since 1992, the cost of subsidized latrine parts was further reduced. Instead of 5 rings, the project sold one RCC slab with waterseal pan and one ring at a subsidized price of Taka 125 (US$ 3.2). If people would like to have more rings, they were advised to buy either at the VSCs at cost price or from the private producers. It was anticipated that it would give a wider market for rings to the private sector, should the demand be created.

In a few places, mobile teams from DPHE VSCs have been assigned to the field to produce latrine parts for families on demand. On a trail basis, this proved to be feasible. However it's progress was

very slow.

3. INTEGRATED APPROACH

Until 1987, sanitation received little emphasis compared to the water sector. Realizing the potential of better impact on health, DPHE supported by UNICEF adopted an Integrated Approach (IA) using water supply as an "ENTRY POINT" to promote sanitation and hygiene. The IA offers a combined package of safe water supply, improved sanitation and hygiene practices among the beneficiary groups based on the principles of (i) greater ownership of tubewell, (ii) increase use of tubewell water for drinking and domestic purposes and (iii) increase use of sanitary latrines and behavioural changes of sanitation and hygiene habits. This requires tangible participation of all beneficiaries in the entire process for tubewell application, site selection, contribution, installation and maintenance as well as vigorous promotion of constructing sanitary latrine and improved hygiene practices among members of beneficiary groups. The IA also laid the foundation for social mobilisation, as partners from other sectors e.g. education, health, NGOs were involved in promotion at the field level.

3.1 Choice of Technology options

During the 1980's, waterseal latrine was the predominant type of sanitary latrine promoted. In spite of heavy subsidized latrine price, many rural families still could not afford the waterseal latrine. The launching of Integrated Approach promoted various low cost technology options ranging from "do-it-yourself" home-made simple pit latrine to waterseal latrine to suit the financial capability of the people. Based on experiences, a home-made latrine costs about Taka 100 (US$ 2.5) or less or even NO COST if local materials such as bamboo and tree branches around home are used.

The introduction of "do-it-yourself" simple pit latrine sparked the sanitation revolution and accelerated the sanitation coverage in Bangladesh. Today, 60% of the sanitary latrines built and used are home-made type, whereas, 40% of the rural families opted for waterseal. Against a background of poverty among the population, the "do-it-yourself" technology using locally available materials provides the minimum technology option. It can be subsequently improved/upgraded to the waterseal type by those who can afford it.

3.2 Building up Partnership

The programme enlists the participation of various organisations and other Government sectors to reach out and to motivate the communities for behavioural changes. High schools and primary schools have been involved as change institutions where improved sanitation and hygiene started within the school and reached out to the communities in the school-catchments. School headmasters and

teachers were oriented on key aspects of sanitation, social mobilisation and communication skills. Sanitary latrine and water supply facilities were provided to selected schools to encourage girls attendance and enhance students' behavioural changes. Partnership on promotion of sanitation and hygiene have been established with NGOs, Scouts and Girl Guides, women organisation, religious leaders, community leaders and latrine private producers as well as Expanded Programme on Immunization (EPI) and Control of Diarrhoeal Diseases (CDD) centres under the Department of Health Services. Selected resource persons in the above mentioned agencies were given training. These resource persons would in turn train their respective change agents, particular women.

3.3 Creating Right Climate for Private Sector

The wide spread demonstration, production and sale of latrines from government centres over the years, combined with intensified sanitation and hygiene promotion have simulated the demand of sanitary latrines. This has created market opportunity for the private producers and the further growth of the private sector.

A national survey on latrine producers and market situation in 1994 reported that there are a total of 4152 latrine producers in the country (Figure 2). The number of private producers doubled in the last three years reaching more than 2500 numbers. It is interesting to observe that there are about 100 potters who produce traditional burnt claywares such as rings, cooking pots, water pitchers and toys etc. and are now also latrine producers. The burnt clay rings generally used as lining for hand dug wells are also sold as latrine pit lining.

Still, there are 2650 of the 4100 Unions in the country without latrine producer. DPHE is planning to shift some VSCs from certain Thana headquarters, where there are many private producers near by, to those unserved Unions to initiate the market in order to create further space for the growth of the private sector. It is hoped that the on-going nationwide social mobilisation activities would enhance the demand for sanitary latrines, and the initiative by DPHE would attract the private sector and NGOs to the unserved Unions.

4. INTENSIVE SOCIAL MOBILISATION AND COMMUNICATION

To strengthen the promotion of sanitation and hygiene, in February 1992, the Prime Minister inaugurated a national conference on social mobilisation for sanitation and hygiene. This added a new dimension to the social mobilisation initiative taken up by DPHE and other partners in the country.

For further intensification of the social mobilisation to create awareness on the need of a sustainable clean environment, improved sanitation and hygiene practices, a three-year (1994-1996) social

mobilisation programme is being implemented to strengthen the on-going village sanitation programme. The social mobilisation project also aims at building up the DPHE's capacities on social mobilisation and communication skills to complement their technical inputs. DPHE is setting up a social mobilisation Division and a training Division with communication staff. The main strategies are:

i. Strong advocacy to gain political and social leaders' acceptance and commitment.

ii Social mobilisation to forge alliances with various partners in creating people's awareness on and demand for safe environmental sanitation and hygiene practices.

iii Strengthen communication to identify various mass media, indigenous and interpersonal channels for effective communication and to train various personnel to enhance their communication skills.

To intensify and accelerate the social mobilisation efforts, the Prime Minister inaugurated, in October 1994, a "National Sanitation Week". In her inaugural speech, the Prime Minister calls for the concerted efforts to achieve a new Mid-decade goal of 50% sanitation coverage by June 1995. During the Sanitation week, promotional activities such as rallies and court yard meetings were taken place at Unions, Thanas and Districts organised by District/thana/Union functionaries, NGOs as well as schools, Scouts, Girl Guides. Many Districts led by the Divisional Commissioners have subsequently developed action plans aiming at achieving the 50% new Mid-decade goal within the set time frame. The National Sanitation Week has demonstrated the highest level of political commitment on improved sanitation and hygiene.

The intensive social mobilisation programme marked the turning point for sanitation and hygiene prospect in Bangladesh. Furthermore, the programme also transforms DPHE from a largely technical and hardware organisation to one which gives greater focus to software aspects and also facilitates partnership building with other sectors.

4.1 The Challenges

Improved sanitation is not only a technological issue but also a mind set. The major challenges are:

- Sustained behavioural changes and technology durability.

- Total motivation of women participation.

A participatory monitoring mechanism at all levels is needed for continuous assessing the behavioural changes, usage of latrines and quality of latrine construction. This monitoring process can pin-point areas that need improvement for sustainability.

To ensure the durability of latrine technology, people are being continuously motivated/educated to follow the government's simple latrine criteria. On the other hand, research and studies are being carried out to provide technical information for further improvement of technology and environmental safety. Recently, maps of top soil conditions and high ground water level for all Districts in the country have been produced through computer using available data on soil formation and ground water table. These maps show geological and geographical locations where pit lining is essential. Currently, a study on pit lining technologies using locally available materials is on-going in different areas to determine the cost effective options. The results will be available in few months time. Proper application of these simple technical information can further enhance the sustainability of low cost latrine technologies. For environmental safety, a ground water monitoring studies on pollution risk from pit latrines is being formulated. It is expected that this study will be started soon.

Over the years, women involvement in the programme implementing process particularly at the community level was quite tangible and women have successfully taken the lead in promotion of sanitation and hygiene in some project areas. However, total motivation of women participation at all levels is essential for sustained behavioural changes. Involvement of women should be seen not only as building block but also as the pillar for the improvement of environment programme including sanitation and hygiene. The social mobilisation programme needs to continue exploring ways for (i) vigorous involvement of women for decision making and control and (ii) establishing an effective participatory monitoring mechanism to ensure sustainability both behaviour and technology.

5. CONCLUSION

The achievement of the sanitation and hygiene has been impressive. Bangladesh has demonstrated the positive and realistic ways of promoting sanitation and hygiene under some of the most difficult situations such as massive poverty and high illiteracy rate. The great strength of the programme is the ability of the DPHE and other partners to adopt various approaches to meet the programme needs at different stages of time. Furthermore, the national commitment supported by the enthusiasm of various field level organisations are growing. Currently, the Government of Bangladesh is in the process of formulating the policy for water supply, sanitation and hygiene programme. The strategies adopted over the years for the promotion of sanitation and hygiene activities will be incorporated into the policy paper.

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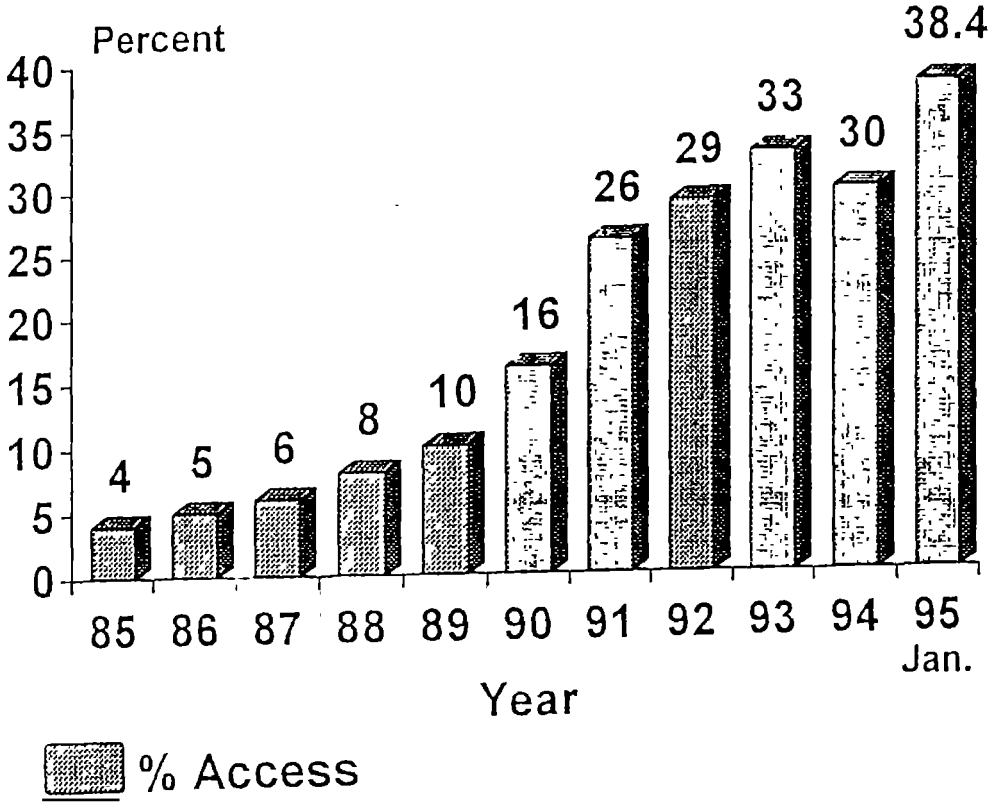
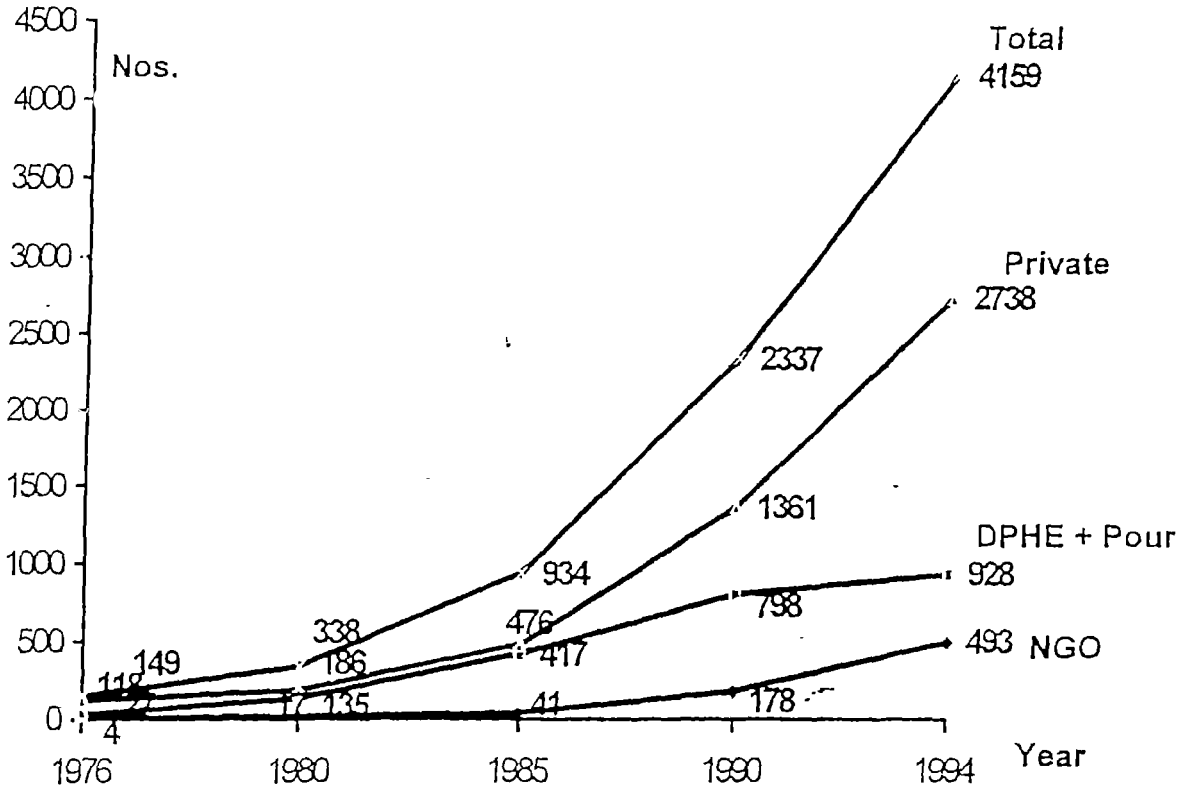
Figure 1. Access to Sanitary Latrines in Rural Bangladesh



Growth of Latrine Producers



Source: House of Consultants, June 1994

- All 4159 production centers in 1800 Unions and 430 Thanas