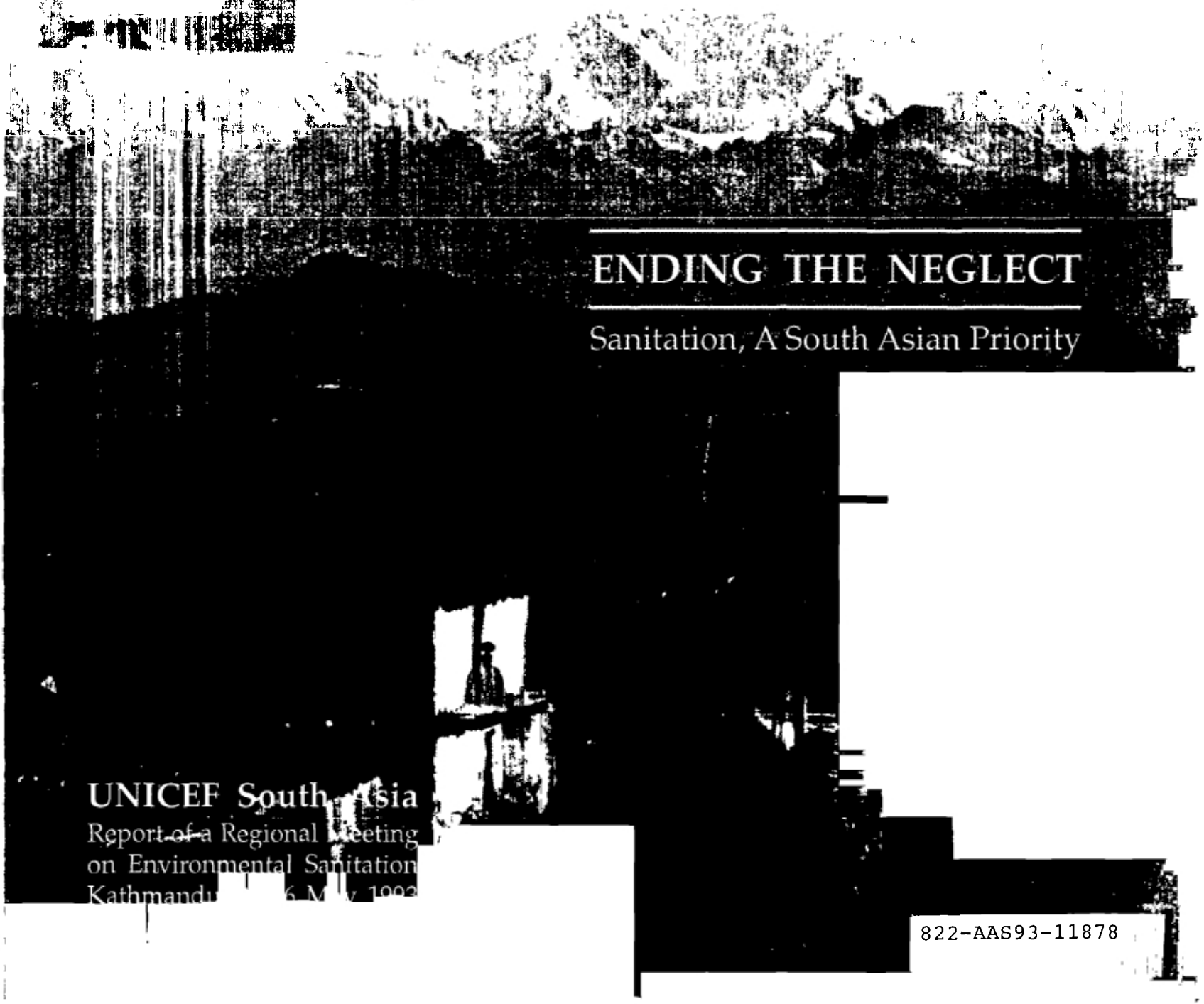

ENDING THE NEGLECT

Sanitation, A South Asian Priority

UNICEF South Asia

Report of a Regional Meeting
on Environmental Sanitation
Kathmandu [illegible] 6 May 1992

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Report of a Regional Meeting
on Environmental Sanitation
Kathmandu, 25-26 May 1993

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the UNICEF Regional Office for South Asia on behalf of the UNICEF Offices in the region, which participated in the first regional meeting of professionals engaged in promoting sanitation.

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Contents

Foreword

By any standard of human wellbeing, environmental cleanliness and personal hygiene are, or ought to be, a priority of priorities. Yet, for promoters of 'development', sanitation has long remained the most neglected of programming concerns They reckon the aggregate monetary cost of 'providing' sanitary facilities, but seldom the many times larger human, social and economic cost of continuing insanitation

In the context of South Asia, this neglect by both the planners and the people is all the more surprising — given the traditional concept of spiritual, mental and physical cleanliness, emphasized by scriptures and in rituals and customs. Somewhere along the uneasy line of history, this social value, among several others, seems to have declined. Of this, there is a useful reminder in that even the movements for political freedom in the first half of this century included an explicit development priority for sanitation in the household and in the community.

Today, a positive signal across South Asia is that communities and governments are beginning to restore sanitation to its place — in public policy, planning strategy and budgetary support — as a foundation for human development. This trend is reflected within UNICEF as well; of which the first inter-country meeting of UNICEF professionals in South Asia on sanitation is a hopeful evidence

Sanitation spells safety. It is a pre-condition for child development. This explains why the global goals for children include measurable, time-bound improvement in access to sanitary means, starting with the disposal of human excreta. An integral concept of sanitation of course goes well beyond this basic minimum, to assure food and home sanitation, safe water, proper disposal of garbage and waste water, personal hygiene and cleanliness of the total environment in the community A change to the present situation must begin in the minds of people, in their attitude and behaviour.

A telling message in this Report is that latrine construction with government funds or external aid is hardly the way to start a social movement for sanitation. There are more

persuasive and viable alternatives specific to the climate, terrain, culture and community. Clearly, the community has to be in the lead Examples from the region prove they, and in particular the women, can show the way With imaginative and strategic support from the government, the pace of progress could accelerate, as seen from examples cited in this report. Yet another lesson is that the principles of sanitation are not promotable in isolation from, and indeed must be made to strengthen, existing systems such as of education, communication, public health and, of course, local governance, and that these linkages can only be fostered at the level where people live

UNICEF too has to learn from its experience in sanitation, and also unlearn some aspects of earlier approaches Sanitation is one field where community-government partnership can yield dramatic results — if the community is helped progressively to take the lead with government support. As a modest but determined partner in this massive enterprise, UNICEF must renew its professional contribution with sensitivity, commitment and competence. Having sat through and listened to a good part of the valuable interchange of experience and ideas among colleagues at this two-day regional meeting, I feel optimistic that the communities of South Asia will move steadily towards their goals, with the Governments and all the partners including UNICEF, extending full support.

Karl-Eric Knutsson
Regional Director
UNICEF South Asia

Kathmandu
November 1993

UNICEF- South Asia Meeting on Sanitation

Kathmandu, 25-26 May '93

OBJECTIVES

- **Improved community-based, environment-friendly approaches** - nationally as well as in UNICEF - to achieve the National Programme of Action (NPA) goals in WES, especially the 1996 SAARC regional goal in the Colombo Resolution for Sanitation.
- **Stronger linkages** between WES programming, environmental concerns and community-led intersectoral planning focussed on the district and lower levels
- Evolving **a set of criteria** to guide WES programming in different eco-zones in South Asia
- **Establishing a knowledge network** between countries, among professionals in the region, through UNICEF.

AGENDA

1 **Review of current trends in Sanitation:**
Brief country presentations.

2. **Sanitation and Water; Goals and Means :**
Observations by Gourisankar Ghosh; discussion.

3. **Social and Environmental Perspectives on Sanitation and Water:**
Presentation by Biksham Gujja; discussion.

4. **Towards a knowledge network:**
Presentation by M. Akhter; discussion

5 **Strategic Options for increased access to Sanitation:**
Country presentations by NGO and/or UNICEF colleagues, discussion.

6. **Group Work on Strategies** for achieving the Goals in Sanitation linked to those in Water·
Group A. *Arid zones*
Group B: *Alluvial plains and sandy islands*
Group C *Hilly terrain*
Group D· *Urban slums*

7 **Plenary presentations, discussion, conclusions**

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Part One

Sanitation
in South Asia

Report of the Regional Meeting

Kathmandu
25-26 May 1993

Report of the Regional Meeting on SANITATION

Kathmandu, 25-26 May 1993

This was the first ever regional meeting of UNICEF professionals in the critical programme area of Sanitation-and-Water. Several of the goals of the decade are dependent for progress on the goals in sanitation and water Relative to the progress achieved in safe water during the '80s, the global goal of "universal access to sanitary means of excreta disposal" by the year 2000 remains tough for several reasons. The meeting, therefore, decided to concentrate on sanitation.

Sanitation has suffered on several counts . The concerted effort started late from negligible levels; even today, not all countries have a national policy on sanitation and investment of public or private expenditure remains low; the concept of total sanitation has been obscured by a narrow focus on latrine construction with little attention to actual use; indeed, the pursuit of numerical 'coverage' targets has detracted from the purpose of the goal itself; this problem has been compounded by the absence of definition of "minimum standards" in sanitation and the necessity of different designs in sanitary facility to adapt to, or change with, a variety of factors such as : availability of water, habitual practices, purchasing power, nature of terrain and climate, technological feasibility, population density and stage of urbanisation. Clearly, national plans have to be built on *location-specific, environment-friendly, community-based* approaches, therefore necessarily by district and even smaller programme unit The scope for mutual learning is therefore all the greater in comparable eco-zones and socio-economic groups, within and across countries

A Regional Overview

Fairly detailed "Country Notes" were shared at the meeting, based on available, often fragmentary information in respect of current trends, alternative approaches, problems and opportunities in moving to scale - in terms of attitudes and behaviour, technology and materials, skills and capacity, maintenance and use, physical environment and financial resources and the role of communication and the community. The country notes are given in the second part of this report.

During the discussion and the subsequent group work, the following points were noted ·

(a) In all the countries, except Sri Lanka, the gap between **rural** and **urban** percentages of population with access to the basic minimum sanitary facility for excreta disposal was very wide The estimated rural level was about 3 percent in Nepal, 10-12 in India and Pakistan, around 26 in Bangladesh, 20-25 in Bhutan and Maldives and 60 in Sri Lanka - depending on the definition of what is "sanitary"

(b) Relatively, the urban indicators were better, but not necessarily for the spreading slums and peri-urban areas, where a reversal of the current neglect was urgent

(c) For those countries which started from a low base at the beginning of the decade - like India, Pakistan, Bangladesh and Nepal - the SAARC goal of "**doubling current levels of access to sanitary means of excreta disposal by 1996**" was achievable, though with unprecedented effort. In the case of Sri Lanka, this intermediate goal implies reaching near-universal coverage by 1996, instead of by 2000; this calls for an all-out national endeavour; with relaxed standards and strong policy priority, the 1996 goal could be achieved.

(d) Nothing short of a community-based people's movement with strong political and policy support could possibly break the **psychological** barrier of dependency on the government, the **economic** barrier of lack of resources, the **technical** barrier of low skills and capacity and the **sociological** barrier of inadequate community organisation for collective action.

(e) In this view, the rigidity of capital-intensive government programmes, often confined to public health engineering departments, must make way for a variety of flexible approaches and technological choices, a broad based partnership across society (school children, women's groups, youth clubs, voluntary agencies, socio-religious organisations, political parties and the media), strengthened by enhanced policy and financial support from the government.

(f) The "isolation" of sanitation as a programme has to be ended by elevating its priority and profile, at least to the level accorded to it on the political agenda of the pre-Independence era across the sub-continent.

(g) The well-recognized linkages of sanitation need to be strengthened at the planning and working levels, not only with water supply, but concurrently with hygiene education, preventive health care, school and college curricula, communication programmes and communities organized for action In this sense, sanitation needs to be "desectorized", to become integral to rural as well as urban development, across the conventional sectors, district by district.

(h) As a core concern in women's well-being as well as child health, sanitation programmes must involve women especially in decision-making and planning at the household and community levels. Decision-making must progressively shift from administrative centres to autonomous communities.

(i) Public expenditure directed at sanitation must increase rapidly not only to assure adequate sewerage lines in urban areas but even more to stimulate private interest and investment for which even households with limited paying capacity have, in several countries, shown their readiness, given an appropriate scheme.

(j) There must be a corresponding shift in UNICEF resource allocation and a broadening of working partnerships.

(k) Above all, sanitation must be rooted primarily in awareness to be nurtured through communication and education leading to self-motivated initiatives by the individual, family and community. If this principle is kept in view, the positive trends now in evidence could steadily be built on.

Complementing his presentation at the Representatives' Meeting (at which the participants were also present), Gourisankar Ghosh underlined the following

- One reason why sanitation did not take off as a government programme was that it was usually top-

down We must work to change this orientation through greater involvement of voluntary agencies and local groups, effectively linked to government structures at the different levels.

- The neglect of the growing problem of the peri-urban areas needs to be overcome by conscious and specific attention.
- As little was known on how people acted on their own, and reacted to external interventions, more behavioural and related studies must be encouraged
- Marketing techniques could be adopted to promote sanitation, using communication campaigns.
- Sanitation programme officers need to keep in mutual contact, through several possible ways : regional newsletter, annual meetings, advocacy workshops involving strategic partners. The HQ journal 'Water Front' is being strengthened.
- Environmental concerns must influence planning, keeping in mind the variety of eco-zones in the region
- The noticeable weakness in documenting for a wide readership significant experiences, needs to be addressed.
- The WES monitoring system being developed in Bangladesh could be considered for wider adaptation and a **monitoring workshop** could be arranged for the purpose during 1993. This could be linked to a **skills workshop**. The aim could be to assist countries to develop their own local and district monitoring models
- Modest support from global funds would be possible for specific innovative proposals, beyond normal programmes, once they are cleared by the Regional Office and HQ WES Section A beginning has been made in South Asia through a short-term consultancy study focused on environmental aspects of community-based approaches to sanitation and safe water.
- UNICEF should be more knowledgeable on management of water resources at the local level (e g. Jabua in India), without getting actually involved in broader issues like irrigational use
- Rather than go for national "sanitation codes", communities could be assisted in developing their own codes of social behaviour, relevant to their situation.

Environmental considerations

Consultant Biksham Gujja shared some of his initial impressions from visits to Bangladesh, India and Nepal - particularly in relation to the conventional parameters of quantity, quality and proximity of water supply, related to the larger issue of technology of overall use of the water resource During the discussion that followed, it was felt that a key issue was how programmes in both sanitation and safe water could be strengthened and sustained through environment-friendly dimensions. The consultancy report is expected to be available later this year

Knowledge network

M. Akhter made the following points in his presentation

'Knowledge Networking' is extremely relevant and useful in the WES sector as it involves sharing of knowledge and information on tangible subjects like transfer of technology, relevant also because of continuous development of technologies. At the "Asia Strategy Meeting", (Bangkok, February '93) sharing of information on 'successful' ex-

amples was identified as one of the important elements which could positively contribute towards achievement of the "decade goals"

A knowledge network will be more effective in this sector as knowledge and experience and successful examples in technologies can be relatively easily transferred from one country to another (handpumps, latrines, handwashing).

However, knowledge networking has been relatively weak, resulting in:

- Not getting the best of collective knowledge and experience of the professionals in the field.
- Relative "isolation" and "mystification" of the sector.
- Duplication of effort and sometimes of mistakes, particularly in research and development activities.
- Big variations in programme approaches and quality.

Opportunities

- A vast reservoir of knowledge, skills and experience in rural water supply and sanitation has been built over the past three decades.
- A large group of highly trained and experienced professionals is working in about 90 countries.
- A large number of successful examples particularly in low cost technologies and community-based approaches are available.
- There is a felt need in communities as well as high political will for rural water supply.
- There is an apparently high or increasing policy priority.
- There are common elements of socio-economic cultural,topographical and hydrogeological conditions among the countries in a region.

Challenges

- Inadequate global recognition of UNICEF's role in rural water supply and sanitation programme.
- Despite stated high policy priority, reality has been somewhat different
- Inadequate documentation of successful project activities.
- No serious and formal effort to develop a knowledge network.
- Professionals have few opportunities to discuss and share experiences.
- Inadequate representation (particularly from the field) in the global forums resulting in partial projection of UNICEF contribution to results.
- Unfavourable political situations causing constraints in transfer of technologies between countries.
- Inadequate mobility between WES and other sectors.
- No regional focal point.

Towards Networking

- Routine forums must share experiences and develop common strategies; at least one global meeting for programme managers and at least one regional meeting per year for all professionals.
- Knowledge network must be a programme element with adequate allocation of staff time and resources.
- More serious efforts are needed in documentation of successful project activities Support has to be sought from communication experts/journalists/subject specialists.
- Develop better communication with other sectors

and encourage mobility of professionals between WES and other sectors.

- Prepare annually consolidated summaries of all WES projects.
- Update and distribute curriculum vitae of all professionals in WES
- Support and facilitate short term assignments of professionals from one country to another.
- Encourage and facilitate participation on field personnel in global forums
- Prepare more analytical annual/donor reports and share them
- Establish global "Task Forces" on specific aspects (hand pumps, R&D ..) to develop standards and approaches.
- Co-ordinate with UN system to define UNICEF role at country level
- Facilitate visits to successful projects in more planned and systematic ways.
- Strengthen contents, distribution and use of the "Water Front"
- Routine professional training

Voluntary and Community Action

Three presentations were made by representatives of the voluntary, non-government sector in the region .

Bangladesh Rural Advancement Committee, BRAC (Bangladesh): Jalaluddin Ahmed
Safai Vidyalaya (India): Ishwerbhai Patel
Orangi Pilot Project (Pakistan): Anwar Rashid

While sharing the broad orientation towards encouraging responsible behaviour and investment in sanitation by families and communities, the three approaches, each location-specific and community-based, showed somewhat differing emphases

(a) *BRAC* . Household sanitation was promoted in the project areas as part of the primary health care approach to women's health and development. Mother's clubs, village health committees and trained cadres assisted in generating "demand" and matching "supply", as well as in planning, training and monitoring. There was close coordination with the government systems and with other primary health care elements like diarrhoea control Apart from motivation, part of the cost of latrine was met through credit. There was steady progress among the project populations.

(b) *Safai Vidyalaya* : The emphasis was on community awareness, capacity building at different levels through training of workers, students and professionals, through direct approach to the community using a network of non-government organisations, maximum contribution by the community in a spirit of self-help, and financial subsidies for households below the poverty line. The pressure on the government by informed advocacy is successfully kept up There is a confluence of technology, social sciences and field work The successes have been substantial.

(c) *Orangi Pilot Project* . The project population is close to a million in an unauthorised urban settlement. They could not afford the conventional cost of sanitation, official or commercial, which became even higher if foreign-aided. The bucket latrines and soak pits of the early 1980's have now been replaced by sanitary latrines linked to underground sewerage lines, leading to secondary and main drains and treatment plants Through research and extension, social organisation and technical support, the house-owners were willing and competent *themselves* to meet the cost and undertake the responsibility, except for the main drains and the treatment plant. Having invested 20-25 thousand rupees in their house, they were prepared to

spend another Rs. 1000 in a low-cost, sanitary latrine. The elements of the demonstration effect were. drastically reduced cost, elimination of corruption, speedy execution and proper maintenance

Group Work

The participants met in working sessions in four groups formed according to ecologically distinct areas. (a) arid and semi-arid zones, (b) alluvial plains (as well as sandy or coral islands), (c) hilly and mountainous terrain and (d) peri-urban and urban slums While each area called for an environment-specific approach, the group reports reflected the following imperatives :

(a) Increased government investment and intersectoral support should be tailored to enhance the community's awareness and its own investment and involvement, with appropriate roles for the voluntary and commercial sectors.

(b) Stronger linkages with health, education, water, women's development, communication and environmental concerns are essential and should be established at the community (as well as policy) levels and therefore in the smallest administrative unit of the rural or urban area.

(c) Specific linkages need to be identified in the various inter-related sectors through local planning processes, with continuous interaction between the community and its partners including voluntary agencies

(d) Especially in the peri-urban and urban areas, socio-legal responses are required in support of sanitary facility for the increasing number of the landless and the shelterless.

(e) Technological solutions without socio-cultural sensitivity are not likely to work, any more than the conventional approaches by a centralised bureaucracy.

(f) Negative social attitudes and behaviour are not confined to the poor or the illiterate. Lack of awareness is compounded by a general indifference to the consequences of habitual practices for the safety and wellbeing of others in the community. Children and women are usually the worst victims of such lack of human sympathy and social concern

(g) The emphases of UNICEF's role in sanitation should be to strengthen policy and strategy, facilitate programme development and monitoring, research and development, and support for demonstrating more effective and viable alternative approaches and supportive processes

(h) All of the above imply breaking away from the prevailing culture of planning, in order to support the poor in local communities in meeting perhaps their most critical unmet basic need.

Part Two

Sanitation
in South Asia

A Regional Perspective on Country Situations

May 1993

A Regional Overview

Sanitation is or ought to be a major goal which has been long neglected and lately acquired policy priority However, achievement lags seriously, having started from extremely low levels. A variety of approaches, directed to behavioural change and designed to generate demand and sustain interest of families and communities, is being tried out in India, Bangladesh, Pakistan and elsewhere. Non-government initiatives have led to results which can be replicated. However, the global goal of "universal access to sanitary means of excreta disposal", by the year 2000 calls for extraordinary collective effort. An intermediate regional goal for 1996 has been adopted by all countries in the region by that year- namely, doubling the "current levels of access".

The data base for sanitation is weak, given the neglect during the earlier decades, but the modest regional goal can be more than achieved on current trends. For example, the three larger countries should be able to move from the present level of 6-10 percent to 20-40 percent by mid-decade

A comparative inter-country picture is given below:

Percentage population with access to Basic Sanitary facility

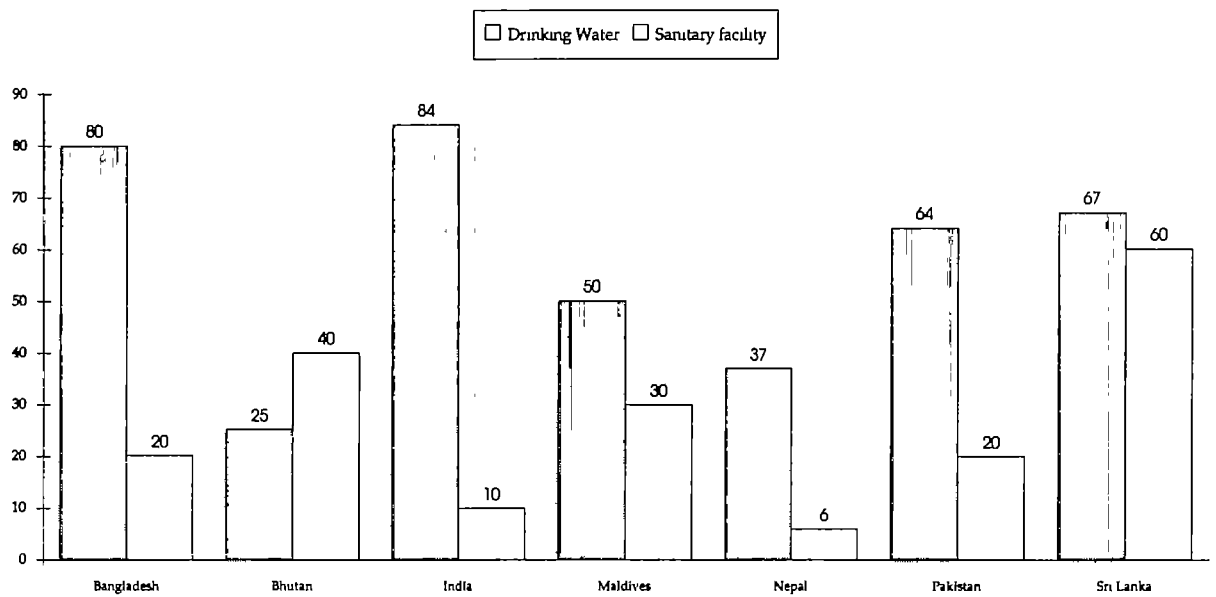
	1990 situation	*1996 SAARC goal*	*2000 Global goal*
Bangladesh	20	40	80
Bhutan	40	80	90
India	10	20	80
Maldives	30	60	90
Nepal	6	12	30
Pakistan	20	40	50
Sri Lanka	60	70	90

(The figures represent approximate levels estimated on available partial information and variable definition of what is "sanitary")

Country Profiles, broadly conforming to the following categories, follow in respect of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka :

- Trends in Sanitation
- Alternative approaches to increased access
- Problems and opportunities for moving to scale
- Lead role of the community
- Communication and education
- Status and trends in water supply
- Programmatic linkages

Percentage of Population (1990) with access to



Country Profile

BANGLADESH

The Drinking Water Supply and Sanitation Decade (1981-1990) spurred Bangladesh to a remarkable achievement in the rural water supply sector where 85 percent of the population have access to a tubewell within 150 metres About 96 percent drink tubewell water. However, only 16 percent use tubewell water for their other domestic needs Further, about 26 percent of the rural population have a sanitary latrine, as a result of a significant increase in coverage in recent years The hygiene practices are generally poor This imbalance in the level of water, sanitation and hygiene practices has not helped a significant reduction in diarrhoeal diseases More intensive focus is therefore being given to the promotion of sanitation and hygiene education in the 1990's to improve the health and the overall quality of life of the community. This paper analyses the sanitation experiences in rural Bangladesh and outlines the sanitation strategy, which could be replicated

Situation Analysis

Bangladesh is characterized by poverty, high population density and low literacy Over 50 percent of its population live below the poverty line. The population density of 726 per square kilometre is among the highest in the world, about 80 percent live in the rural areas The national literacy rate is 25 percent; however, the female literacy rate is much lower at 22 percent Low awareness level and poverty are contributory factors to the inadequate level of sanitation, the situation is further worsened by the high population density, and the generally hot and humid climate which is conducive to growth and proliferation of pathogens

Diarrhoeal incidence, particularly among children, is high. The annual average diarrhoea incidence rate is 3.5 episodes per year per child under five years of age. It is estimated that worm infestation frequently affects over 85 percent of children under five years.

Largely due to cultural factors, the Bangladeshis are, however, very "latrine conscious" As far back as 1985, it was estimated that about 43 percent of the rural families have a latrine which is used largely for privacy, although the majority were unhygienic and polluted the environment Following a major thrust in sanitation in recent years, sanitation coverage has substantially increased. Over 90 percent of those who have sanitary latrines use them regularly, while the remainder use them occasionally. However, less than 10 percent of children use the facilities About 80 percent use a sanitary latrine for privacy while 30 percent do so for health benefits (the figures are only indicative) Hence, about 74 percent of the rural families still pollute their immediate environment with human faeces through open defecation or the use of insanitary "hanging" or open latrines.

Hand washing after defecation using ash or soap with water is practised by about 28 percent of the rural population, while 65 percent use soil and water About 3 percent use soap and water for hand washing before meals, while most people use only water. It is worth mentioning that a 1992 study has indicated that proper hand washing using any type of soil and water can be as effective as using soap Effectiveness of hand washing is determined largely by its thoroughness and by the time taken to clean the hands.

Despite the almost universal use of tubewell water for drinking, ingestion of polluted water is still widespread as the majority (over 80 percent) use unprotected sources, mainly ponds, for washing the mouth or swimming/bathing.

Several studies have shown that the relationship between disease and unsafe water or poor sanitary practices is generally known to the population, although not in depth. Further, field experiences have revealed that the people are quite amenable to changing their behaviour, once they are properly informed

The Early Years

The promotion of sanitary latrines (just concrete squatting slab with waterseal pan) in the public sector as part of the water-and-sanitation package was initiated in the mid 1950's by the Department of Public Health Engineering (DPHE), with the support of WHO DPHE is the nodal Government agency for water supply and sanitation. The direct pit waterseal latrine consisting of a concrete slab placed on five concrete rings used for lining a 5-feet (1.5 m) deep pit was introduced in the late 1970's following a pilot study.

The first phase of village sanitation programme, which was supported by UNICEF, started in 1975 An experimental programme showed that 60 percent of the latrines sold were in use while only 30 percent of those given free were in use The programme was expanded in 1978 with the establishment of production-cum-sale centres which grew in number to 460 centres by 1985

While the sale of concrete latrines rose and reached a total of 360,000 by 1985, the numbers were still small in comparison to the growing population size. This was to an extent due to the inadequate sale outlets, but largely to a combination of inadequate demand and the non-affordability of the latrine parts by the majority of families, despite the subsidised rates Hence, a new strategy was called for, if sanitation coverage and use were to increase substantially.

Integrated Approach

In 1987, a conscious effort was made by DPHE with the support of UNICEF to promote water, sanitation and hygiene education in an integrated package. In the integrated approach, each new tubewell was to be installed after the construction of a sanitary latrine by each of the ten tubewell applicants who also have to contribute cash to the tubewell installation. In addition, seminars were to be organized for change agents/field workers from different sectors, e g teachers, voluntary workers, health workers, field extension officers, so that they can promote sanitation and hygiene to the persons they come into contact during their field work Although the tubewell - latrine "conditionality" was not strictly adhered to by DPHE as the latter was keen to achieve its tubewell targets, the ratio of latrine to tubewell nevertheless increased from 2 1 in 1987 to about 7 0 in 1992 as the number of Thanas taken up increased from 2 to about 280 This "integrated approach" will cover all the 460 Thanas of the country by the year 1995

A very significant strategy adjustment was the promotion of the do-it-yourself (home-made) pit latrine as a hygienic facility. The emphasis was on the containment of excreta in a closed pit combined with proper maintenance of the facility and proper hand washing after leaving the toilet This approach largely accounted for the substantial increase in latrine construction in recent years, over 60 percent of the sanitary latrines were of the do-it-yourself type while the remainder were of the concrete slab waterseal type

There was initial resistance to the promotion of this basic technology by planners and policy makers both within and outside the Government sectors on the ground that only waterseal latrines are hygienic. Continued ad-

vocacy by UNICEF on technical grounds, affordability and acceptance of the technology by the community have weathered much of the resistance. The home-made pit latrine is gaining popularity and acceptance as a hygienic latrine, and, for many families, represent a first step to the more robust and attractive concrete waterseal latrine.

The "integrated approach" was also the forerunner of the social mobilization initiative which forms the basis of the sanitation promotion for the 1990's DPHE forged alliances with other non-engineering partners and directed greater attention to hygiene education, particularly proper hand washing and wider use of tubewell water for non-drinking purpose. Seminars on the "integrated approach" are conducted for change agents from various sectors, including teachers, voluntary workers,extension officers, health workers Since the past few years, special seminars for women's groups are organized. The impact of the seminars have not been evaluated and attempts are being made to address this need

Integration and linkages with other social and health programmes are being strengthened as the sanitation programme is intensified Water, sanitation and hygiene have been integrated into the communication package for health workers on diarrhoeal management The construction of sanitary latrines in primary schools has recently been supported by UNICEF, which includes greater awareness building in the student and teacher population.

Technological Options

Against a background of poverty, a socially acceptable, affordable and technically sound technology is a prerequisite for an accelerated and sustained sanitary latrine promotion Hence, in order to make the waterseal concrete latrine more accessible to larger number of families, the slab and one-ring option was promoted several years ago In soft soil formation, the pit is either lined with locally available materials or left quite shallow and unlined (about 1 metre). In firm soils, it can be left unlined for over 2 metres depth. However, the option of one slab and several rings is also available to buyers

The concrete latrines are produced by 1000 DPHE centres and are sold at subsidized rates. These centres are located at each of the 460 Thana centres and in one union of each thana. Since July 1992, the subsidized cost of one-slab and one-ring latrine is Tk. 125 (US$ 3 2); additional rings are sold at the production rate of Tk 70 (US$ 1.8) each

In the past five years or so, it is tentatively estimated that about 700 private producers are manufacturing concrete latrine parts. Most of the producers are manufacturers of concrete pipes, ventilation grills and other small household concrete products; the latrine parts are a new addition to their product range. They are mostly located at the Thana centres and there are anecdotal evidence that the private producers and the DPHE centres which sell at subsidized rates are not competing despite the price differentials;this is likely due to the increasing demand, and possibly the better marketing efforts by the private sector Further, NGOs who are promoting sanitation in their respective project areas have also established latrine production units to cater for their target groups. Studies are currently being initiated to assess the role of the different latrine producers with a view to defining a latrine marketing strategy, so that the latrine producing sectors can play a complementary role

The major breakthrough in the sanitation promotion has been the introduction of the do-it-yourself (home-made) pit latrines built with home available building ma-

terials. The latrine consists essentially of a pit of at least 2 metres, deep and 1 metre diameter, which is lined by locally available materials (mainly bamboo) in soft soil formation or left unlined in stable soils

In the direct pit system, a wooden platform incorporating a hole is placed directly above the pit The offset pit is becoming increasingly popular since the excreta is not directly visible Unlike the case of a direct pit, the risk of water "splashing" during latrine use when the water table rises in the monsoon season is eliminated, and the need for a robust squatting platform is avoided as the squatting platform rests on solid ground ·The excreta is discharged into an offset pit via a chute pan

Typical expenditure by users in constructing sanitary latrines has been estimated. About 28 percent of the homemade latrine users spent no cash, whereas about 60 percent spent more than Tk 500 for a waterseal latrine (US$ 12 5)

In areas prone to annual flooding during the monsoon, the users raised the plinth level of the latrine to above the annual flood level. This is done by raising the ground, on which the latrine is built, with compacted soil, or by using more rings above the ground level and making an earth mound base.

The type of superstructure is left to the users, and the quality is generally a reflection of the users' affordability The majority of the superstructures are of the homemade type e.g. bamboo mats, leaves, and hessian cloth, which are often well-made and provide the necessary privacy

In order to provide a range of low-cost and affordable technologies, other options such as the SANPLAT concrete sanitary slab incorporating a drop hole above the direct pit, and plastic pans which can be easily transported are being explored

Social mobilization

The priority for sanitation has been raised at the highest political level and at policy and planning levels A national conference on social mobilization for sanitation was inaugurated in February 1992 by the Prime Minister who also launched a sanitation logo The sanitation theme forms part of other child and women related development activities, and thus gets attention at various national conference Allies at the national level that have been brought on board include the Imams, Scouts, Union Chairmen and major NGOs which have a large geographical coverage

Increasing awareness at the community level in many parts of the country, has resulted in greater demand for sanitary latrine by the community. Motivation of community members was accomplished in project areas by field level change agents They included school teachers, students, extension officers from various sections including DPHE staff and NGO workers, who after orientation, interacted with and motivated community members to use sanitary latrines, practice proper hand-washing and use tubewell water for all domestic needs In certain project areas, "courtyard" meetings were held where change agents have organized meetings with groups of 25 to 30 families and discussed about sanitation as well as family planning, immunization and other child related issues The experience gained in mobilizing partners has shown that schoolteachers and high school students who work in groups to motivate villagers in the school catchment were effective The Ansar-VDP (Village Defence Party), which is an organization of village level volunteers organized and supervised by mostly retired personnel from the armed forces, have also taken keen interest in promoting sanitation among its own members estimated at

about 4 2 million. Preliminary estimates put the number of families with sanitary latrines at just under 1 million, and the data will be verified by a sample survey

A large number of NGOs are implementing socio-economic projects throughout the country A significant number of them are involved in water and sanitation activities, and of late, have been giving more attention to the sanitation sector.

In recognizing the role of mothers and women as those who usually care for the children and set the level of home hygiene, women are involved as both change agents and targets of change. However, due to cultural factors, women in the community do not always make themselves available in certain parts of the country for such activities Nevertheless, more women are being enlisted as field level motivators for sanitation and attempts are being made to increase their role in planning Further, women have been active in building the family sanitary latrines. In promoting sanitary latrines, privacy and convenience are factors, beside health benefits, which are underlined to motivate families.

Health Impact

Worldwide studies have suggested that a comprehensive delivery of water, sanitation and hygiene education have a significant impact on reduction of diarrhoea and other diseases It also appears obvious that unless the coverage reaches a "critical mass" which would substantially reduce the pollution source (human excreta) and disease transmission route, the interventions may not reduce the incidence of diarrhoea Given the prevailing high access to safe drinking water supply, emphasis is now placed on concentrating efforts to achieve high sanitation and hygiene education coverage in a community As far as possible, implementors are being encouraged by UNICEF to plan activities at least, on a *union* basis if not on a *thana* basis, DPHE-UNICEF are also supporting more intensive sanitation activities in selected districts with the participation of various allies in the area While it is difficult to define the "critical" mass value which may vary with the population density of an area, a coverage of about 70 percent will be aimed at.

Monitoring and Evaluation

With the recent acceleration in sanitary latrine construction, the progress has been quite closely monitored through several studies covering certain aspects of the programme, in order to make necessary adjustment to the programme. An evaluation of the one-slab and one-ring waterseal latrine (WHO, 1992) which constitute an estimated 25 percent of the waterseal latrines (10 percent of all sanitary latrines), showed that about 17 percent of the users revert to open defecation after the latrine pit has been filled, and 25 percent did not shift to a new site but used them unhygienically. The shortcomings in the design have been addressed by developing a manual and leaflets for the change agents (motivators) and users respectively, as well as training of DPHE field promoters and masons.

A study (WHO,1991) on the DPHE latrine production centres showed that about 70 percent of the buyers of the subsidized latrine parts belonged to the low income groups

The national survey has revealed the usage level of sanitary latrines by adults and children A communication package developed focuses attention on the use of sanitary latrines by children and the proper disposal of infants' faeces The study also revealed that health and

family planning workers, school teachers, students, and neighbours/relatives are important sources of information to the community members

A study has been commissioned to obtain feedback on the home-made latrines covering the users' perception and practices as well as the technical aspects.

Studies will be conducted on specific aspects as the programme evolves in order to obtain feedback from the field for strategic adjustments, as necessary.

Conclusions

The promotion of sanitation, particularly against a backdrop of poverty and inadequate awareness, is a challenging task. The sanitation drive in Bangladesh in recent years, based on advocacy and social mobilization to forge alliances with various partners to reach out to the communities for awareness building has been encouraging. This has been supported by the promotion of a range of affordable and socially acceptable technologies. Attention is given to the transfer of information and know-how to the community, and the achievement of a high sanitation coverage in order to derive health benefits. The programme is being monitored closely in order to address any shortcomings and improve the strategies with the primary aim of sustaining behavioural changes

Evolution of a Rural Sanitation Strategy in Bangladesh

Background

- Hot and humid climate. (-)
- Low-lying area (-)
- Crowding - (726 persons per square km). (-)
- Poverty - (50% below poverty level) (-)
- Low literacy rate (25% national, 22% female) (-)
- "Latrine - conscious" (43% had latrines in 1985) (+)

The early years (DPHE Rural Programme)

- Concrete slabs and 5-rings waterseal latrine (1975).
  - free distribution (30% usage)
  - subsidised sale (60% usage)
- 460 production-cum-sale latrine centres by 1985
- 360,000 latrine sets sold by 1985.
  - inadequate demand
  - non-affordability
  - inadequate centres

Integrated approach (1987)

- Mix of water, sanitation and hygiene.
- Latrine - tubewells (10.1) (2.1 in 1987 to 7.0 in 1992)
- Do-it-yourself (homemade) pit latrine
- Seminars for change agents (non-DPHE). (Social Mobilisation)
- From 2 Thanas to 280 by 1992.
- DPHE latrine production centres from 400 to 1000
- Growth of private production centres (est. 700 in 1991).

Current Strategies

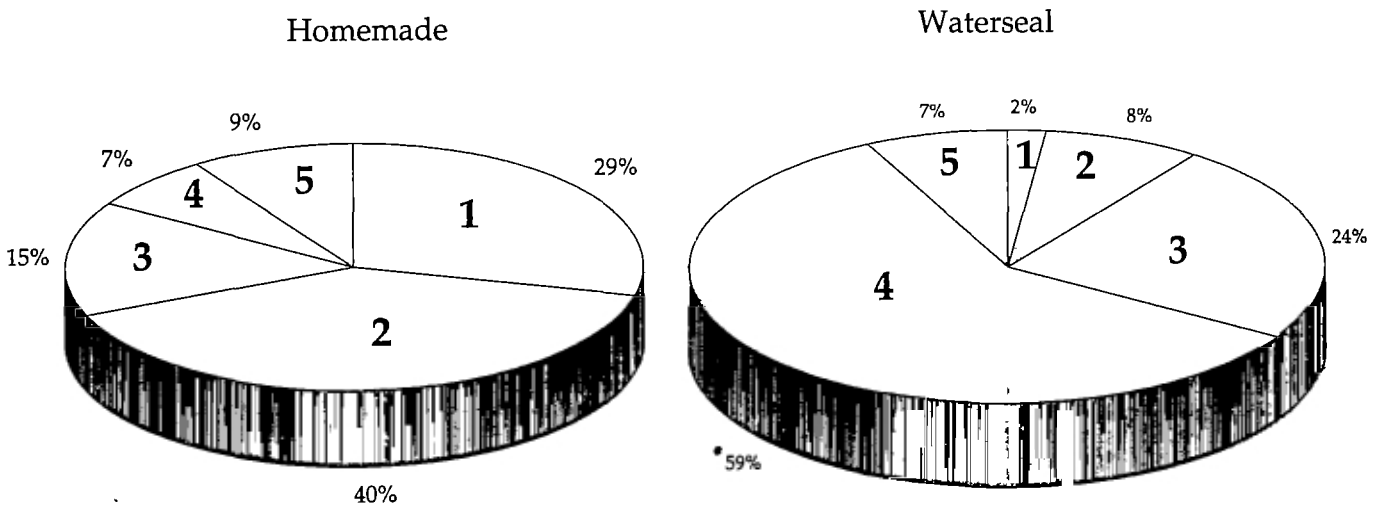
- Range of affordable and socially acceptable latrine technology (direct pit, offset pit, waterseal and rings + others under R & D).
- Social Mobilisation (Advocacy, Alliance & Motivation).
  - National conference
  - NGOs, Religious Leaders, School network, Ansar-VDPs.
  - Motivation (courtyard meetings, house contacts).

- Transfer of information
  - Health benefits
  - Privacy and convenience (for women)
- Women focus.
- Target for high coverage (water high; hygiene practices low)
- Promote growth of private sector.

Monitoring and Adjustments

- National Survey
  - usage level 91%
  - usage by children < 10%
- Waterseal slab and one ring
  - 17% back to open defection (-)
  - 25% use unhygienically (-)
  - tilting of slab (-)
- 70% waterseal latrine buyers are poor.
- Intensive Thanas (Barisal)
  - coalition for change (Administration/DPHE/other Sectors)
  - school teachers + students very effective.
  - courtyard meetings
- Homemade pit latrine assessment.
- Monitoring progress.

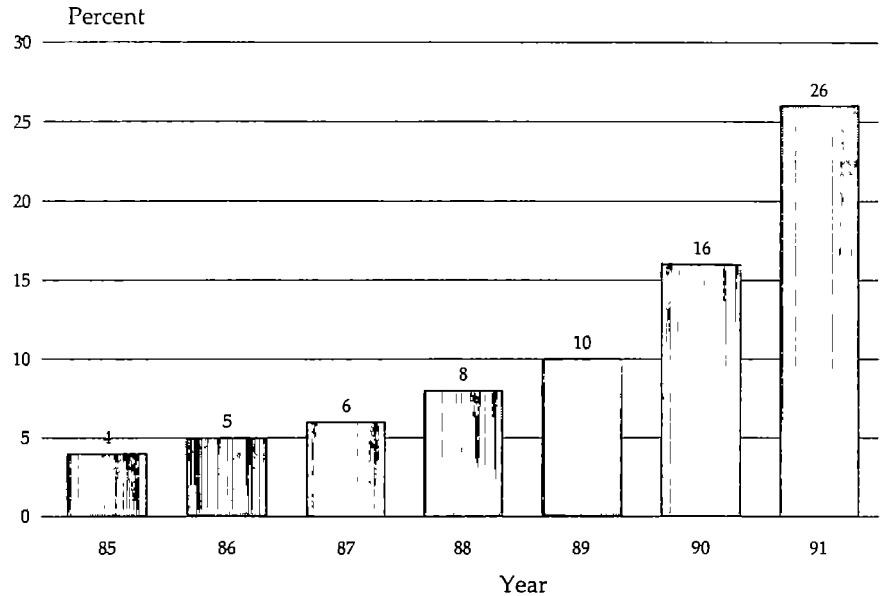
Expenditure by Users in Latrine Construction



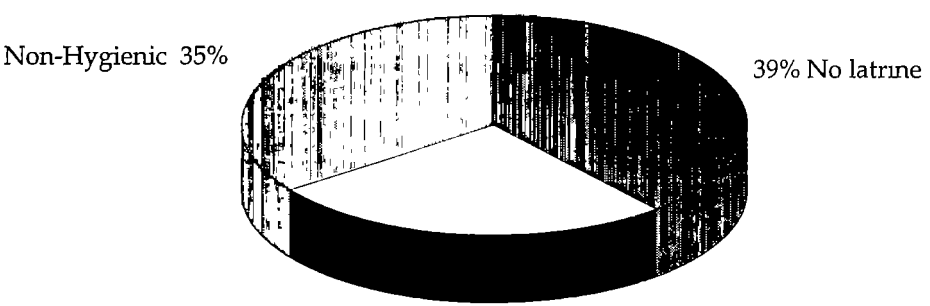
Taka

Legend: 1 0 2 1-200 3 201-500
4 Above 500 5 not known

Access to Sanitary Latrines in Rural Bangladesh



Use of Lartines in Rural Areas



Country Profile

BHUTAN

UNICEF is virtually the sole external partner of the Government in the rural water supply and sanitation sector, with UNICEF funding continuously from 1978 onwards. In the urban water supply and sanitation sector, funding has been mostly forthcoming from DANIDA and ADB.

BASIC DATA

Population	6000,000 of which 540,000 are rural (estimated)
Gross National Product	· US $ 415 per person per year
Adult Literacy	: 38 percent(1992,UNESCO).
Primary school enrolment	: 52 percent gross enrolment (1992; UNICEF)
Primary health care outreach	. 90 percent has access, about half through once-a-month outreach clinics.
Under-5 mortality rate	: 215 per 1000 live births (1989).
Piped water supply coverage	· rural 48 percent (1992); urban 75 percent (1992)
Household latrine coverage	: rural 55 percent, urban 85 percent (1992) Of those having a latrine, 34 percent use latrines of minimal sanitary standards (1990)
Diarrhoea/dysentery	· 15 0 percent of all illnesses
Helminthic infestation	. 11 0 percent of all cases
Skin infections	14 3 percent of all cases

Trends in sanitation

In Bhutan, about 55 percent of the households have a latrine The National Plan of Action for children in the 1990s, adopted in 1992, aims to achieve universal latrine use by 1997. The SAARC Colombo Resolution on Children (1992) aims to double levels of access to sanitary means of excreta disposal by 1996. Present coverage, varies widely, with some districts achieving nearly full coverage, while in other districts coverage is as low as 10 percent.

In Bhutan, the trend over the past two years has been towards the promotion of latrines, which households themselves can build, using their own skills and materials A Royal Decree, issued in 1992, stipulates that every household must have a latrine. With the attention the Decree has generated (or commanded), there is little doubt that even before 1997 every household in Bhutan will have a latrine of one type or another

Two other aspects must be mentioned: the use and the cleanliness of latrines

The firsrt is difficult to verify. Spot checks indicate that most latrines are used at least by some, some of the time. Most of the latrines are of the simple pit design, built by the households themselves.

Alternative approaches. In Bhutan, the health sector has been active and effective in the promotion of household latrine use for more than 15 years. The health sector has, with few exceptions, advocated that only latrines constructed by the households themselves, using their own materials and skills, offer a sustainable solution to achieve universal latrine use in the long term

From 1985 till 1991, the technical Department of Works and Housing attempted to introduce improved household latrines of Ventilated Improved Double-Pit (VIDP), Pour

Flush (PF) and Long-Drop designs. These latrine types required heavy material subsidies, which were given by UNDP (till 1990) and by UNICEF in 1991 The Department has however come to realise that this approach was (a) not sustainable because resources are inadequate to extend the subsidy to all, and (b) that the expected demonstration effect did not take place; instead people became dependent on Government subsidies, building no latrines unless the government subsidies were available Another mistake was the attempt in 1991 to introduce water-based (PF, wet Long-Drop) latrines for people who do not have a tradition of cleansing with water.

In 1992, the Government decided to abolish all forms of subsidies in the promotion of household latrines. This decision, coupled with a firm dedication at the highest level of government, offers good scope to attain universal coverage of household latrines by 1997, or even earlier, relying on community resources which offers the best scope for long-term sustenance. As an exception, the Government continues to provide a ferro-cement squatting slab for simple pit latrines to the households reached with new water supply schemes in 1992-93 and 1993-94.

The non-Governmental sector is very limited in Bhutan There are just three national NGOs, who are active in only a few districts. There are three international NGOs, each active in some rural areas of one district each. In their assigned areas, the NGOs play an important role in the promotion of sanitation, which is commonly perceived as the key to improve the health status of the rural population. However to reach country-wide coverage on any aspect of sanitation, it will be necessary to mobilise all possible allies for a social movement. This function will depend mainly on the district Administrations and their personnel in the health, education and technical sector, their number is rather limited for the scale of operation that is needed.

Problems and opportunities

From the above it will be obvious that Bhutan is already moving to scale,in a manner that is affordable and sustainable

- ***Attitudes and behaviour*** In Bhutan, the population is quite accustomed to respect orders from authorities. In particular, a royal command is of great importance to the population and the administration alike. Thus, people will not question the need for latrines. No in-depth studies of the attitudes and practices of the population have been conducted so far. Presently, some preparatory work is in progress, and plans are on to conduct this study later in 1993 with UNICEF support.

- ***Technology and materials.*** As there is no tradition of using water for cleansing, in northern Bhutan, the scope for using water-based (PF-type) latrines is very limited.The pit latrine, with or without vent pipe, is the latrine type of choice.The ventilation pipe is not an item which the average household can afford. Moreover, experiences with ventilated pit latrines have been disappointing, with most of the ventilation pipes found not to function as expected. The unventilated pit latrine is, experience shows, often somewhat smelly because pits are often shallow.

Also, many lack the required squatting hole cover, while it is not uncommon to see wide gaps between the planks and beams used to make the squatting plate. This allows flies to enter and leave the pit, making the latrine unsanitary The health sector and the technical staff of the district administration continuously emphasize the need to build, use and maintain household latrines properly.

For the construction of household latrines, timber,stone, bamboo, thatch and mud are commonly

used House building skills and traditions in western and central Bhutan are substantial. Houses are usually in two or three storeys, with often built-in latrine on a balcony on the first or second floor from where the waste falls into a pig sty or into a shallow pit next to the house. In the eastern parts of the country, houses are predominantly of the single floor type and much less elaborate, with people used to practise open-air defecation.

For people accustomed to using a latrine in the house, an improved long-drop latrine(with pipes and pits) would be more appropriate than a pit latrine located at some distance of the house. However, so far no solution, which the average house owner could afford, has been developed for promotion.

- ***Skills and capacity.*** The Government has decided that the construction of household latrines is not a technical issue. For motivation, the approach relies on education, persuasion and a degree of regulation. In construction, the resources of the individual communities and households are used. While this may not always result in latrines of a good standard, it will ensure that all households will have a latrine, which is a pre-condition for latrine use. Moreover, the Government already faces difficulties in providing the skilled manpower and funds needed to construct the rural piped water supply schemes.

- ***Maintenance and use.*** Proper use and thorough cleaning are essential to maintain latrine hygiene. For many households, the present latrine is the first they have built. Unaccustomed to latrine use, and averse to close contact with excreta, it is not surprising that many latrines, irrespective of design, are often dirty. Only prolonged efforts at educating people through all available means of communication can lead to better use and maintenance of household latrines

- ***Financial resources.*** The Government's decision not to use subsidies in the promotion of household latrines also reduced the need for the substantial funds, which would have been needed to extend a subsidy package to all households. The available finances, nearly all from UNICEF, are applied to the construction of latrines for schools, health units and monastic schools, besides funding the cost of training of villagers in sanitation and the cost of the ongoing national campaign on water and sanitation.

- ***Physical environment.*** The recent efforts to improve environmental sanitation in villages centre on the construction and use of household latrines, the paving of trails in the villages (to avoid mud during the rainy season and dust during the rest of the year), the stabling of pigs (which used to roam freely), the removal of cattle from the ground floor of the house, the use of smokeless stoves (or the use of a kitchen separate from the house), etc. Where successful, such efforts greatly improve the cleanliness of the children's environment.

Lead role of the community. There is no doubt that the "burden" of improving the village environment, including the building of household latrines, is on the community and , more exactly, on the individual household. The role of women in respect of household latrines and a hygienic environment is somewhat more complicated.

The leadership of Bhutan maintains that men and women enjoy equal status and opportunity in society. Although equal opportunities exist in theory, practice tells another story. There are no women in the National Assembly and only very few in the District Development Councils. None of the 20 powerful District Administrators are women. In the recently established 196 Block Development Committees less than 10 percent of the mem-

bers are women The rate of rural female literacy is about 10 percent None of the more than 200 district-based technical staff, responsible for executing the rural water supplies, are women and many of the 73 rural health units do not have even one Assistant Nurse Midwife.

The Government has in recent years increased the number of female Village Health Volunteers, introduced women as caretakers for rural water supplies and introduced women volunteers for the promotion of smokeless stoves Experience so far has been encouraging, especially in the construction of smokeless stoves, where the results are superior to achievements by the earlier male technicians There is nevertheless no cadre of women workers, skilled at educating rural women on issues of health and hygiene. With the Government actively working to reduce the number of Government workers and the NGO sector being very limited, there is little hope of establishing such a network of women health and hygiene promoters.

Communication and education. The Government has clearly come to understand and appreciate the importance of communication and education in the promotion of sanitation. In 1992, the Government developed a communication strategy aimed at educating and motivating the population about water, sanitation, hygiene and health. The strategy is primarily based on the use of radio, print and audio-visual communication media A national campaign aiming to improve sanitary practices started in November 1992. The audiences which the promotion campaign intends to reach in the first months, are the general population, village leaders and schools. The workplan includes the production and airing of interviews, drama, jingles and spots on the Bhutan Broadcasting Service (BBS), the production of posters, flipcharts and a sound/slide show for use in the 1993 school year A video film and a calendar for use among village leaders and the general population have been completed. The national newspaper, Kuensel, will carry news and features on water supply and sanitation issues, besides covering the competition to design a logo for the promotion campaign.

In Bhutan, personal contacts form a major means of communication. While the national radio can reach up to 60 percent of the population, its influence alone is unlikely to change patterns of behaviour. The promotion work done by the health sector staff and their grass-root field workers, the Village Health Volunteers, does far more to improve sanitary practices. The importance of the national communication campaign is to reinforce and support the efforts of the field personnel.

About 52 percent of the approx. 102,000 children in the age group 6 to 12 attend school (1992). The primary education system in Bhutan has a good reputation for educational standards. Virtually all schools have latrines, although the units are often inadequate and sometimes poorly maintained. It has been observed that the school students maintain high standards of personal hygiene, coming to school in clean clothes and properly bathed. The school curriculum includes sanitation and hygiene. The emphasis placed on all aspects of sanitation in school will have a profound impact on the knowledge, attitude and practices of the students after they leave school.

Last, but certainly not least, the monastic body exerts a tremendous influence in all spheres of Bhutanese life. In 1989 a UNICEF supported project on Religion and Health was started. This project aims to involve the monks and traditional healers in the promotion of health and hygiene. Plans are to have a group of 30-40 institutional monks as trainers.

Their initial task is to develop a new curriculum on health, nutrition and hygiene for teaching at the 15 monastic schools and in the 18 district-level monk bodies. Workshops will provide training on health and hygiene for the numerous village-based religious workers District-level workshops have been held in five of the 20 districts. The development of health and hygiene education manuals in the national language, is part of this project

Status and trends in water supply

Piped water supply coverage is about 48 percent (1992) in the rural areas and about 75 percent (1992) in the urban areas. On 30 July 1992, His Majesty the King issued a Royal Decree on water supply and sanitation This Decree details the responsibilities, users of piped water supplies have to assume to maintain their schemes and also requires every household to have a latrine.

From 1989-90, the quality of construction improved markedly as a result of standardisation combined with intensive training of district-based technical staff. To allow for more attention to ensure high standards of workmanship, the rate of system completion was reduced from the large numbers achieved in earlier years.

In 1990, the Government adopted a policy on operation and maintenance for completed water supply schemes. The policy centers on a Village Maintenance Committee (VMC) and two Village Caretakers for each water supply scheme, one woman and one man. The VMC and the caretakers are equipped with a toolset and are jointly responsible for the upkeep of the completed water system. While the training of caretakers has made good progress in the past two years, the training of VMC members has barely started. The availability of spare parts in many of the remote districts is a serous constraint, which is yet to be attended to.

Testing of water quality at the source of water schemes started in 1990. As of September 1992, 16 of the 20 districts are equipped and have trained staff to test water for micro-biological purity. The Public Health Engineering Division (PHED) of the Government aims to construct water schemes with pollution at source limited to 10 faecal coliform bacteria per 100 ml sample. This corresponds to a low level of risk to human health. The actual testing of water at source is constrained by the presence of just one hospital based laboratory technician per district, who is responsible for clinical as well as water quality testing.

In 1990, the Government started an inventory of rural water supply schemes. Based on a rural population figure of 540,000, this inventory reports 48 percent of the rural population as using piped water supply. The inventory includes data on 1,524 completed rural water supply schemes, of which 1,119 schemes have been inspected on-site since 1990. Of all schemes, 12 percent are out of order and 21 percent function partially, requiring major repairs. Only 26 percent of all schemes are working satisfactorily. Of the 254 primary schools in the country, 139 have piped water supply. The rate of coverage is rather low, mainly because community schools have come up in the past few years, many of which are to construct permanent housing and piped water supply will only be provided for permanent facilities. The status of these schemes is similar to the overall status of water schemes. The inventory has made it less urgent for the government to use the WASAMS software, which the Government has found impossible to operate under Microsoft Windows so far.

For the past three years, nearly all efforts have been aimed at the completion of the current phase of the RWSS

programme, which UNICEF is supporting with EEC funds. Little attention is given to improve the large number of schemes built in the period 1978-1985, nearly all of which require reconstruction or major repair. Unless time and effort are devoted to improve the functioning of these schemes, the rural water supply in Bhutan will continue to be poor. In spite of the small numbers of better quality schemes which have been installed over the past three years, common sense indicates that after the completion of the UNICEF-EEC funded project in mid-1994, a number of years be devoted to repair and rehabilitate the older schemes as well as attend to the needs of village caretaker training and equipment, while deferring the construction of new schemes.A particularly good approach would be to withhold, on a district-by-district basis, approval for new schemes until all existing schemes have been brought into good working condition.

Another recent development is the increasing demand for household taps. In particular in the western and central regions of the country, houses are substantial multi-storey structures, with people living on the first and second floors. Bringing water up to the first or second floor is hard work, and many households pipe the water up from the tapstand. Where a tapstand serves only a few houses, it would be an economical solution to allow the house-owner to pipe the water into the house. Impact on health also tend to increase with in-house water connections as against yard connections.

The Government-UNICEF Plan of Operations for the period 1992-96 also envisions the introduction of spring protection as an affordable way of improving the water quality for the often scattered settlements not yet reached with piped water supply. Alternative approaches, such as rainwater collection, tubewells and hydraulic rams, are considered to have only limited potential for application.

For the 385 water supply schemes completed till 30 September 1992, total investment in construction is US$ 2.0 million. The ratio of contributions is: 30 percent by the Government, 11 percent by the users and 58 percent by UNICEF. Concern about the increasing per capita cost of

Rural Water Supply	Year of completion			
	1988-89	1989-90	1990-91	1991-92
Number of schemes completed	149	110	67	59
Average number of tapstands per scheme	5 4	6.7	7.5	6.9
Average number of users per scheme	167	94	132	131
Average number of users per tapstand	31	17	18	19
Average length of a scheme (km)	2.6	2.7	2.7	1.8
Average total cost per scheme (US$ x '000)	4.1	6 0	6.8	5.1
Average per capita cost (US$)	24	49	52	39

rural piped water supplies led to the inclusion of upper limits on these costs in the Plan of Operations for 1992-96 For all new schemes for 1992-93, the maximum overall per capita cost is US$45 The foregoing table presents an analysis of some aspects of the water supply schemes completed in successive years.

Programme linkages of sanitation and water supply

The Government and UNICEF have included the promotion and construction of household latrines, institutional latrines, smokeless stoves as well as the promotion of hygiene under the Rural Water Supply and Sanitation programme of the Plan of Operations for the period 1992-1996. From 1992-93, all households reached with improved water supply will have a latrine.

Efforts to bring health and hygiene education together with the construction of new water supply have so far been successful only occasionally, because the cooperation between the technical and health sector staff in the districts is not yet always optimal.

Impact of water and sanitation improvements on the incidence of diarrhoea. In spite of the considerable coverage of piped water supply and household latrines, combined with a low population density and a cool climate, Bhutan recorded the highest number of diarrhoea episodes per child per year (3.9) and the highest two-week incidence (22 8) among SAARC countries in the WHO standardized CDD household case management surveys, conducted during 1989-1992. The possible explanations for this result must be sought among other faecal-oral transmission routes, such as the absence of a tradition of washing hands before and after meals, the use of bamboo-woven baskets as plates, which are not normally washed, the abundance of flies in the house in summer, the keeping of pigs and other cattle on the ground floor of the house, etc.The unhygienic condition of many latrines, the possible preference for open-air defecation and the contamination of many piped water supplies with faecal coliforms at source may also contribute to the spread of diarrhoeal diseases. The relative importance of each of these factors in the spreading of diarrhoeal diseases can be assessed only on a location-specific basis.

Sanitation trends in Bhutan

Present situation:

- Latrine coverage: rural 55%,. Urban 85%
- Use of latrines of minimal sanitary standards· 20%

Decade targets:

- NPA: universal use of latrines by 1997
- Colombo resolution: Double levels of use by 1996; in Bhutan this means use up to 40%

Current trends:

- Promotion of simple pit latrines
- No subsidies
- Royal decree on water and sanitation has resulted in a major effort by the government at all levels to increase latrine coverage
- Major role of the health sector, minor role of technical/ education sectors
- Involvement of the monks
- National communication campaign on water and sanitation

Major problems:

- In western Bhutan, simple pit latrines are not very appropriate.
- Latrine use is difficult to monitor.
- The non-government sector is very limited.
- The attitudes, practices, concepts and expectations of the population on sanitation issues has never been studied

Conclusion:

- Bhutan will achieve 80 percent latrine coverage by 1996 and (nearly) full coverage by 1997.
- Bhutan will achieve 40 percent latrine use by 1996 and (nearly) universal latrine use by 2000

However:

- Bhutan recorded the highest number of episodes of diarrhoea per child per year among the SAARC countries (WHO, 1989-1992).
- Are other hygiene factors more (or at least equally) important than latrine coverage/use ?

Also:

Need for uniform definitions of
- Safe water supply
- Hygienic/Sanitary Latrines.

Country Profile

INDIA

Rural Sanitation in India has yet to catch up to become the comparable associate of the high priority Rural Water Supply In fact the Rural Sanitation Programme was a late starter It received momentum after the transfer of Rural Sanitation from the Ministry of Urban Development to the Department of Rural Development in 1985 The Rural Development Department initiated Rural Sanitation under the Rural Landless Employment Generation Programme (RLEGP) and Indira Awas Yojana (IAY) in 1986 and in the same year a new Centrally Sponsored Rural Sanitation Programme (CRSP) was launched with the inclusion of Rural Sanitation under the 20 Point Programme.

Progress so far

By the end of the Seventh Five Year Plan, 1985-90, the percentage of households provided with sanitary latrines was estimated at less than 3 percent. This was based on the assumption that the number of households having their own latrines outside the government programme might have been negligible. But this was not the case. The 44th round of the National Sample Survey (NSS 1988-89) revealed that around 11 percent of rural households had latrine facilities. This of course includes all types of latrines including the service type. The North-Eastern States showed a very high coverage as compared to the rest of India where the coverage was less than 10 percent. Thus there has been some spread effect to the coverage supported by the government. However, this is far behind the goal of providing universal access to sanitary means of excreta disposal by the year 2000.

The revised CRSP guideline issued by government in 1991 had sought to make the programme need-based In the light of a changed approach to subsidy in the Eighth Five Year Plan, the CRSP guidelines are revised One of the significant features in this regard is not to provide any subsidy for those above the poverty level Alternate delivery systems are being proposed to meet the requirements of different segments of the population.

Realizing the importance of IEC for creating demand and improving environmental sanitation in rural areas, the government has allotted 10 percent of CRSP funds to be spent for these activities.

The government has adopted an integrated and selective approach for rural sanitation programme. While identifying project districts, priority is given to those areas where demand exists; otherwise priority shifts to those areas where the child death rate is the highest due to water-borne diseases and where literacy, water supply and health campaigns already exist so as to use the common motivators for awareness creation and demand generation for the Sanitation Programme as well. Linkage with ICDS, DWCRA and other UNICEF supported activities is to be given top priority The Intensive sanitation districts, the CDD-WATSAN districts and the CBCS(Community-based convergent services) districts are examples of an integrated and selective district approach to sanitation implementation

Change of course

In spite of the fact the Rural Sanitation Programme virtually made its presence felt only during the late 1980's, the experience gained since then has been rewarding and has set the tone for a changed approach to planning and implementation of the programme during the current UNICEF plan of operations (1991-95). The feedback related not only to the activities which the government pursued on its own but also a number of experimental and

innovative projects undertaken in collaboration with UNICEF in different parts of the country A National Seminar on Rural Sanitation organised during September 1991 brought together politicians, bureaucrats, technocrats, NGOs and international agencies to discuss the present situation and future strategies pertaining to rural sanitation The Seminar has made far-reaching recommendations which are under examination by the Government A critical analysis of the experience gathered during the first two years (1991-92), brings to the fore not only the areas of success but also the scope for further improvement in implementing the various approaches and strategies.

Service Cluster

Sanitation is no more identified with construction of latrines alone. It is now considered as a package of services and consists of the following four components. (i) Handling of drinking water (ii) Disposal of Wastewater. (iii) Safe disposal of human excreta. (iv) Sanitation in the community. The intervention in each of these components relate to both hardware and software. The "Total Package" concept has been endorsed by the Planning Commission for the Eighth Five Year Plan (1992 -97). However, there is now a need to lay down the policy guideline on how to plan and implement sanitation as a total package and the modus operandi for the same.

Community-Based District Focus

Considering the socio-economic and cultural diversity of the Indian population it is but natural that no single approach could be adequate to meet the challenge This is all the more important if sanitation is to become a way of life and a "people's movement" The approach should not only take into account the people's perception of health and hygiene but also technical feasibility and economic viability, acceptability, affordability and also replicability Keeping these factors in mind, UNICEF, in association with Government and NGOs, has tried a few community based approaches to Rural Sanitation in the recent past which show promise for their replication Thus, we have the Alwar model on community motivation to promote a package of sanitary facilities, the concept of cleanliness adopted in Periyar, self-financing household sanitary facilities in Allahabad and so on. In each of these districts, the Programme had gone to scale and the approach/strategy is being adopted in other areas within the state as well as by other states Thus in Periyar, sanitation coverage has already been extended to 14 percent of rural population The Alwar Strategy has been replicated in 5 more districts of Rajasthan. The Government of Assam has adopted the Medinipur model for its programme in Kamrup. The Allahabad strategy, particularly, the concept of Sanitary Mart has not only been extended to other areas of UP but also has gone well beyond the State All these developments are a pointer to a sustainable and expanding programme.

Appropriate Low-Cost Technology

Adoption of cost-effective technology assumes crucial importance when it comes to household sanitary facilities. Development of alternative designs, use of local materials, promotion of local production capacity, training of local masons and involvement of the household beneficiaries all these contribute to a reduction in the cost. Several activities have already been initiated in this regard In Medinipur, the Rama Krishna Mission offers 10 different models of household latrines to suit different levels of purchasing power; the unit cost ranging from

Rs 300 (for a single-pit water seal latrine) to Rs 3000 (with dual pit pour-flush type having an improved superstructure). The Institute of Engineering and Rural Technology (IERT), Allahabad is engaged in trying out alternative superstructures using local materials Low-cost sewer is being experimented in a group of villages in Hoogly district by the All India Institute of Hygiene and Public Health. Use of ferro-cement has been another area which is gaining acceptance As a part of developing and promoting local production capacity, the RKM, Medinipur has started 12 production centres to supply the essential components for construction of latrines. The Panchayat Udyogs of Uttar Pradesh have been strengthened to provide the logistic support to the Sanitation Programme in that State. Areas where further interventions required are (i) Development and adoption of suitable designs for water-logged, rocky, hilly and arid areas, (ii) R&D on cost-effective superstructure and (iii) use of ferro-cement technology.

Cost-Recovery for sustainability

Recovering the cost (partially or fully) from a beneficiary household/community is guided by two major reasons. Firstly, it creates a sense of ownership. Secondly, it allows limited funds to rotate for an increased coverage. Both these grounds are very relevant when it comes to sanitation. The RSP has built an element of cost recovery into it. The 1991 CRSP guidelines required beneficiary contribution (5 percent) even from the scheduled caste/ scheduled tribe families and those below the poverty level for construction of household latrines. The allocation to this scheme was limited to only 20 percent of the total outlay. For the remaining 80 percent, the contribution was to vary from 10 to 20 percent depending upon the number of households willing to have their own latrine in a village This has since been revised At present government is not offering any subsidy for those above the poverty level irrespective of caste or tribe category. This means, households above the poverty line have to pay cent percent cost of a latrine. Even those below the poverty line have to pay 20 percent of the total cost This is a significant policy change.

UNICEF has always advocated some cost-recovery from the beneficiary households in projects it supported. For this purpose it had tried alternative approaches. Thus in Medinipur, the beneficiary (irrespective of socio-economic status) contributes cent percent cost. In order that the facility is extended to reach the otherwise unserved groups, a revolving fund is in operation which provides credit to the deserving households (now it is confined only to the poorer group) to be recovered in easy instalments. During 1991-92, over 18,000 households were provided with latrines with no subsidy in Medinipur.

This approach has now been adopted in Hoogly district of West Bengal and Kamrup district of Assam. The concept of zero subsidy is also promoted through the Rural Sanitary Marts. Besides, several other projects are now in operation where the subsidy provided to a household is much less compared to the government norm The areas worth mentioning in this regard are Allahabad (UP), Ranchi (Bihar), Kanyakumari (Tamil Nadu), Mysore (Karnataka), Krishna (Andra Pradesh) and Najafgarh (Delhi). The recent decision of the Government to withdraw subsidy for those above the poverty level will necessitate developing alternate marketing strategies to facilitate those who want to have a latrine on their own This is essential since the materials needed for construction of latrines in rural areas are not readily available in the usual course Development of local production capac-

ity and marketing capability requires attention.

Responsive Delivery and Marketing Mechanism

Unlike the Drinking Water Programme where the focus is on the community, the Sanitation Programme is now largely household-oriented The physical inputs which are required for this programme are not yet readily available in the market even in the urban areas. Due to demand constraints, private initiative in manufacturing and trading of the required items has yet to come to a desired level. For all these reasons initial support for developing a suitable delivery and market mechanism is essential. Involving Panchayat Udyogs in Uttar Pradesh and establishment of production centres by the RKM in Medinipur have been a right step in this direction

Rural Sanitary Mart

UNICEF, in collaboration with the Uttar Pradesh Government promoted the concept of Rural Sanitary Mart (RSM) in the latter half of the 1991. The RSM is a retail outlet dealing with not only the materials required for construction of latrines and other sanitary facilities but also serves as a counselling centre for those interested in sanitation as a concept and a need beyond the latrine For this purpose, it maintains a panel of trained local personnel including masons Thus the RSM is in a way, a service centre too Also, in areas where community-based handpump maintenance is introduced, the RSM could keep stock of essential handpump spare parts Similarly, these marts can also keep ORS packets Based on the initial success at 12 locations, the Government of Uttar Pradesh has promoted more centres in the State The production centres of Medinipur are now being converted to serve as RSMs Similar marts have opened in Rajasthan too The Government of India has accepted the Rural Sanitary Mart concept. Several States have shown interest to promote the same Establishment of RSM will be a step towards commercializing the supply of sanitary materials and will promote private initiative over a period of time Considering the magnitude of the problem, establishment of RSM can be considered as a good beginning. Close monitoring of this intervention and its replication over wider areas would be required

CDD-WATSAN Strategy

The need for integrated control of diarrhoeal disease and water and sanitation (CDD-WATSAN) strategy emerges from the inherent association between the two. Thus, diarrhoea which has a direct link with water and sanitation should not be looked at as merely a medical problem. A reduction in the diarrhoeal incidence can be a impact indicator of an improved water supply situation and better personal hygiene The recently announced Government of India Policy on Management of Diarrhoeal Disease amongst children under five through promotion of ORT calles for undertaking preventive measures in terms of hygiene practices together with correct case management for reducing diarrhoeal morbidity and mortality. The CDD-WATSAN strategy which is being experimented in 15 districts of India in as many states has the following goals·

i) Reduce the incidence of diarrhoeal cases among children under 5 years by 25 percent by 1995.

ii) Provide universal access to safe drinking water and improved sanitation coverage by 1995 with major activities completed by 1994

In order to achieve these goals, three broad strategies have been envisaged These are: (1) Improving access to

services in drinking water supply, sanitation and diarrhoea management, (ii) Promoting key practices for prevention of diarrhoea and (iii) Promoting key practices for management of diarrhoea. Convergence of water, sanitation and the relevant health inputs together with empowering mothers on prevention and management of diarrhoea at village level is a major challenge for this programme. Benchmarks have already been created through a household survey so that the impact of this strategy can be assessed in 1995. Based on the lessons learned, the strategy can be extended to other districts to facilitate achieving the **"Health for All"** goals.

Capacity Building

Development of Human Resources continued to get priority under the UNICEF cooperation. Several institutions like Safai Vidyalaya, IERT, Water Development Society and Lady Irwin College are actively associated in this process. Public Health Departments, Engineering Colleges and Polytechnics are a part of the International Training Network. Core Trainers Groups have been formed in the focus districts. Four tutorial films on low cost sanitary facilities were produced to facilitate training of masons, technical supervisors and motivators There is a need to institutionalise the process of training/orientation of various functionaries not only to keep uniformity in the approach and contents but also to create a system which would be sustainable. The process will include identification of suitable institutions at different levels and for different functionaries and inclusion of low-cost sanitation as a part of academic curricula Activities have already been initiated in this regard

Inter-Sectoral Linkage

Sanitation cannot be treated in isolation from the other sectors While its association with water and health is inherent, deliberate efforts are required to link it with others like Eduction, Child Development(ICDS), and Women's Development(DWCRA) and so on. In the CDD-WATSAN districts a mechanism has been evolved to link up sanitation with these sectors in an organic way Promoting sanitation through schools will be one of the thrust areas. In Mysore and Medinipur, sanitation education is a part of the "Total Literacy" campaigns Similar efforts are being tried out elsewhere The Periyar district has taken up a School Sanitation Programme on an extensive scale with the involvement of students, parents and teachers This is linked with promoting sanitation in the community which includes provision for sanitary facilities at household level. The ICDS Anganwadi Workers will play a key role as motivation-cum ORS stockists in the CDD-WATSAN districts They will also have a crucial role in empowering mothers in the prevention and management of diarrhoea.

Opportunities

The recent years have witnessed several new initiatives and consolidation of the approaches and strategies adopted earlier in selected areas As already mentioned, some of these approaches have passed the test of their replicability with adaptation in extended areas The programme has gone to scale at the state level in Uttar Pradesh, Haryana and Rajasthan At district level, similar experience is reported in several focus districts like Periyar, Medinipur, Mysore, Allahabad and so on The challenge in the future lies in covering larger areas so as to create a desired impact at the national level Viewed from this

perspective, the Sanitation Programme has still to go a long way to achieve the goals of 2000

The number of rural households, at present, is estimated at 113 million As per the National Sample Survey (1988-89), some 12.4 million households had their own latrines (all types) Since then, the number of sanitary latrines provided through various programmes may be around 0 7 million Thus, by 1992, approximately 13 million households in India were having latrine facilities (all types). Thus nearly 100 million households in India do not have access to latrines of any type at present.

The Eighth Five Year Plan (1992-97) envisages a total outlay of Rs. 6740 million for Rural Sanitation Programme. Of this, roughly Rs. 6000 million is expected to be available for providing sanitary latrines, which is only for those below the poverty level; a 80 percent subsidy (around Rs. 2000) has been envisaged for this purpose Of the 100 million households not having any latrine facilities at present, around 30 percent (30 million) may come under this category. At the present rate of subsidy, an outlay of Rs. 60,000 million (or Rs. 6000 crores) will be required to have cent percent coverage of the households below the poverty level. With the proposed outlay envisaged for the Eighth Five Year Plan, it will be possible to provide latrines only to 10 percent of these households and at the country level this may add another 3 percent to reach an overall coverage of 14 percent of the total presentation. This, of course, does not take into account the substantial addition through private initiative. Thus, resources are a major constraint to have an increased sanitation coverage.

In the light of what has been said above, it may be worthwhile to have a closer look at the revised strategy proposed under the Eighth Five Year Plan. The question that arises is, whether a subsidy of Rs.2000 is really needed to provide a sanitary latrines to a household or this could be further reduced by giving a range of options for a household to choose, with a differential scheme of subsidy A reference to Medinipur experience, where (even with full cost recovery) a large number of households with low-income have opted for a single pit water-seal sanitary latrine, would be appropriate. The average cost of a single sanitary latrine works out at Rs. 3000 with the use of local materials for a temporary superstructure. In many other areas there are also examples of voluntary groups motivating households (even those below poverty level) to go for a dual-pit with subsidy even less than Rs. 500 by using the locally available materials for the superstructure. This possibility has to be explored to facilitate increased coverage even with the same level of investment.

In providing sanitary facilities to those above the poverty level, alternate delivery systems have to be introduced on a larger scale and for this purpose the required financial support has to be provided. While excluding this group from subsidy, it was assumed that ownership of latrines by households with a low-economic capacity would bring social pressure on those belonging to richer sections This is to some extent true. Besides, it is expected that by confining the subsidy to a certain segment of the population (those below poverty level), it will be possible to extend the programme to have a wider geographical coverage. This is turn will facilitate bringing in a large segment of the relatively better-off group into the sanitation fold. In order that these assumptions are realised, it is necessary to devise an appropriate strategy to promote private initiative for an increased sanitation coverage. Besides encouraging the establishment of sani-

tary marts in support of a wider net-work, the concept of a revolving fund could be introduced through reliable voluntary organizations. CAPART could be persuaded to take it up as a priority rather than making its support purely subsidy-oriented.

The Eighth Five Year Plan (1992-97) offers a new direction to the Rural Sanitation Programme in the country It is in the fitness of things that the Plan considers rural sanitation as an essential ingredient of the total programme for rural development. The Constitution (Seventy-second Amendment) Bill, 1991 had included sanitation in the 11th Schedule thereby facilitating the involvement of the Panchayati Raj system and through it the community in the planning and implementation of rural sanitation in a more effective way. The recommendations of the National Seminar on Rural Sanitation, when accepted by the Government of India, will have a far reaching influence on the programme. Keeping these developments in mind, the major thrust in Rural Sanitation in the near future should address the following areas:

1. Finding additional financial resources.

2 Promoting alternate delivery systems and a supportive marketing mechanism with a strong IEC backup.

3. Developing alternate designs to suit different geohydrological situations and differing socio-economic population segments.

4. Institutionalising training and R&D and inclusion of low-cost sanitation as a part of curriculum of the technical institutions.

5 Implementing and consolidating the CDD-WATSAN strategy and establishing linkages with other sectoral programmes.

6 Providing support to a large number of peri-urban areas hutherto left unserved

7. Evolving an appropriate management information system which can also take care of the developments outside the government interventions.

8. Bringing in the environmental issues in the context of WATSAN programme and its linkage with other sectors.

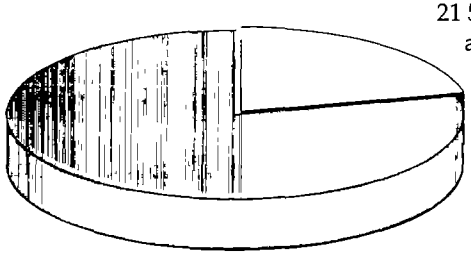
BACKGROUND INFORMATION		
Principal Objectives:	- Increase access to safe water - Increase access to sanitary means of excreta disposal - Eliminate Guineaworm Disease by 1995	
Mid Decade Objectives:	- Narrowing the gap in Rural Water Supply by one-fourth and in Sanitation by one-tenth - Eradication of Guineaworm disease by 1995	
Government Sector Allocation as Percentage of Eighth Plan (1992-1997)		: 3.84 percent
UNICEF Water-Sanitation Allocation as Percentage of Plan of Operation (1991-1995)		: 16.77 percent

Key UNICEF-supported programme Components:

Water Supply
Environmental Sanitation
Guinea Worm Eradication
Communication and Social Mobilization
Management Information Systems

Access to safe water for rural population in India, October 1992

Based on 1 Handpump for 250 population

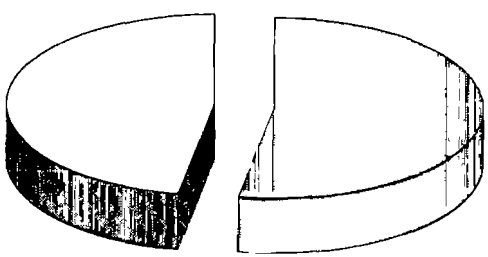


21 5% population has no access to safe water

78.5% population has access to safe water

Based on 1 Handpump for 150 population

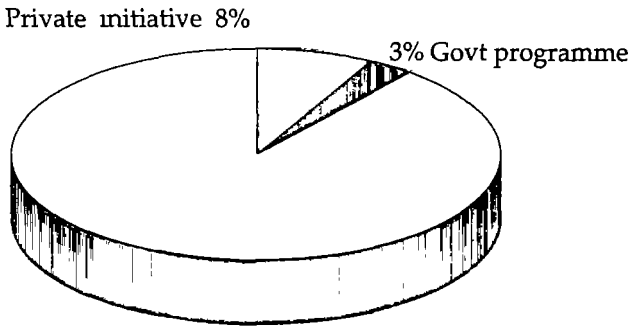
47% population will not have access to safe water



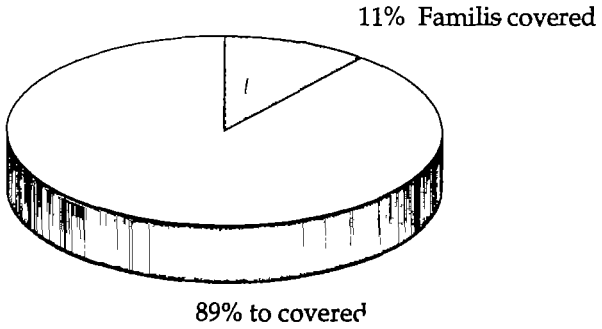
53% population will have access to safe water

Sanitation Status India (1990)

Latrine coverage

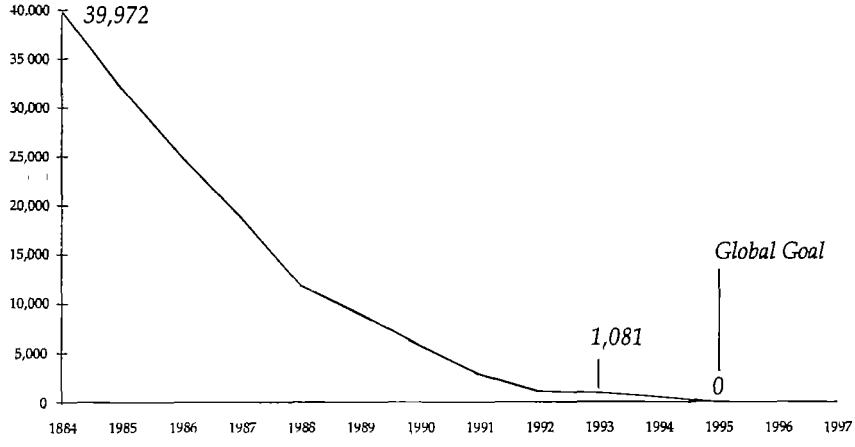


Challenge ahead



- 100 million families (!)
- 300 Billion rupees (!!)
  (US $ 10 Billion)

Guineaworm Eradication in India



Based on NICD data

Surveillance

WES Programme, India
Unicef Expenditure in 1991 & 1992 and Planned for 1993

Funds	1991 Expenditure	1992 Expenditure	1993 Planned
General Resources	2,816	3,165	2,770
Supplementary	7,903	13,669	19,192
Total	10,719	16,834	21,962

(US $ in '000s)

Rural Water Supply and Sanitation Expenditure during Seventh Plan and Outlay under Eighth Plan

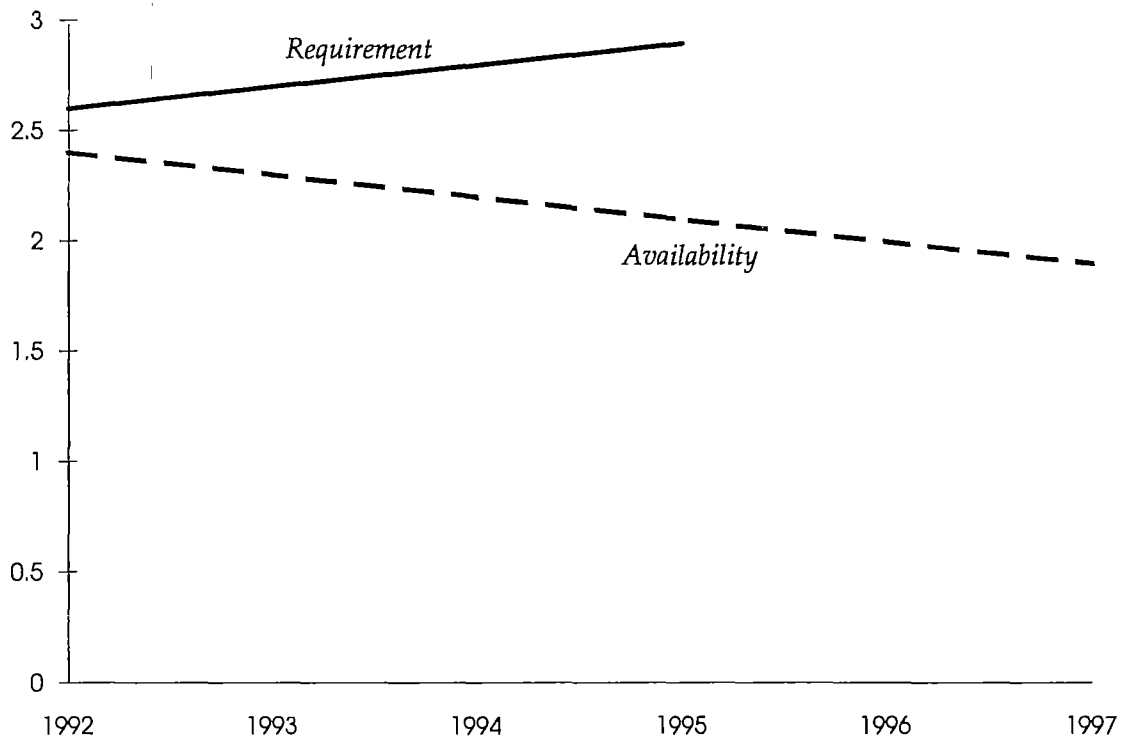
	Central Sector			State Sector			Total		
Year	Water (ARWSP)**	San (CRSP)	Total	Water (MNP)	San (MNP)	Total	Water	San	Total
1985-90	18989	166	19155	25715	492	26207	44704	658	45362
1990-91	3886	28	3914	5958	329	6287	9844	357	10201
1991-92	5045	34	5079	6900	134	7034	11945	168	12113
1992-93*	4590	376	4966	8048	515	8563	12638	890	13528
1992-97	51000	3800	54800	49545	2942	52487	100545	6742	107287

Rs. in millions

*Allocation
**Includes National Drinking Water Mission

Widening Gap between Requirement and Availablity
Rural Coverage at 250 Population per handpump.

Handpumps in Millions



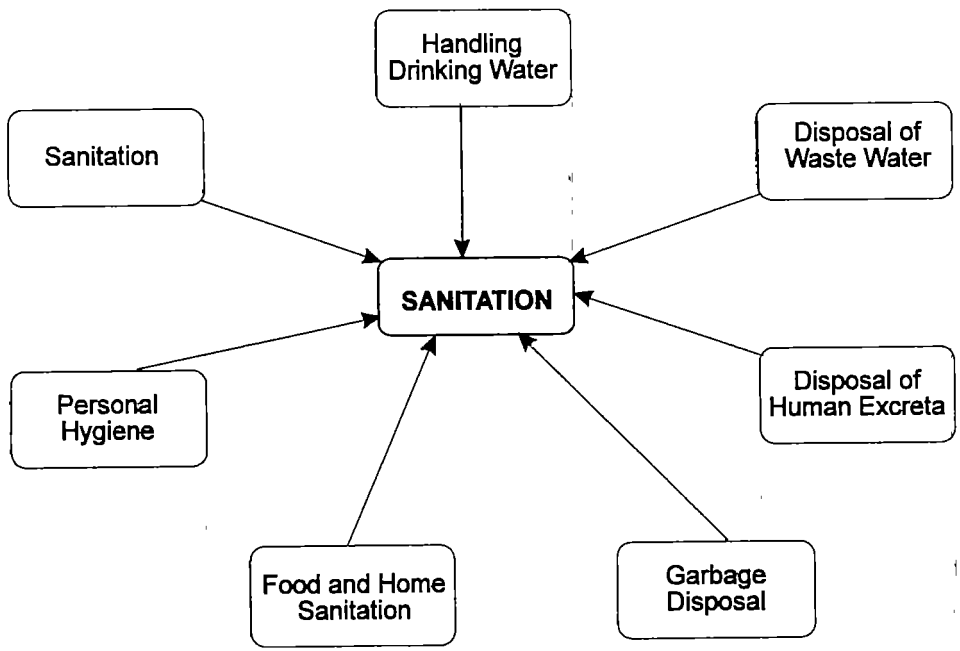
Sanitation, India

Global Goal	- Universal access to safe means of excreta disposal
Country Goal	- Increased access
Challenge	- Accelerate coverage
	- Sanitation Awareness
	- Cost Sharing
Opportunity	- Convergence (CDD/Watsan)
	- Private Initiative (RSM)
	- Alternate delivery system
	- Integrated approach
	- Technology choice

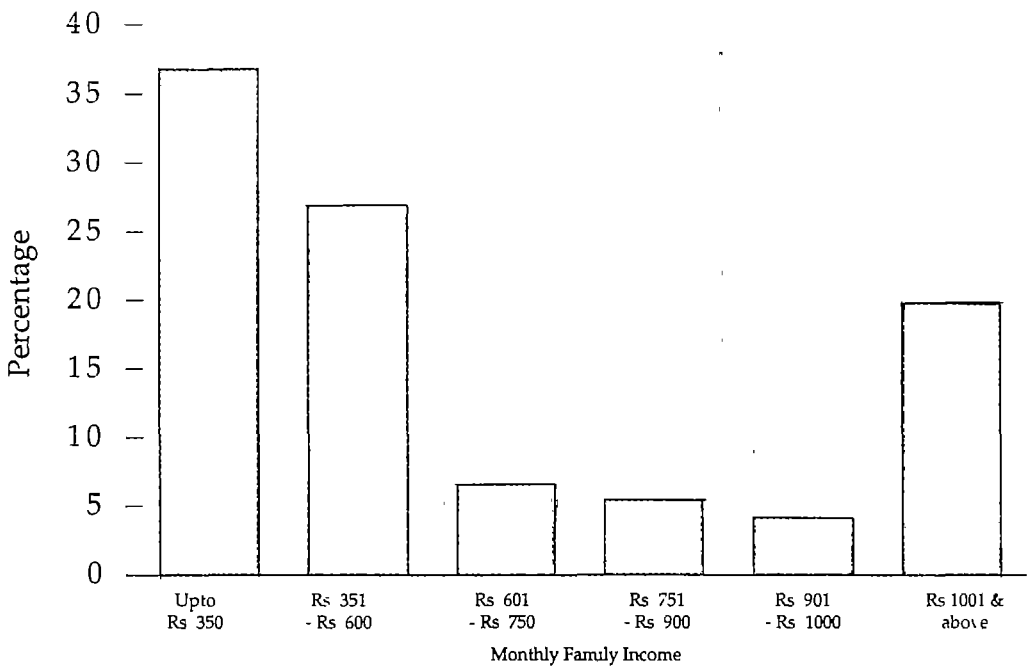
Rural Sanitation Programme, India

Limitations	**Possible interventions**
• Technology Options Single Choice (Two pit water seal)	• Adopt Various Types - Pit latrines - Direct pit water seal - Single offset pit water seal - Use various construction materials
• Delivery Systems - Government Department - NGOs through CAPART	• Use various channels - RSM - Revolving fund - Bank loan - Nominal subsidy - More effective role of CAPART

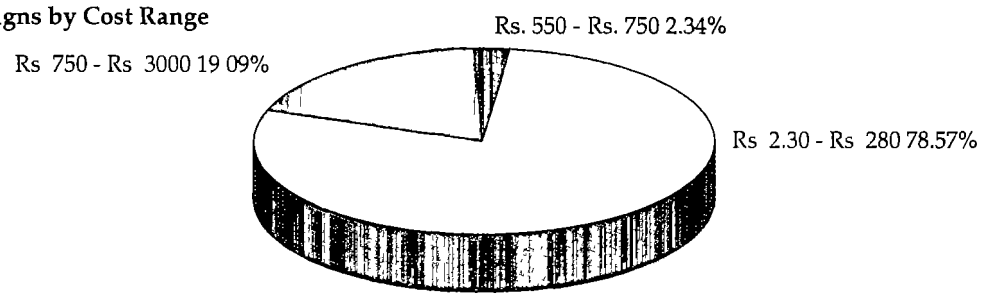
Sanitation as an integral concept



Latrine Construction by monthly Family Income



Adopted Designs by Cost Range



Country Profile

MALDIVES

Nowhere in South Asia is water so plentiful as in Maldives, yet so scarce when it comes to potability The small islands of Maldives are surrounded by large expanses of sea water with a finitely shallow fresh ground water lens formed by percolation of rainwater Many islands hardly have any fresh ground water lens The country is fortunate to experience a reasonable annual rainfall which virtually supports all life systems

Out of 200 inhabited islands, only one island has a population less than 100 and only one more than 10,000 (Male'). The majority of the islands (160) have a population range 100 -2,000

The average annual rainfall in Male' is approximately 1980 mm with annual variations of 500 mm being common. Rainfall is evenly distributed throughout the year, except between January and April when periods without rain of two months are common. There are between 125 and 181 rainy days annually. In general, the rainfall in the southern part of the country is higher and in the northern part slightly lower than in Male'.

In Maldives, the supply of fresh water is derived mainly from rainfall except for Male' where five desalinisation plants are now operational. Fresh water is lighter than sea water. Therefore, rainwater percolating through the porous sand and coral from the surface tends to float on the salt water If the supply of rainfall is adequate, a lens-shaped body of fresh water develops overlying the saline water. The bigger the island, the bigger is the lens of fresh water. This also depends on the height of the island above mean sea level. The higher the island, the thicker is the lens. There are no hills or mountains or rivers in the country but a couple of fresh water lakes exist in some islands.

The total overall ground water resources available may be sufficient for the present population of Maldives, but there are islands where population density is beyond the supportive capacity of the natural ground water resources The worst situation is in Male' In 1974, the ground water was sufficient to meet all the demands of the population, then about 16,000. However, due to overdraft over a long period of time, the present groundwater of Male' has become unsuitable for many domestic purposes In some heavily populated islands also, the quality of ground water, is becoming increasingly saline, consequent on heavy extraction

Present Situation

The access to potable drinking water and sanitary means of human excreta disposal according to National Plan of Action is as below.

Percentage of population with access to safe water and sanitation

	Water	*Excreta Disposal*
Urban	100%	100%
Rural	62%	2% (?)

Divergent estimates

The situation in Male' is much better than that in the other islands, nearly all rural In Male' a sewerage system has been provided to almost all of the 5,613 households Sewage disposal is quite efficiently handled through a pipe-borne sewerage system. There is *no* treatment given to the effluent sewage which is directly disposed to the sea

The water supply system of Male' presently is based on private and public rainwater collection systems. Four

desalination plants of a combined capacity of 1,440m3/ day have been installed and operational There are about 4,000 private rain water collection tanks having a total storage capacity of about 14,000 m3. The storage capacity of public rain water collection tanks is 18,479m3 Actual supply of domestic water by MWSA in 1992 was over 122,000m3. MWSA estimates that in 1995 the demand for water will be increased to 657,500m3 with an average daily supply of 1,826m3 The water is distributed to the Male' population free of charge via 30 stand posts located in strategic locations

Considering the 88 day dry period in a year, the average yield from these combined sources amount to about 1,000 cubic metres per day which fulfil the drinking and cooking demand of the Male' population of 60,000 people It appears that in Male,' about one third of the total population of the country live, the goal of universal access to safe water and sanitary disposal of human excreta has already been achieved

Situation on Rain water collection in Atolls

Status	No.of tanks	Total storage capacity m^3	No of islands	Total population served	Percentage Atoll population served
Tanks constructed upto end of 1991	2 654	16.450	175	93,470	62 31%
Tanks out of use by the end 1991	47	120		660	0 44
Tanks in use	2 607	16 330	175	92,800	61.87

The facilities for disposal of solid wastes (garbage) in Male' has been greatly improved recently by Male' Municipality Garbage is collected on a daily basis in one place earmarked of this purpose. A barge is used to carry these solid wastes to a dumping site (a small uninhabited island Thilafushi near Male') for use in land reclamation This project was assisted by UNDP

But the coverage in the islands outside Male' is far from universal. For example, between 1974 and 1991, a total of 2,600 rainwater collection tanks with a combined storage capacity of over 16,000m3 in 175 islands have been constructed by MWSA in co-operation with various agencies to serve about 90,000 atoll inhabitants (62 percent of the population excluding Male') The status is shown above

In addition to availability of rain water, virtually every household has an open cement lined dug well The wells are never dry. These are easy to construct as the depth hardly exceeds 2 metres the current figure for the total number of such wells in the islands is not known, but a survey made in the late seventies, indicated that there were 32,903 wells in the country, including 5,291 wells in Male'. Over 96 percent of these are private wells There is no survey made so far as to the salinity of water in these wells Some of these wells however, may provide potable water throughout the year, others seasonally and some others hardly ever.

Desalination of sea water, in addition to harvesting of rain water, is widely practised in 67 isolated island resorts having 7,800 beds serving presently over 200,000 tourists per year. Septic tanks are used for disposal of waste water and the final effluent is carried over to the sea by pipes . The facilities in these resorts are exclusively managed by the resorts management

According to MWSA statistics, the access to sanitation facilities is still very low in the rural areas The data base is sometimes not accurate. For example, it is indicated that only 2 percent of rural population have access to sanitary latrines This seems to be far from the truth. Even a study made as early as 1985 covering 15-25 percent randomly selected households out of 1406, indicates that 13 percent families used own private pour flush water seal toilets, 16 percent community toilets and another 5 percent neighbours' private toilets . In total, it appears that at least 34 percent of rural people use sanitary water seal toilets. Since then situation must have improved. This is also supported by a recent survey by MWSA. Out of a total of 219 households inspected, 42 percent use own water seal toilets with septic tanks, 9 percent use public toilets There is a need for a comprehensive survey to update data on the situation.

Practices and Preferences

In October 1992, a fact-finding mission of MWSA visited two selected islands, having 219 households. The observations show the following pattern.

People prefer private facilities;

Public toilets are not yet fully acceptable;

Use of the beach by those without private toilet facilities, is still common,

The quality of construction of public toilets is poor,

Everyone is found to be keen to build a private household toilet

Sociological factors that resist alternatives to private latrines have not been adequately studied in the island context Further,advocacy, regular monitoring and linking up with other development efforts, especially women, have not been carried out. The overwhelming demand is for private modern latrines and public sewerage systems.

Unsanitary practices such as exposed human excreta on the beaches or the burying of faeces in the 'gifili', leading to contamination of ground water, contribute to the high incidence of diarrhoea and heavy worm infestation in the community. As regards community perception of spread of diarrhoea, a study made in 1989 revealed that both male (39 percent) and female (44 percent) were almost equally ignorant of ways in which diarrhoea could spread. A small percentage of male (19.1 percent) and female (19.6 percent) were aware that mode of spread of diarrhoea was unsafe drinking water and harmful defecating habits. The current health education programme needs further intensification so that people become more aware of the implications of unsafe water and lack of sanitation.

The incidence of diarrhoeal diseases has nearly doubled during the period 1985 through 1991. However, deaths due to diarrhoeal diseases have been reduced significantly during the period.

Decrease in deaths is perhaps due to widespread use of ORT/ORS. Lack of adequate safe water supply and excreta disposal facilities and appropriate hygiene education, may be the reasons for non-reduction of incidence of diarrhoeal diseases.

Public Policy

Options for development of sources of water supply in Maldives are very limited. For example, fresh ground water is extremely scarce and its shallow location below porous sand makes it vulnerable to pollution and contamination. However, since there is adequate average annual rainfall, collection and storage of rainwater for domestic use seem to be the most feasible option not only in

terms of cost but also in terms of appropriate technology

As regards water supply, the general policies and design criteria are:

- Rainwater should be made available to all for drinking and possibly for all domestic use.
- Adequate collection and storage facilities, both public and private combined, should be provided to store at least two litres per person per day over an 88 days dry period. This is equivalent to 176 litres per island resident.
- The criteria for calculation of roof area for collection of rainwater is based on one square metre of roof area for 350 litres of storage volume.
- Chlorinating of public drinking water wells will continue until sufficient rain water storage tanks have been constructed in each island.

The Government has not finalised a clear policy on sanitation. The 1990 Directives of the Government say that on an average there should be one public toilet seat for 25 persons in an island and the effluent from septic tank from each household must be discharged to the periphery of the islands to avoid groundwater pollution. It appears that due to low acceptance of public toilets, Government is considering revision of the policy.

Maintenance and Community Participation

Private wells were reported to be disinfected (chlorinated) by 99 percent of the owners The disinfecting of community wells is the responsibility of the island officials, particularly the Community Health Workers (CHW) and the Family Health Workers (FHW). Chlorinating of community wells appeared to have very little community involvement. Chlorinating seemed to be more of an emergency operation carried out in times of epidemics. Non-availability of bleaching powder is said to be frequent According to key-informants, about 40 percent of the community tanks in the islands are leaking and require maintenance and repair to varying degree. Over 75 percent males and 97 percent females preferred private rain water tanks. The critical factor was however, finance Only about 20 percent families had sufficient money, 67 percent families wanted a loan and indicated readiness to repay in easy instalments.

On the basis of the above findings, MWSA has been implementing a programme of construction of private rain water collection tanks through a credit scheme. The loan is to procure construction materials and is to be repaid in 18 instalments. The most serious constraint as observed by MWSA is to collect the instalments from the borrower through the Atoll Administration. To circumvent these obstacles, MWSA is planning to open bank accounts where feasible for the borrowers to deposit instalments. Success is awaited.

Institutional base

The Maldives Water and Sanitation Authority(MWSA) created in 1973 is responsible for overseeing all water supply and sanitation activities throughout the whole country. Out of 73 staff of the MWSA, all based at Male', only 7 persons work directly for the rural areas, where about two-thirds of the population live. Though a centralised organisation with limited manpower, MWSA has been trying to extend services also to the rural areas as far as possible.

Public investment

The expenditures on water and sanitation sector steadily increased in terms of cash input in line with the

upward trend in the national spending in other development sectors The Health budget increased from 6.4 percent of national budget in 1986 to 13 03 percent in 1991. However, the water and sanitation budget is much less compared to health budget.

Monitoring of Water Quality

The water testing laboratory of MWSA at Male' has basic equipment and manpower to undertake water sampling and testing for bacteriological and chemical quality of water. Samples are collected on a monthly basis from some 60 wells scattered in Male' for salinity and bacteriological analysis. Routine analysis is also done for checking the residual chlorine on a daily basis. The testing of water quality in islands outside of Male' is also carried out but not in a systematic way Upon request, water from hotels, restaurants and household wells are also tested in the laboratory.

Communication Channels

The use of the radio has been very useful in disseminating information on the relationship between personal hygiene and the spread of water-borne and sanitation-related disease. In addition, CHW and FHW are being trained by the Institute of Health Sciences on water supply and sanitation issues They are the main front-line primary health care workers in Maldives and are also involved in promotion of environment health in the islands The FHW in each island is responsible for chlorinating of public drinking water wells

External Co-operation

In addition to government investment, a number of agencies such as UNICEF, WHO, and other international agencies have been providing assistance for water supply and sanitation. The assistance covers a wide variety of activities ranging from training of government staff, providing technical expertise for surveys, studies and evaluations to hardware like construction materials for latrines and rain water collection tanks

Data Base

Statistical data on drinking water-and-sanitation are not easily accessible Most data are recorded by MWSA in local language Dhivehi and handled manually from one book to other. It also requires translation into English for external agency users and planners. MWSA seems keen to establish a computerised data base. This requires external assistance.

Development Options

The clear sea water surrounding each island is a literally inexhanstible and suitable source of safe drinking water through desalinisation. But the capital cost for installation of desalinisation plant is rather high, (e.g. a 200 cubic metre per day plant costs about US$100,000). Moreover, due to high operation and maintenance cost, the production cost is also rather high (e.g. about US$ 3 50 per cubic metre of water). For rural areas, this option presently is not feasible The price of 1.5 litre imported water in Male' is Rufiyaa ten. Compared to this the production cost of 1,000 litres desalinated water will be in the range of Rf 30-50

The construction of rain water collection tanks using ferro-cement technology apparently is found to be more advantageous than the reinforced cement concrete (RCC) ones, in terms of capital cost However, a majority of private tanks are made of coral masonry, as coral is avail-

able locally. Fibre-glass tanks are also being used mainly by private individuals. Pre-fabricated tanks made of high density polyethylene (HDPE) are appearing in the country. A pre-fabricated tank may be more advantageous in terms of quick installation and longevity As of now it appears that, no comprehensive study has been done in this regard. There is a need for study in this respect.

Environment

The Maldives represents a critical case where current problems of environmental degradation and management seriously impede the achievement of sustainable development. The current problems include fresh water aquefer depletion, saline water intrusion to fresh water aquifer, waste water management and disposal, coral mining for construction of buildings, land reclamation destroying coral reefs, and coastal erosion.

A national workshop was held in October 1989 and a National Environment Action Plan was finalised. The National Commission for the Protection of the Environment chaired by the Minister for Planning &Environment, accepted the Action Plan which was approved by the Government in July 1990.

Earlier in November 1989, the Government of Maldives hosted a ministerial level meeting of 14 small states (The Small States Conference on Sea Level Rise) which resulted in the "Male' Declaration" calling on all developing countries to implement environmental impact assessment for development projects and to protect vulnerable natural systems and develop coastal zone management strategies.

Since June 1988 a mandatory environment impact assessment, has been required of all developmental projects in Maldives and the Environment Section is responsible for ensuring that this requirement is met The Environment Section Headed by a Director, now has a staff of 15 persons. The staff needs orientation and training to be effective and capable of managing its functions Short and long-term educational opportunities are lacking

A meeting of aid agencies in December 1990, emphasised institutional support for proper environmental planning and management, short term and long term training of staff on environmental issues, monitoring sea level rise, tidal and wave pattern, environmental journalism and law.

The traditional life-style of the people had almost negligible impact on the environment but recent socio-economic developments and increasing population, had led to marked deterioration of the environment The potential impact of the predicted global climatic change such as ozone layer depletion, global warming and possible rise in sea level, threatens the environment of the country more than ever before

Future Trends

The situation as regards human excreta disposal in the urban area (Male') has been satisfactory. An underground sewerage system completed in 1988 connects over 98 percent of the 5,613 households. There is no treatment given to the effluent sewerage which is directly disposed to the sea. Therefore as regards access to sanitary means of excreta disposal for the urban population, the global goals as well as the 1996 goals set by the Colombo Resolution, have already been achieved The situation is equally true in the case of island resorts. Septic tanks are used for waste water before the final effluent is disposed of by pipes to the sea.

The access to sanitary means of excreta disposal for

the atoll population outside Male' is considered poor It is estimated that only 2 percent of the population have access to sanitary latrines. The data however, are not always accurate. The census report (1990) indicates that 18 percent atoll population have access to sanitary latrines

The present situation as it is, indicates that unless alternative approaches are considered, it would be difficult to achieve the global goal of universal coverage by sanitation for the atoll population

A 1989 survey indicated that over 50 percent atoll people both (male and female) used the "gifili" system of defecation. A gifili or latrine is an area generally 20 ft by 20 ft within the compound adjacent to the house. The area is walled for privacy and entrance is only from within the house. The family well is located within this compound. Since the soil is sandy all over, the user easily digs a hole to a depth of about one foot or less using a bar, defecates into the hole, covers the faeces with sand and then washes at the well. This is done on a daily basis by a number of people, systematically starting from one side to the other. The well is not generally used for drinking purposes but used for washing of utensils and clothes.

The positive aspects of the gifili system are that (a) the faeces are covered (no smell, no flies); and (b) they become composted (good for growing vegetables) The general public opinion is that since the soil is porous, the ground water may be polluted due to seepage. There has been no scientific study done on this. Technically it may not be the case. Since the faeces are covered above the ground water table, there is no chance of seepage as soil absorbs water and so there is no chance of pollution through seepage. However, during rains, seepage may occur to pollute the well water. The gifili system is used most during sickness and for privacy. The general trend is that in many cases the gifili is being upgraded by putting a pour-flush water-seal ceramic squatting pan with septic tank and soak pit far away from the well. The percentage of such upgraded gifili is yet to be determined.

Alternative Approaches

Except for Male', there has been no government clear-cut policy on the promotion and provision of sanitary toilets in the atolls, for individual houses. A few community-latrines, however, were constructed by the government on a pilot-basis. A fact-finding mission observed that the usage of these were rather unsatisfactory People generally prefer private facilities rather than community ones.

Problems and Opportunities

In respect of human excreta disposal, the current practices (attitudes and behaviour) are shown in the table below·

Facilities used for Defecation and Users' Attitudes towards each facility (Respondents: 204 male, 204 female)

Facility	Male		Female	
	use%	liked%	use%	liked%
Beach	67.6	42 7	64 7	62.1
Private Latrines	23 6	85.4	21.6	95.4
Gifili	5.4	36.4	5.4	63.6
Community Latrine	2.9	100	2.9	100
Beach+Gifili	0 5	100	3.9	50
Bush	0	0	1.5	100
Total	100	54 4	100	70.6

The beach is still used by a large percentage of people (over 60 percent), as indicated by the survey made in 34

selected islands. 20 of the 34 islands had private latrines These were used by 23 percent of respondents

In six islands 17 6 percent there were no latrine facilities. There was however, under-utilisation of community latrines which were available to 18 percent of the households in the sample The small number that used community latrines were satisfied with them and stated that they would continue to use them:

Use of Facility for Disposal of Human Excreta and Preference

Facility	Users #	Users like to continue #	percentage
Beach & Gifili	282	153	54.2
Private Latrine	88	81	92
Community	13	13	100
Total	383	247	

Cleanliness and maintenance, water within and privacy are the main concerns for the use of community latrines. Some preferred that community latrines should be in close proximity to the households for convenience and the faecal matter diverted to the sea while others felt these should be away from residences and close to the beach Some felt that a roof was not necessary (just four walls would suffice) and the Island Chief should appoint a regular cleaner for cleaning and maintenance.

Technology and Materials

Except for coral blocks and coral sand, all other construction materials such as, cement, squatting pans, pipes and fittings are required to be imported from outside the country. For construction of latrines, the technology is not sophisticated and can be introduced with little difficulty.

Skills and Capacity

Organisationally MWSA is under-staffed particularly in respect of delivery of services There is simply not enough possibility for increasing staff. Involvement of Atoll and Island Development Committees including Island Women's Development Committee may partly solve the problem Skills training activities would be required

Lack of infrastructure in the Atolls, communication difficulties, high cost of delivery of services are some of the major problems. The high literacy rate, single religion and language, relatively high GNP per capita, the limited population size and existing physical development plan of almost all the islands are some of the promising opportunities which may help achieve the decade goals

Lead Role of the Community

In each island, there is a Women's Development Committee (WDC) in addition to the Island Development Committees (IDC). There is promising opportunity to involve this committee even in the planning stage in respect of sanitation facilities and hygienic environment, through training and support.

Country Profile

NEPAL

The progress of the rural sanitation programme in Nepal has been gradual, with the coverage currently estimated at only 3 percent. As per the Colombo Resolution (SAARC), the goal to double the current level by 1996 poses a challenge The goal of universal coverage by year 2001 as stated in the resolution appears practically impossible in a country like Nepal So is the national goal of 12 percent by 1996. The goals set are as follows:

Global goals for 2000	*1992 situation in Nepal*		*Nepal goals for 1996*	*Nepal goals for 2001/02*
Universal access to sanitary means of excreta disposal	Rural	3%	12%	25%
	Urban	34%	50%	75%
	total	6%	16%	31%

Colombo Resolution:
To double the current coverage by the year 1996.

A national policy document and implementation guidelines for the sanitation programme recently developed and endorsed by Government is expected to yield results in the coming years. However, with increased efforts from 1993 onwards, meeting the goal of 6 percent coverage by 1996 would still be an uphill task.

Trends in sanitation

The sanitation programme in Nepal till recently was implemented in an ad hoc manner as an isolated activity in different programmes of the Health, Education and Water Supply sectors, without any department being responsible for it. It was primarily seen as a construction of latrine programme with targets set by the government to measure progress However, experience in the past clearly indicated the need for prioritizing sanitation as a key intervention for a successful water supply and health education programme and this necessitated the planning of sanitation programme as a cluster of health related issues. It was encouraging to find a renewed interest in sanitation issues in the past one and half years The Eighth Five Year Plan gives new emphasis to sanitation promotion. The policy document and the action plan indicate the commitment of the government towards this programme However, there is yet to be an adequate reflection of this priority in the fund allocation.

The Department of Water Supply and Sewerage (DWSS) which is the nodal department for the sanitation programme has been taking necessary steps for institutional arrangements, organizational requirements and resource commitments for the implementation of the sanitation programme and meeting the national goals.

For a systematic implementation of the programme, a Sanitation Cell has been set up in DWSS headed by a Coordinator with Assistant Engineers to support the programme DWSS has plans to set up Sanitation Cells at regional and district levels with adequate staff responsible for the software and the hardware aspects of the programme.

The Sanitation Cell is currently functioning with its extension of activities to district and lower levels through specific personnel identified for the purpose from within the DWSS system and community representatives.

Alternative Approaches

Experience gained in the implementation of the sanitation programme in the past years on a pilot project basis through the government and NGOs provides useful insights in terms of strategies and approaches for moving to scale. These approaches have led to national approaches

for all WES programmes and comprise the following aspects:

- Implementation of the programme in selected regions and districts for greater impact
- The sanitation programme is visualized as a programme with women's involvement at all stages of planning, implementation, monitoring and maintenance
- Community participation at all phases of programme implementation is stressed and the programmes are planned by community and forwarded to the government. User's Committees set up at the community level manage and monitor the programme. This community-based approach is now institutionalized in the DWSS water supply and sanitation programme and is being advocated for all WES programmes in the country for sustainability.
- Awareness creation to increase knowledge related to sanitation and disease transmission and its prevention, at community and institutional level is emphasized through appropriate communication strategies and plans.
- Baseline data and KAP information forming the basis of programme planning at grass-root level and micro planning with community participation is consciously promoted.
- Low cost appropriate technologies for the hills and terai, based on the need and socio-cultural aspects for easy adoption, are advocated
- Capacity building through training to all levels of programme functionaries is a key intervention
- Maintenance of facilities and built-in systems of monitoring through community efforts is emphasized
- Implementation of innovative strategies are promoted like setting up revolving funds for soft loans to community through NGOs
- NGOs are involved as an important partners in the sanitation promotion activities
- Manufacturing and delivery of parts of a sanitation unit through Village Development Committees with technical and materials support, in the terai areas.

Problems and Opportunities

Attitude and behaviour·

Problems:-

- Relatively low priority to the programme at all levels and insufficient political will.
- Traditional attitudes, behaviour and practices in the rural set up, particularly in the ethnic communities which seem to contradict the scientific basis of environmental cleanliness and personal hygiene
- Extremely low community awareness on the relationship between water, sanitation and health.

Opportunities:-

- Change in attitude of policy makers for prioritizing the sanitation programme.
- A positive response from communities following awareness programmes, towards adoption of practices

Technology and materials·

Problems

- Lack of technical knowledge, information and skilled personnel for the cluster of sanitation inter-

ventions appropriate for the varied geographical, topographical, socio-cultural areas.

- Lack of experience in appropriate designs and use of local materials.
- Remoteness of most areas making transportation of materials difficult and requiring the use of local materials only
- Difficult terrain with water scarcity problem and extreme poverty with more than 50 percent of the population under the poverty line Hence, the need for developing appropriate technical designs.

Opportunities

- Sanitation being implemented as a package of services catering to problems of waste disposal, human excreta disposal, proper handling and storage of drinking water, proper maintenance of water source, and hygiene practices in the home and community. Hence, necessitating the development of appropriate technologies based on the need and socio-cultural aspects of the community.
- DWSS's commitment towards R&D in field of sanitation technology
- Positive experiences in the field of single pit latrines in the hills and pourflush units in the terai through community participation for replication.

Skills and capacity

Problems

- Lack of trained personnel, trainers, specialists and training institutions

Opportunities

- Central Human Resources Development Unit (CHRDU) set up and institutionalized within DWSS for trainers and capacity building. National sanitation plan gives enough emphasis on the development of skill ad capacity through exchange visits for training and experience sharing
- National guidelines and plans on training have been developed by CHRDU
- Curricula and training modules are in the process of finalization for a systematic and standardized approach.
- To strengthen the capacity of the DWSS, Sanitation Cell and CHRDU, a Central Sanitation Training Unit (CSTU) has been set up within UNICEF.

Maintenance and use

Problems

- Maintenance and use is seen to be a problem mainly for the institutional units constructed in schools and health centres Interestingly, the problems of maintenance here are due to the inappropriate designs implemented. There are still no standardized designs developed for institutional units.

Opportunities

- As the household units are being constructed through total community involvement and without any subsidy in the hills and only partial subsidy in the terai, following the awareness creation and motivation activities, it is seen through evaluations that the units are fairly well maintained and used This however does not apply to construction outside the CWSS approach. A special cadre of functionaries at the village level for maintenance of units have been engaged under the CWSS programme.

Financial resources

Problems

- Paucity of funds is real within external aid (among which UNICEF) and government for the sanitation programme

Opportunities

- Financial commitments are made by all the external aid agencies (ADB, FINNIDA, SDC, WB, WHO, UNICEF, etc) and government for the implementation of the sanitation programme
- Five percent of the WES funds have been set-aside for sanitation promotion. Sanitation programmes are also being implemented through UNICEF supported SFDP, PCRW, UBS programmes under the Community Based Programmes with their own budget provision.
- The Eighth Five Plan committed about NRs. 63 million for the sanitation programme and the annual 1993/94 budget is planned for NRs. 1,16,75,000 as a central assistance (Rs. 13,60,000 from government and Rs. 1,03,15,000 from donors). Additional to this a commitment has been made by DWSS for the allocation of 7.5 percent of the district water supply project funds for sanitation programme to be implemented in a phased manner

Physical environment

Problems

- Extremely difficult terrain and inaccessible areas in most parts of the country.
- Scarcity of water supply in most parts of the country and contaminated water and water sources where available due to insanitary practices
- Lack of proper sewerage and drainage and garbage disposal systems particularly in the semi-urban areas

Opportunities

- Availability of water through springs in hills which can be protected to sanitary standards.

Lead Role of Community

Community participation in a true sense of situation assessment, planning, mobilization resources and managing the implementation of the programme has been a major strength of the WES programme of which the sanitation activities are an integral part.

The sanitation programme is directed mainly at women and stresses the community participation approach, enabling communities to decide and plan for themselves The Users Committees are now playing a key role in programme implementation.

Water and sanitation programme of the government with UNICEF assistance involves women as managers and partners in the programme implementation. Keeping the traditions and customs in view, women are being reached through women.

The government policy, programme strategies and the Action Plans for WSS, emphasize the involvement of women in the planning and decision making process and elaborate the modalities for their involvement at key stages like site and technology selection, operation and maintenance, sanitation and hygiene education and programme monitoring.

Experience on the ground saw successful trends in the recognition of the role and involvement of women in many aspects of the programme which have been, till recently, dominated by men's decisions, in spite of being women's domain

In the Water User's Committee (UC) formed around tubewells and gravity flow schemes, at least two members are women and they are responsible for maintenance and sanitation activities. These Women Volunteers are adequately trained for taking on this responsibility They are in regular contact with other women in the community for motivating them and taking their opinions for programme activities

In selected districts, women workers have been appointed at the district level for supervising these Women Volunteers. They are responsible for training and monitoring sanitation activities at village level This has proved quite successful in providing necessary support and guidance to the Women Volunteers and maintaining a link between the village and the district.

Several training and orientation programmes for women functionaries at district and village level have been created for awareness, information dissemination and skill transfer, and have resulted in building confidence among the women and a better managed programme. It is encouraging to find Women Volunteers and workers being able to participate in residential training programmes away from their home for over a week, which is contrary to the traditional norms. This also indicates the support of the community.

The women functionaries are also involved in exchange visits to other water and sanitation project areas for sharing experiences. The result is rewarding from not only the programme point of view but also in the personality development for the participants. Based on this experience an attempt is now being made to involve women in the technological aspects of the programme

The positive result of the women's participation is seen in the improved maintenance of WES projects and the women becoming more vocal and communicative. It has also led to an improved village environment and significantly lower incidence of waterborne diseases in areas wherever women's involvement has been real

Communication and Education

As the sanitation programme is directed at changing attitudes and behaviour of people towards adoption of improved practices, relevance of education and awareness creation through all possible channels is well recognized in government UNICEF Awareness campaigns conducted by programme functionaries at village level precede all construction activities.

Multi-media campaigns have been developed and launched by DWSS and UNICEF in selected districts as well as municipalities using the services of specialized agencies. A range of IEC materials have been developed and disseminated to district and lower levels as well as NGOs.

Emphasis is placed on inter-personal communication systems at the community level for bringing about behavioral changes in which the User Committees and the women sanitation motivators play an important role.

Schools and school children have been identified as the most important channel for bringing about behavioral changes at a young age Hence a school sanitation package with both the construction and education component has been developed for implementation in the project areas.

Sanitation messages and activities have been incorporated in the school curricula through the intervention of the Ministry of Education and the Education Section of UNICEF.

As advocacy strategy the policy makers, media per-

sonnel and NGO representatives have been reached through specially designed workshops and forums and information and interaction networks have been established.

The involvement of the mass-media in the sanitation promotion activities has been attempted through an arrangement between UNICEF, Nepal TV and Radio Nepal for broadcasting and telecasting programme-related spots periodically at prime time.

Status and Trends in Water Supply

The 1992 situation and the goals set by the National Policy commission for water supply are as follows:

Global goals for 2000	*1992 situation in Nepal*		*Nepal goals for 1996/97*	*Nepal goals for 2001/02*
Universal	Rural	39%	71%	100%
access to safe	Urban	67%	75%	100%
drinking water	Total	42%	72%	100%

Colombo Resolution
(SAARC): Universal access to safe drinking water by 2000.

The Trends

Planning and management
- Limitation of government involvement:

Relatively good in planning, monitoring, guidelines, strategies, evaluation; but implementation through communities (VDCs, Village Development Committees and User's Committee), NGOs, private sector, needs strengthening

The World Bank has proposed abolition of the present leading Ministry in urban and rural water supply (MHPP/DWSS) and creation of a Rural Water Supply and Sanitation Board and a corresponding Fund.

- allocation of delimited geographical areas for specified source of external assistance.

Strategy

- uniform village upwards approach, community-based decentralization for sustainability (O&M)
- small scale projects
- integrated approach WS and sanitation and health and education and environment and income generation.

Technique

- experimentation and development of new techniques.
- spring protection in hilly areas;
- deep well drilling in foot hills, inner valleys, terai;
- water quality control and water quality improvement.

Programmatic Linkages of Sanitation and Water Supply

- Sanitation promotion will be an integral part of all the water supply programmes. To advocate sanitation and hygiene as a "way of life" more partners would be taken up in its promotion like - health, education and women's development and NGOs.
- In the Water User's Committee (UC) formed around tubewells and gravity flow schemes, at least two members are women and they are responsible for maintenance and sanitation activities
- WUCs are also responsible for sanitation activities and monitoring of motivator activities along with their water supply responsibilities
- Sanitation activities and their outcome become the natural indicators for the success of the programme

and vice versa

- The linkages of sanitation go beyond the water supply programme and attempts have been made for integrated programme activities in collaboration with health, education communication as well as with community-based programmes like PCRW and SFDP.
- A CDD/WATSAN plan of action is now under way for implementation. Sanitation messages and activities have been incorporated into the CDD national policy document.
- A feasibility study of manufacturing soap at village level using locally available materials (non-edible oil and lye) through PRCW groups has been completed and the implementation on an experimental basis is awaited.

Linkages with environmental issues are also emphasized:

Although the sanitation promotion programme of government with UNICEF collaboration, is aimed towards improved health for all, reduction in IMR and morbidity and mortality in the country, it also significantly contributes towards environmental issues at the National and Regional level.

Nepal's sanitation situation being poor, it puts added strain on the environment which is threatened with fast deterioration, particularly with the contamination and poor maintenance of drinking water sources. The contamination of water sources due to lack of sanitation education and awareness are a major environmental problem in the country

The environmental problem therefore cannot be delinked from the individual or the community, who contribute towards its depletion and deterioration, due to ignorance, apathy or lack of choice. Hence the need for prioritizing sanitation promotion activities.

The overall outcome of the sanitation programme is envisaged to be an improvement in the environmental conditions at household level contributing to an improved environment at the community level.

Country Profile

PAKISTAN

In Pakistan, international as well as national agencies are assisting WES programmes/projects with emphasis on safe excreta disposal and hygiene education activities. In general, awareness about the need for having sanitary means of excreta disposal is increasing among the public and the planners. In rural areas few people are having some sort of a latrine and quite a good number of the others do not have sufficient awareness of the importance of hygiene and safe excreta disposal. Those who are aware do not necessarily build latrines due to other competing priorities. some provincial governments have already taken the policy decision to construct latrines with all new school buildings. Smallscale government funded rural sanitation activities are often limited to paving village streets and construction of side drains.

Generally pourflush latrines are preferred Materials (like pans and traps) are available at the sub-district level. The data base for sanitation coverage is not very reliable but keeping in view the 1992 sanitation coverage of 14 percent (rural 12 percent, urban 55 percent) and the present trend it is not easy to double it as set out in the Colombo Resolution of SAARC. The global goal of universal access to sanitary means of excreta disposal does not seem, on current indications, to be achievable in Pakistan within the time frame set.

Alternative approaches

In Pakistan the sanitation approach followed by UNICEF-assisted programmes in rural and peri-urban areas has focused on two technologies· The twin-pit pourflush latrine and, the ventilated improved pit latrine (VIP) in those areas where there is a shortage of water.

Latrines are promoted in rural communities as part of an integrated rural water, sanitation and hygiene education programme Local government project field staff in theory promote latrines linked to village handpump: 5-10 sets of latrine components are given by the local government staff to those villagers willing to undertake their own latrine construction.

Problems and opportunities

Attitudes and behaviour

Data that have been collected on attitudes and behaviour include the following :

Perceived benefits: In all provinces motivation factors for building latrines have been cited by villagers or urban dwellers as protection of family members from outside harassment while meeting the need, morning and evening; modern, practical, private and very useful for the old or sick

Private sector: Shops selling latrine components have emerged and have been increasing during the past five years in all market towns. They give clear evidence of a rising demand for latrines from the public. Redirecting family disposable income and setting priorities. There is clear evidence in many areas to Pakistan that a television set is more of a priority than a latrine. Money may often be available for both.

Project staff speak of a prevailing attitude in some under-populated areas of why people should go to the same smelly place time after time when they could go wherever under the open sky.

Men may build a family latrine and encourage family members, particularly women to use it while they continue to defecate in the open outside the compound.

Latrines are built in the guest area of the house where family members do not go.

Technology and materials

UNICEF-assisted government and non-government projects provide only two different types of latrines which may not always cater for the community needs.

There is evidence that government workers often do not give communities a choice, but rather prescribe the technology that the workers feel is suitable. This is usually the twin pit-pour flush latrine

All hygienic latrine technologies available on the market could be promoted.

Skills and capacity

There are a number of promotional issues regarding the present approach to latrines that may have a negative effect on increasing access:

It is estimated from surveys conducted during training of project field staff that approximately 40 percent of the staff promoting latrines at village level do not themselves have their own family latrines as they had not perceived latrine as an important need.

Monitoring carried out in rural villages reveals that latrines tend to be demanded by influential members of the community who could probably afford to pay for the components themselves.

No baseline data are collected in a village to assess the number of family latrines present before project implementation and no post-project survey is conducted to assess what spin-off effect the provision of 5-10 latrines has had on "promoting" latrines to other village households

Maintenance and use

In some areas of Pakistan wiping habits that involve use of clay or stones have undermined latrines,particularly those built in schools. Generally family latrines are well maintained However, we do not yet know how easy it is for families to change from one pit to another

Financial resources

There is evidence that a substantial section of the population has the financial resources to buy or build their own latrines We have yet to tap into this segment through a communication strategy.

Physical environment

In certain geographical areas in Pakistan where the water table is high a different latrine technology is required than what UNICEF or government is providing or the open market is selling.

Lead role of the community

At present within the government agency implementing the programme, there are few women extension staff to work with women Considering the socio-cultural setting of Pakistan it is difficult for men to work directly with women from rural communities.

Hygiene education is being carried out for pockets of rural women through other projects. At present a practical hygiene education course is being developed by UNICEF for female youth groups which will have a strong latrine promotion component

Communication and education

WES has two sets of communication materials promoting latrines.

Practical hygiene leaflet. This leaflet is produced in basic Urdu and through descriptive visual images promotes the construction of latrines. It is distributed to rural communities by project staff during project implementa-

tion

Three-pile sorting This is a participatory process exercise that leads communities towards making decisions about good, bad and in-between hygiene behaviour. Defecation habits are shown through a number of good, bad and in-between images. WES will also begin to implement a school water and sanitation programme which has a hygiene education component focusing on how teachers and children can promote good hygiene practices in the community.

Status and trends in water supply

In Pakistan the present national coverage of water supply is 55 percent with 85 percent urban and 45 percent rural.

Presently, all rural water supply and sanitation programmes in the country are to follow the strategic investment plans developed for all provinces, coordinated by World Bank and financed by CIDA. The basic outline suggests (a) integration of water supply with sanitation and hygiene education (b) Realization of community participation in all stages from planning to operation and maintenance of facilities by the beneficiaries, including strong emphasis on women's involvement (c) cost sharing between government and beneficiaries.

The outline gives an excellent basis for the planning of programmes. However, implementation is proving to be difficult, since there is reluctance by government departments to accept the new concept and in most provinces working guidelines are not yet developed

The support to the Social Action Plan (SAP) 1992-95, in the form of US dollars 200 million by World Bank alone, is expected to be used by the donors for realizing the objectives of the SAP The multi-donor-support unit is developing for the operational plans presently prepared by the provinces

Activities of other partners

World Bank

A World Bank/IDA loan of US 136.7 million has been released for sector support to Balochistan, Sindh and AJK.

In Balochistan and AJK, UNICEF is assisting the same departments in the same sector Coordination is required.

The World Bank and the Dutch are planning to provide support in the Northern areas to local bodies and rural development department. Here again coordination is required since UNICEF is assisting the same department. The Dutch government, and UNICEF are jointly assisting LGRDD in Balochistan. The German government-the Pak/German promotion of PHED, NWFP- is providing technical assistance to the public health engineering department, NWFP. The project has developed implementation guidelines/working materials for the strategic investment plan in form of the integrated concept. The concept is presently being tested in some village schemes. This is the farthest one provincial department has come in the implementation of the SAP. The Asian Development Bank is planning to provide sector support to Punjab in the range of US 50 million

Tamir-Watan programme

This is the largest programme in the country. It is financed by the government budget and controlled by elected representatives. For example, each member of national assembly receives about Rs. 12 million-an opposition member only Rs. 5 million-which he can utilize for any scheme within his constituency in the sector he

chooses As the slogan "water is free for all" still rules this programme and people are receiving turn-key projects, the acceptance of community participation and people's cost sharing in other projects in the sector is hampered

Constraints in the Present Sanitation Strategy

Unclear Concept of Sanitation

Constraints:

Institutional	Social Mobilization	Awareness	Design/Hardware	Supply
- No active involvement of women - Lack of Govt commitment in sanitation. - No/Few field staff - No female field staff - Programme spread too thinly - LGRDD staff not clear about their responsibilities - Shortage of guidelines for field implementors	- No active involvement of community - lack of a social marketing strategy for sanitation promotion. - Household hygiene not tackled - Improvement of hygiene habits not tackled - Women are left out - No hygiene education package developed and used	- Social cultural taboos related to sanitation ignored. - Lack of awareness on sanitation. - Lack of interest in sanitation at Govt./community/family level	- Present design is feasible only for barani areas. - Latrine types not enough for different conditions. - Community acceptability is ignored (e.g. design)	Supply delays - Unicef - Manufacturers - Lack of consolidation of supply requests - Material supplied with much delay and in parts - Untimely distribution of supplies in the districts. - Obsolete supply strategies (e.g. lack of forward planning - Centralized supply system. - Lack/limited storage capacity.

Towards an Action Strategy

Development of a Sanitation Concept

1. Objectives

1 1. Improve household sanitation.
1.2 Create sanitary village environment
1.3. Institutional capacity building (Community + Government)

2 Outputs	Activities
2 1 Household hygiene practices improved ● excreta disposal; ● solid waste management' ● household drainage; ● household hygiene	2 1.1. Develop implementation strategy (who is doing what for whom, where and when including monitoring) 2.1.2. Develop hygiene education package. 2.1.3. Establish manpower (LGRDD; hired/village leaders team). 2.1.4. Provide training. 2 1.5. Test/monitor in pilot schemes. 2.1 6 Review/redesign + mass applications.
2.2 Demonstration latrines built + campaign carried out so that people built more latrines	2.2.1. Identify minimum number of typical conditions (socio-economic/ cultural/physical, etc.). 2.2.2. Select minimum number of latrine types for major socio-economic set-ups. 2.2.3. Define technical aspects (e.g construction details, site selection criteria, financing; training). 2.2.4. Pre-test selected designs. 2 .2 5. Develop implementation strategy. 2.2.7 Make latrine materials locally available. 2.2.8. Develop training materials. 2.2.9. Provide training. 2.2.10 Organize mobilization campaign.
2 3. Village cleaner	2.3 1. Select interventions. 2.3.2. Develop implementation strategy. 2.3.3. Establish manpower (LGRDD, hired, village volunteers). 2.3 4. Develop training materials. 2.3.5. Initiate village activist Group 2 3 6 Provide training. 2.3.7. Test/monitor in pilot schemes. 2.3 8. Review, redesign, mass application.

Sequence of Activities	Responsibel	Methodology/schedules
1a. Identify minimum number of typical conditions. 1b Select interventions for cleaner village. 1c Develop hygiene education package	All WES PPOs - AJK/NA desk - LGRDD - SPO - Coord PPOs - UNV - LGRDD - Coordinator. 2 UNVs - PO Training + PCI + AD/CD - from other provincial LG & RDD, Water, Sanitation Cell.	- working paper to draft TOR (1st week April) - draft TOR prepared by everyone (2nd week April) - consolidate into one paper (3rd week April) - meeting for finalising + decision - who will carry out "Study" (4th week April). - working paper to outline tasks (1st week April) - comments (PPOs WES + LGRDD - 3rd week April) - consolidate comments (4th week April) - meeting (4th week April) - working paper on task coordinator, 1st week April - list topics + propose beneficiaries UNVs, PCI, PPOs, LGRDD - 3rd week April - check existing material, UNVs + PPOs + LGRDD (4th week April) - prepare training concept + additional materials (1 consultant - end June) - pretest (July)
2a. Select minimum number of latrine types.		
3a. Define technical aspects - Engineering design/costs; financing, site selection criteria.		
3b. Make latrine materials locally available.		
4a. Develop implementation strategy (who does what to whom, where + when including monitoring) for: - Hygience practices - Latrine/campaign -Village cleanliness		
4b. Establish manpower (LGRDD, Hired, Village volunteers)		
5. Develop traning programme.		
6. Provide training		
7a. Village activist groups 7b. Test + Monitor in pilot schemes 7c. Mobilization campaign		
8. Review, redesign, mass application		

Country Profile

SRI LANKA

Climatically Sri Lanka is divided into three broad zones. a wet zone with annual rainfall of 2,500 to 5,500 mm; an intermediate zone with annual rainfall of 1,900 to 2,500 mm, and a dry zone with annual rainfall less than 1,900 mm The dry zone includes also the arid areas where rainfall is usually below 1,000 mm. The annual rainfall is usually divided into two fairly well-defined periods, the south-west monsoon from May to September and the north-east monsoon from December to February

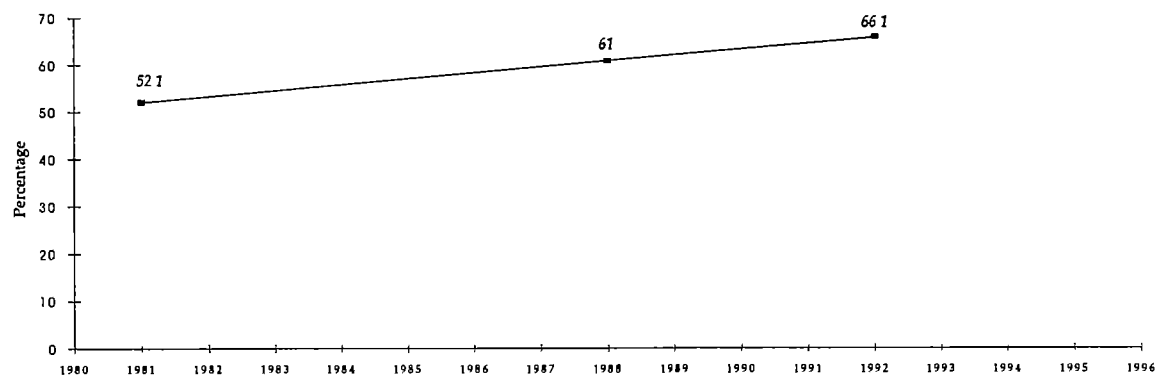
The wet zone occupies 23 percent of the land area in the south-west quarter but is inhabited by 56 percent of the population, while the dry and intermediate zones occupying 77 percent of the land area, support only 44 percent of the population.

Sanitation

In Sri Lanka a water-seal pneumatic or pour-flush toilet is considered a sanitary means of excreta disposal. Bucket type or any other type not using water-seal squatting pan is not considered sanitary. At present, in respect of access to sanitary means of human excreta disposal, the national average for both rural and urban areas exceeds 60 percent In urban areas, in general, population living in slums and shanties, are the unserved ones However, the general trend is steady. For example, in 1981 52 1 percent of occupied houses were having sanitary toilet facilities. In 1988, the access increased to 61 percent. By the end of 1992, 66.10 percent of the households had access to sanitary facilities in the rural areas. (Department of Census and Statistics (1982)-Census of Population and Housing, Sri Lanka, 1981). The general trend is shown below.

The increase in the number of households having access to sanitary facilities for excreta disposal is steady and but slow. The increase in coverage during the period 1981 through 1992 is only 14 percent. At present, more than 33.9 percent of the population or in absolute numbers nearly over a million families have been without sanitary

Trends in Access to Sanitary means of Human Excreta Disposal (excludes capital city Colombo).



latrines. If accelerated development strategies are not applied, it may not be possible to achieve the goals of universal access by the year 2,000 Also the SAARC goal to double its current level of access to sanitary means of excreta disposal by the year 1996, implies reaching 100 percent coverage by that year This goal seems also not achievable in view of present trends and present high base-line coverage compared to all other SAARC member countries.

Alternative Approaches

The government does not seem to have a clear-cut policy on household latrines. The high figure of households having no latrines is frequently discussed in the Health Council Meetings but no suggestions for alternative approach to address the problem are indicated.

The most preferred latrine in rural Sri Lanka, consists of a pour-flush water seal ceramic squatting pan, an offset pit and a superstructure. The approximate cost of such a latrine is about US $ 60. That means it will cost US $ 60 million to construct one latrine for each rural household having no latrines, if full subsidy is to be provided

Obviously this being presently a low-priority issue, government is not in a position to allocate such a big sum. The general consensus is that a private household latrine should be the responsibility of the individual household. At present, there is no serious national effort and mobilisation to promote household latrines construction based on approaches that do not require subsidies There is also no code or regulation and enforcement mechanism to make it mandatory for a household to construct a latrine of minimum standard

However, various national and international agencies have been providing subsidies in selected areas to households for construction of private latrines The subsidy at present is about US $ 30 for each family which is about 50 percent of the total cost

Problems and Opportunities

Poverty

Studies carried out in rural areas for families without latrines, revealed that lack of funds was the major constraint for not having a latrine constructed Though GNP per capita in Sri Lanka is the highest among the SAARC countries, (US $ 450), the lowest 40 percent of the population hold only 13 percent of the household income (1980 - 1988). These people particularly the lowest 20 percent are not generally expected to have enough money after meeting other basic needs like food and clothing, to enable them to construct a latrine without substantial subsidy, because their priority needs are different

Armed Conflict

One third of the country containing one-fifth of the population in the north and east has been out of bounds for the past ten years. There is only slim hope for any settlement of the armed conflict soon. While the rest of the country has been progressing well, the conflict area will remain as it is. So national programme will miss one-third of the country at present

Opportunities

There are promising opportunities in Sri Lanka in moving to scale in respect of latrine construction Compared to other South Asian countries, the service coverage is already at a much higher level (66.1 percent). The universal access at least covering three-fourths of the coun-

try may be possible to a great extent through mass mobilisation to effectively motivate households to upgrade their existing insanitary ones, based on approaches that do not require subsidy.

The adult literacy rate of the population in general is high, over 90 percent. Radio listeners and television viewers exceed 80 percent. Physical communication to all areas may be rated as excellent. Health infrastructure adequately covers the country These are positive factors to make social mobilisation campaigns successful.

Local production of ceramic squatting pans is adequate. Construction materials are all available locally There is no dearth of skilled manpower. A national survey on latrine use and maintenance reveals a usage level of existing facilities exceeding 95 percent.

Data Bank: In the past, statistical data on the water and sanitation sectors were being kept separately by various organisations such as, National Water Supply and Drainage Board (NWSDB) for urban areas, Estate Authority for plantation areas, local government for rural areas. In order to be able to retrieve national data on the sectors, the NWSDB has set up a centralised Data Bank. The first print out of the data in terms of types of systems, population coverage, geographical locations, is expected to be available by August 1993. This will certainly show the national picture for reviewing by planners for developing appropriate strategies

Lead Role of the Community

Individual household latrines are preferred to community latrines except for certain urban slum areas where adequate space is not available for household latrines In such areas, community latrines are constructed.

The Lanka Mahila Samithi (LMS) or Women's Association has been taking roles in improvement of environmental health through its network spreading over 16 districts excluding the armed-conflict areas Similarly the Girl Guides' Association (GGA) is also involved through its network in promoting environmental health messages.

Communication and Education

Hygienic practices of the community vary from place to place but the standards are generally good. This could be attributed to high literacy rate and general awareness of hygienic practices. Studies conducted in several districts have shown that the home hygiene in terms of fly control and hand washing before food handling and after toilet usage are observed by the majority. Over 50 percent use soap, and about 40 percent reported boiling water for drinking purposes in one area.

Communities are exposed to health education through various media, but essentially through the Ministry of Health. In the field, Public Health personnel are supported by Health Volunteers who are mostly female and have proven to be effective change-agents as demonstrated in several project areas. Spearheaded by the Central Environmental Authority, there appears to be growing concern to preserve the environment. The network of NGOs is playing a significant part in creating awareness. The Mahila Samitis and Girl Guides movement with a national network are also playing an effective role as women motivators. There are many other NGOs with environmental concerns that can be enlisted to help governmental efforts in environmental issues

Water Supply

Status and trends

There are adequate surface and ground water resources throughout the country to meet the requirements of the population The need is, rather, to ensure the provision, at all times, of adequate safe drinking water in urban, rural, plantation and Mahaweli Development areas.

According to a survey made in 1988, on an average about 80 percent of urban population and over 60 percent of rural population are having access to drinking water supply from piped systems, deep wells with handpumps and protected dug wells. The 20 percent unserved population in the urban sector are those living in slums and shanties. And the 40 percent rural families having no latrines are the low-income group ones There is geographical disparities in service coverage also

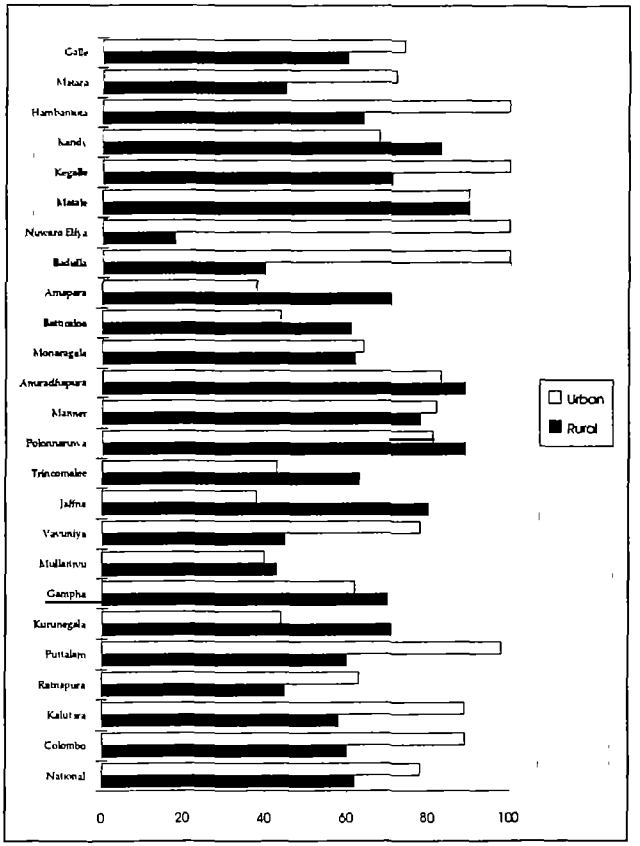
A major achievement of the past decade has been the introduction of drilling tubewells and handpump technology, particularly in the rural areas The exploitation of the deep-lying ground water by drilling, specially in the dry zone where traditional dug wells are prone to dry up in the dry season, have proved to be very encouraging It is estimated that over 12,000 tubewells fitted with handpumps (mainly India Mark II modified) have been installed during the decade. It has become a regular programme of the government, running on self-financing basis.

A recent national survey of handpumps indicates that over 80 percent of these are found to be operational and used. The government is gradually handing over the responsibility of handpump maintenance to local community through formation of water consumer societies and through provision of training and tools.

Programmatic Linkage of Sanitation and Water Supply

This strategy does not seem to be applicable in the context of Sri Lanka Since the service coverage is already rather high both in terms of water supply and sanitation compared to other South Asian countries, any promotional likage may not be a necessary means of accomplishing the goals

Percentage Safe Water Supply Coverage by DISTRICT



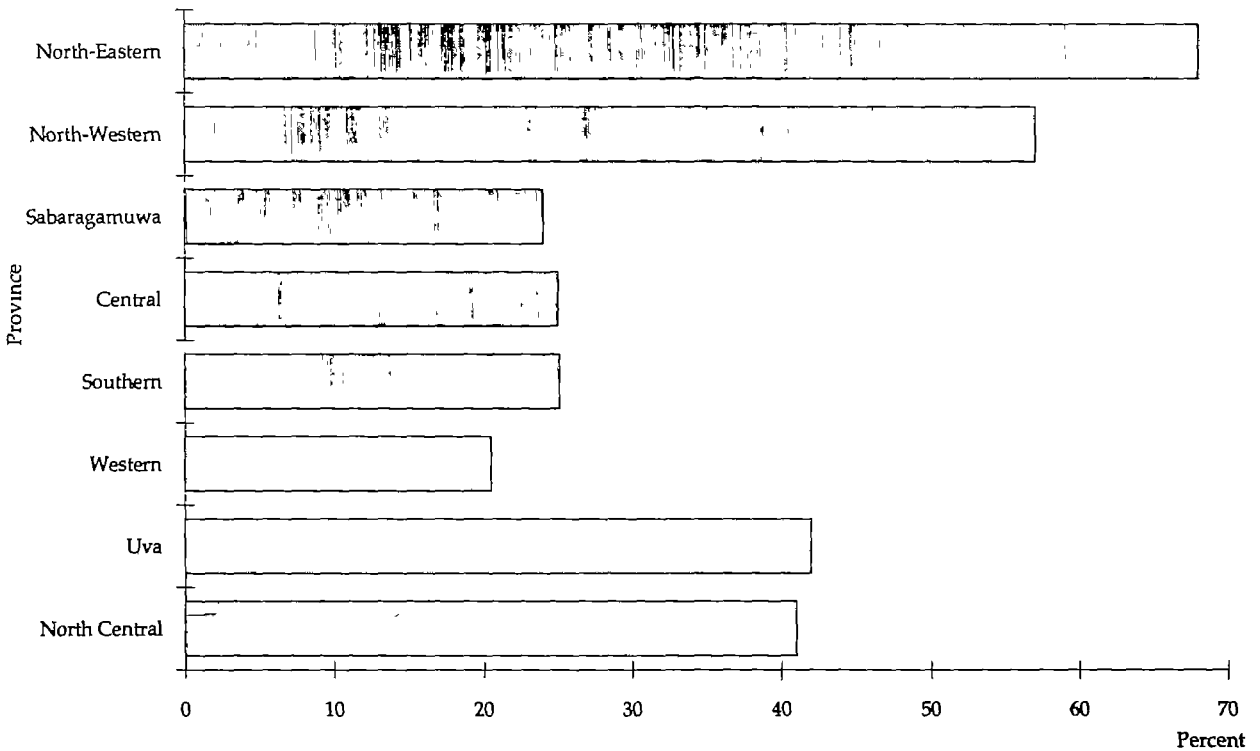
Achievement in the '80s, Sri Lanka
1981-1990

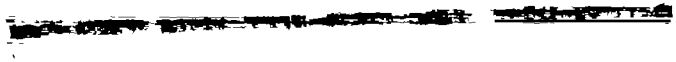
Sector	Target	Achievement (1990)
Water Supply		
Urban	100%	76%
Rural	50%	64%
Total		66%
Sanitation		
Urban	100%	68%
Rural	100%	56%
Total		58%

Technology Use

	Target	Rural	Total
Water Supply			
Piped water supply	62.7%	7.9%	22.1%
Protected well	25.3%	57.1%	53.6%
Sanitation			
Flush toilet	20.3%	8.3%	10.8%
Water seal latrines	48 6%	27 9%	32.2%
Pit latrine	12.0%	33 7%	29.3%

Percentage of Houses without latrines in Rural Areas





Sanitation, a South Asian Priority

Sanitation spells safety By any standard of human well-being, environmental cleanliness and personal hygiene are, or ought to be a priority of priorities Yet, for promoters of *development*, sanitation has long remained the most neglected among social concerns in South Asia They reckon the aggregate monetary cost of *providing* sanitary facilities, but seldom the many times larger human, social and economic cost of continuing, widespread insanitation.

Latrine construction with government funding or external aid is hardly the way to start a social movement for sanitataion Clearly, the community has to be in the lead, prompting households to take the initiative. People can show the way, particularly women's groups, with imaginative and strategic support from the local government

Published by
the UNICEF Regional Office for South Asia on behalf of the UNICEF Offices in the region, which participated in the first regional meeting of professionals engaged in promoting sanitation