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(25 - 30 March, 1994)

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A COST STUDY OF RURAL AND PERI-URBAN WATER SUPPLY AND SANITATION IN BENIN

UNICEF
BENIN

A cost study of rural and peri-urban water supply and sanitation in Benin[1]

The study is the first of three undertaken being undertaken in Africa sponsored by the UNICEF Office of Social Policy and Economic Analysis. It aims at providing operators in the water and sanitation sector with information which can be used in reducing costs, increasing cost efficiency and improving cost sharing; it should also allow comparative studies in these areas of concern.

The report contains three sections. Section I provides an overview of the sector. Section II, in 4 main chapters, provides information on costs in water supply, treatment of faecal matter, household refuse, and health education programmes and sullage in a shorter chapter. Two other main chapters in this section deal with community participation and cost sharing and with cost efficiency before the various recommendations are summed up. A third section provides a bibliographical analysis.

Introduction

The methodology used was an extensive analysis of literature available in Benin and a series of more than 60 semi directive interviews with different categories of sector operators followed by a detailed analysis of specific bids and cost calculations.

The conceptual framework places improved water supply and sanitation in the context of democratisation, structural adjustment and an important increase in informal sector activity as a popular survival mechanism. While the overall sector objectives for water supply (70 % coverage in rural areas by 1996) are technically feasible (but probably not for sanitation), the overall costs are beyond the amount of resources which can be reasonably expected from the international community. In addition, the sustainablity of new installations is not guaranteed and the lack of linkages between the two sub-sectors reduces the overall impact.

Further efforts therefore have to be made to reduce overall costs, to increase cost recovery and to link water and sanitation, particularly through health education.

The report therefore examines what strategies should be adopted in these areas, but also to increase incomes et promote community organisation to ensure improved local management.

SECTION I : OVERVIEW OF THE SECTOR

0. Basic population information

Covering an area of 112 622 km2, Benin is divided into 6 administrative departments : Atacora and Borgou in the north; Zou in the centre; Atlantique, Mono and Oueme in the south. It has four important urban agglomerations of more than 100 000 inhabitants : Cotonou, Porto-Novo, Parakou and Abomey-Bohicon

Population : The overall 1992 population was 4 915 515 inhabitants and with a projected growth rate of 3 % per annum will be over 6.2 million in the year 2000. Rural population in 1992 was 3 159 358 inhabitants and is expected to be 3.6 million in 2000, 3/5ths of the total. Migration is towards the northern part of Zou Province in central Benin in search of new agricultural land, with a growth rate of over 3 % p.a. and towards the peri-urban areas and secondary towns, some of which are growing rapidly (12 % - 15 % p.a. in some cases).

Settlement pattern : The rural population lives in 29 000 settlements. These are nucleated in the north and the centre (average size = 225) and more scattered with farm hamlets in the south and

[1] *Summary of "Approvisionnement en eau et assainissement. Etude des coûts au Bénin : Vue d'ensemble et analyse des coûts- Phases I et II", a study undertaken on request from UNICEF, Benin by Philip LANGLEY and Kolawolé S. ADAM of the Centre for Environment and Development in Africa, an international African NGO (Ceda, PO Box 7060 Cotonou, Benin Tel (229) 33 19 17 Fax 33 19 81) in collaboration with Jean-Baptist Achidi of SITRA. HM, a private Beninese hydrogeological consulting firm (PO Box 01-3266 Cotonou, Benin, Tel/Fax (229) 33 11 29).*

the coastal areas (average size = 71). However, much higher population densities (often over 200 pers./km) mean that these hamlets are often closely grouped and rural agglomerations of 2500 inhabitants or more are frequent (over 140 in 1988 estimates)

Peri-urban areas are ill-defined. The term covers the marginal, peripheral zones occupied by recent immigrants, the urbanised villagers close to an urban area which now house a considerable urban population, the older, popular housing areas which are officially recognised as subdivisions but which do not have infrastructures or facilities and many of the secondary towns whose peripheral areas have grown without established plans. All these areas lack infrastructures and facilities, poor housing conditions, low or extremely low levels of income and an important activity in the informal sector.

However, no distinct statistical information is available on the peri-urban population and its living conditions, health status or income and very little is specifically known about social life and community structures.

Regional population distribution : Overall, 1/3 of the population is settled in the rural centre and north peneplains with a granite sub-base; nearly 1/4 of the population lives in the coastal plains and low lying river areas; 1/7th lives in the higher lying areas between the coastal plains and the peneplains. About 1/6th lives in the secondary towns, part of which can be assimilated to peri-urban areas and at least 1/16th lives in what are clearly the peri-urban areas of the 4 major cities.

Water related diseases : Specific information on water related diseases is not available as no follow up system yet exists. However, according to general health returns, malaria occupies first place among diseases diagnosed in health centres, gastro-enteritis 4th place and eye irritations 7th place. Thirty per cent of all declared complaints are water related and 43 % of all complaints for children.

Diarrhoea is more important for children and the most frequently registered complaint for children aged 5-14 years in general and for children less than 1 year in the north. Incidence of diarrhoea is estimated at twice a year for all children while in one survey, 1/3 of all children had diarrhoea the day they were surveyed.

Adult women in the north suffer mainly from malaria (1st complaint), eye infections (3rd complaint) and diarrhoea and intestinal disorders (7th and 8th complaints).

Dracunculose (guinea worm infection) was observed in 36 % of rural settlements. A national eradication programme has been started in the Zou covering 12 % of all endemic villages with support from UNICEF and the Peace Corps.

1. Basic information on existing water supplies

Accessibility of ground water : Although the situation in the south is somewhat complex, there are seven main homogeneous zones of potential access to ground water (See map). Population densities vary within these zones.

* 1 - Pendari and Atacora : sedimentary geological formations with hills and rocky outcrops - low or very low densities;

* 2 - Niger valley : River valley alluvial deposits - low density and pastoral populations;

* 3 - Sota basin : sedimentary formation - low density with nomadic pastoral population:

* 4 - Northern and central peneplain with granite sub-base : ground water is not in a continuous water table, but isolated in the weathered rock or in fractures in the underlying granite at 40-80m depth. In migration of rural populations occurs in the central part of the zone (northern Zou).

* 5 - Coastal basin : sedimentary formations with varying degrees of access to the water table, often over 100 m depth. (for details, see chap. 5).

* 6 - Coastal plains and lower river valleys : alluvial deposits with coastal lagoons. The water table is close to the surface and in coastal areas, fresh water "floats" on underlying salt water; in both areas, pollution risks are high. Population densities are from 200-500 pers./km2 with some localised cases over 500 pers./km2; access to lakeside and riverside villages, built on pilotis, is by boat.

* 7 - Peri-urban areas in four major cities and secondary towns : high water table with traditional wells providing highly polluted water in Cotonou and Porto-Novo peripheral areas; discontinuous

water table in weathered rock or granite sub-base in peripheral areas and popular neighbourhoods of Parakou (Borgou); sedimentary formation with low water table (> 100 m) in Abomey-Bohicon.

Theoretical coverage of water supply : Coverage is based on estimates, as precise population figures for each settlement from the 1992 census are not yet published.

Considerable progress has been made with overall coverage in rural areas rising from 9 % in 1985 to 25 % in 1988, 43 % in late 1991 and an estimated 45 % in 1993. In urban areas, 4 major towns and 42 secondary towns were covered in late 1992 (as compared to 19 in 1987) and coverage of another 20 secondary centres is proceeding. Overall, 58 % of the urban population was covered in 1991 (estimated at 65 % in late 1993), which means that peri-urban populations have probably virtually no access to clean water.

Actual coverage of water supply : Actual coverage rates are lower, because of pump breakdowns and some wells or bore-holes drying up. Breakdowns rates in late 1991 were high : 21 % for all pumps and up to 35 % in Oueme and Zou (See map). Actual overall coverage rate was therefore 36 %. But these figures do not distinguish between pumps being unsuitable or totally worn, the need for major overhauls or minor repairs. Nor is information available on the actual extent to which community members use improved water points : with the introduction of sale of water to ensure cost recovery of operational and maintenance, some families - hat proportion is not known - continue to use traditional supplies.

According to the 1992 census, 36 % of households consumed surface water, 28 % water from a private connection, a public tap, a pump or a water tank and 36 % from a well; although the information does not distinguish traditional and improved wells.

Rural populations without access to drinking water live in the villages and hamlets without an improved water point, including new villages created by in-migrants opening up new agricultural areas, villages in the south where surface water and traditional wells already supply an adequate quantity of water; scattered hamlets and villages in the low density areas of the north; nomadic pastoral populations in the north; 70 % of all schools and a large percentage of health centres and villages near to urban centres which have become a subsidiary part of the town.

In urban and peri-urban areas, the census indicates that 18 % of households consumed surface water, 49 % well water, 3 % used a tank, 11 % a public tap and 19 % had a private connection. The total of these last two figures (11 + 19 = 30 %) is well below the official coverage figure (58%) provided by the parastatal Water Company.

In peri-urban areas, populations without water supply live in official subdivisions lacking proper infrastructures and in newly established, but "unofficial" neighbourhoods, often liable to periodic flooding which are inside the city limits as well as newly occupied areas outside the city limits.

Reaching the coverage targets fixed for the year 2000 : In 1991, estimates put the number of water points needed in rural areas at 9 447 which is 1/360 persons. Overall targets in the National Action Plan for Children and Women are to cover 70 % of rural population by the year 2000. At the same ratio, 7 165 water points will be required to meet the target. Nearly 3 100 more water points must be installed in the 9 years from 1992 to 2000 and 2 605 new pumps installed if the same proportions are kept for new installations. In addition, an unspecified number of bore hole have to be rehabilitated and 730 pumps repaired or replaced. New pump breakdowns in that same period will also have to be repaired, which will amount to 609 if breakdown rates are reduced to 10 %.

Annual needs to meet rural target levels are therefore 488 installations comprising 340 water points with 290 pumps and 148 pumps repaired or rehabilitated and an unspecified number of bore hole rehabilitated.

To meet peri-urban targets levels (100 % supply) for 433 000 persons (284 000 already in peri-urban areas +150 000 new inhabitants in similar areas i the four major towns), a total of 2 166 m3 of water have to be supplied to provide 20 l/pers./day and 8 666 m3 if consumption levels of 50 l/pers./day are adopted.

Even if these ambitious targets are met, supplying water for over 1 853 000 persons during the 1992-2000 period, ***there will still be practically 1.3 million rural inhabitants without drinking water.***

The number of pump failures and wells or bore holes which need rehabilitating is likely to become a major problem with a direct impact on investment and operating costs. This could be a serious problem in 2001-2005 and use up investment funds to a point where new water points would not even cover the needs of the increase in rural population over the same period.

2. Basic information on existing sanitation

Information on sanitation is less complete than for water supply. Various studies and official figures show low coverage rates. The census indicates that 93 % of rural families and 52 % of urban families have no toilet or latrine facilities. In peri-urban areas with a high water table (Cotonou in particular), the proximity of family wells and latrines leads to high levels of pollution. Facilities in health centres and schools (30 %) are also low. An exception is the north Zou where 56 % of schools have latrine facilities. In peri-urban areas, even where a cess pits do exist, vacuum emptying trucks are rare and except for rudimentary sludge drying facilities near Cotonou, no installation exists in any other town.

Solid wastes are also a preoccupation. These are thrown anywhere by 93 % of rural households and 88 % of urban households. In peri-urban areas, refuse dumps are frequent in popular neighbourhoods, harbouring vermin and often serving as a defecating area for children or being used to fill building plots and low lying areas, thus creating a permanent health hazard and often polluting the water table. Even when household refuse is collected, there is no authorised tipping and treatment although in Cotonou, some refuse is used as raw compost by market gardeners. In rural areas also household wastes are frequently used as raw compost for kitchen gardens and are often burnt in two departments, without the reasons being known.

Three centres exist which practice composting, including the CTOM near Porto-Novo which collects garbage on a subscription basis. In Cotonou also, a private company (SIBEAU)

No sullage disposal system exists in rural or urban areas and few soakaways are built in compounds. Rain water drainage is non existent in rural areas and grossly inadequate in urban areas although the labour intensive public works now underway in Porto-Novo and Cotonou will rehabilitate existing open rain water drainage gutters and canals. Periodic flooding of large urban areas is therefore commonplace.

Hygiene in private housing is unsatisfactory : the Ministry of health considers insalubrity at 35 % i Cotonou.

Reaching the coverage rates for sanitation : On the basis of 12 persons per compound in urban areas and 15 per compound in rural areas, it is estimated that at least 305 500 latrines are needed immediately and that a further 93 500 will be needed by the year 2000. To fulfil the 1995 objective of 35 % coverage fixed in the NPA for children and women, 86 000 latrines are needed which means building 28 700 latrines each year.

In peri-urban areas, sludge treatment is needed for 7 % of the population, i.e. 267 m3/day in the year 2000 and 57 500 septic tanks will have to be built or 6 765/year.

Solid wastes will amount to 790 tonnes/day for all urban areas (245 tonnes/day in Cotonou) in 1992. The share of the peri-urban population is estimated at 130 tonnes/day (1992) and 193 tonnes/day in the year 2000. These wastes could eventually be treated separately if the informal sector and the market gardeners were to make suitable arrangements.

3. Institutional actors and their relationships

Actors in the water supply sub-sector :Since the start of the IDWSSD, over 40 programmes have been completed or are still under way; nine other programmes are in preparation (see table 1). They link together 8 different types of operators.

Water supply projects completed or underway in Benin since 1980

Project	Nb. of bore-holes	Nb of pumps	Nb of wells	Cost (Million CFA)	Period
UNICEF - WB	138	138	-	438	80-83
UNICEF- FENU	227	227	-	1371	83-85
UNICEF- UNDRO	31	85	-	101	85
UNICEF - FENU	73	73	-	210	87-88
UNICEF - USAID	88	88	-		
2nd EDF	417		26		
4 th EDF	65	65			
5 th EDF	49	46		1518	84-85
5 th EDF	206	206			83-85
5 th EDF		237	6		84-85
Entente - I	349	481	-	1403	86-89 (>83 according to HD)
Entente - II	383		-	2.355	86-89 (>88 according to HD)
Switzerland	49	49	-	105	83-84
CEBC (N. Borgou)	245	411	-	1233	84-86 (>85 according to HD)
WADB - I	194	206	-	1235	85-88 (>86 according to HD)
NVS - CARDER			53	43	86-87
CARDER - Zou			24	71,6	88-91
Cathwell			37		86-89
GTZ	2	2	125	169	85-87
Germ. Volont.	-	-	320		68-84
Germ. Volont.			280	249	85-87
Fr. Volont.	-	-	31	57	82-86
NVS	-	-	120	102	85-87
Japan - I	100	100		600	86-88
Japan - II	22	-	-	1560	88
OPEC/FIDA/CARDER	-	-	11	?	89
FTM/EDF	3			?	
SASIF	-	-	11	?	
Cotonou Diocese	7		4	?	
IDB	272	250+ 5 piped systems		1739	89-93 (> 88 according to HD)
WADB - 2 (Atacora)	250			1937	89 -? (>90 according to HD)
USAID-UNICEF-PC	309	309	2720		87-92
Japan - II	125	58			89-90 (>89 according to HD)
Lagoon areas/CEBC	60			1600	89-90
WB-CAA-UNICEF-HD	25	25			87-90
SBEE Secondary towns	25 district HQ + 13 towns				< 1993
WAEC - 2	60 (+ CP)		60		> Dec. 89
WAEC/AADB/OPEC	141		110		Start: of 93
6 th EDF	78 + 3 piped syst.	125 Rehab from 4th EDF	25 Rehab.	680	Nov. 92 - end of 93
Japan III		150 + 1 piped syst. + 170 Rehab	25 rehab + connection to Grand Popo Syst.	~2000	> 92
UNICEF - Peace Corps	359**	359 + 35 rehab + 2 piped Syst.	3 sources		92-93
Germ. Volont.	1		East: 300***		> 1988
NVS	-	-	?		> 1988
SBEE Secondary Towns		> 30 piped systems			
Fr. Volont.		Piped syst.			under way
Health service project	-	-	Tanks above ground	290000F/tank	under way
EDF	-	-	Tanks above ground	290.000F/tank	under way
WB Education project	-	-	Tanks above ground	290.000F/tank	under way
SBEE Secondary Towns	7 District HQ + Abomey- Bohicon + Parakou				
Health Services Project			10 wells, 20 tanks Hearth Centres		
Upper Seine (France)/Mono	50	50		~ 380	end of Dec. 1993
NVS			x		>94
Germ. Volont.			Follow up exist. wells		
Entente - III					> 94
IDB					> 94
WB/IDB					> 94
FDB/ACF/secondary towns		Piped syst.			> 94
UNICEF Peace Corps	360****	360 +50 rehab. + 2 piped syst.	90 + 150 tanks		94-98
GTS/KFW					Being negotiated
Japan - IV					Being negotiated
DANIDA					Forseen
Energy Dept	1	solar*****			under way

*. Includes components on health education, an outline maintenance programme and dracunculose eradication.
**. Integrates Sanitation and dracunculose eradication components
***. Includes follow up of water related diseases
****. Integrates Sanitation and dracunculose eradication components
*****. Solar village with public lighting, electricity for the health centre, etc.

* Nine funding organisations including United Nations, bilateral and international agencies, development banks and one agency for decentralised co-operation; in general, they work in partnership with the Hydraulic department..

* Private Northern consultant engineers for the general studies on water resources;

* Geophysical prospecting by specialised private firms from the North, by the same firms in collaboration with the consulting engineer or by the drilling company.

* Project design and supervision of drilling and building works by private Northern consultant engineers (8 major offices identified); in some cases, the funding agency has undertaken its own technical studies (UNICEF, Dutch, French and German volunteers); most work closely with the Hydraulic Department.

* Drilling and construction work : bore holes are undertaken by specialised drilling firms (two national firms and several Northern firms); wells are built by small, specialised building firms are craft-teams working on a piece rate basis. Small reticulated systems are built by the building section of a (northern) drilling firm or a medium sized building firm sub-contracting the drilling to one of the specialised firms.

UNICEF and the Japanese projects undertake drilling work and fitting of bore hole heads with their own drilling equipment and labour. The Hydraulic Department also has its own equipment and drilling team.

* Pump supply and fitting : several private firms supply and fit pumps and train the village and area mechanics. UNICEF also furnishes pumps from the Copenhagen supply centre.

* Community leadership : this is undertaken either by the consultant engineer using locally recruited field workers and supervisor or by the Hydraulic Department in collaboration with the Ministry of Labour and Social Welfare. Some projects have their own personnel : UNICEF and the volunteer organisations. The new World bank financed project, now being set up, proposes that NGOs should do this work on a contract basis, co-ordination being undertaken by a Northern NGO.

* Programme evaluation is carried out by specialised agencies : only 6 organisms were identified.

In general, each operator only has information on the costs related to its own work; the consultant engineers and the Hydraulic Department have a more overall view of costs, but not of overheads, programming costs, programme management and promotion costs.

Actors in the sanitation sub-sector : Most actors in this sectors are private families and craft or small building enterprises. One consultant engineering firm and the parastatal water company are also involved, as well as the Sanitation and Hygiene Department as general sponsor, the IEC Division in the Ministry of Health and eight external funding or support agencies(UNDP, UNICEF, World Bank, USAID, Peace Corps WHO, French volunteers and a French NGO). Craftsmen are trained in externally funded projects.

Actors in the domestic waste sub-sector : Actors in this sub-sector vary from the Urban Administrative and the Sanitation and Hygiene Departments, the parastatal Water Company, and UNICEF to two private garbage collection and several sludge collection firms, an NGOs collecting and composting waste and an important number of informal sector operators and, more recently, several youth groups with economic activities.

4. Results achieved

Water supply : Once on going projects which are to construct 1 023 water points are completed, there will be a total of 5 123 water points providing 56 % theoretical coverage in rural areas and 45 % if pump breakdowns are allowed for.

Latrine construction : Community latrine blocs have been built in a relatively important number of schools, health centres and markets and a about 1 000 family latrines by externally funded projects since 1987. The number built by craftsmen after project training or otherwise is not known.

Solid waste treatment : The number of people served by the various operators is not known, except that there are more than 3 000 subscribers to the private firm operating in Cotonou and over 800 to the NGO in Porto-Novo.

Sullage and rain water : Rehabilitation of rain water drains has been undertaken in central Cotonou and Porto-Novo, but the length of drains was not reported. No work on sullage water treatment was identified.

Other programmes : A community sensitisation component is included in all on going water projects to set up water point management committees and ensure effective down payments by the community. A health education programme works in 55 of the country's 1 700 primary schools with school inspectors and teachers.

SECTION II : COST ANALYSIS

Introduction

A major influence on costs is the linkages between the techniques used and the institutional arrangements which are chosen and set up. Previously, technicians chose the techniques while institutional arrangements were taken for granted. At the start of the IDWSS Decade, enlarged decision making processes were proposed (KALBERMATTEN, 1980) to include behavioural scientists and advice from the population.

Thirteen years later, this is still pertinent in many situations, even though experience shows that further improvements can be made. The choice between ***alternative institutional arrangements*** can be included, populations can actually take some decisions and political structures should be brought into the decision making process, thus assuming their responsibilities. Besides this, social sciences and management skills can undertake "social engineering", providing support to communities during a negotiating process with the technicians and the political authorities.

The technical/institutional linkages are pertinent in all sub-sectors : water supply, treatment of faecal matter, refuse disposal, etc. At the same time as the technique is chosen, the institutional arrangement have to be chosen for carrying out the building work and for operating and maintaining installations. A public or private agency could be given implementing and cost recovery powers, contracting with private firms, craftsmen, the informal sector and community structures as is most appropriate. But families and local community groups (*esusu*, ...) or NGOs could also be given a major role, especially in treatment of faecal matter and refuse collection and eventually, in some zones, in water supply works. In this case, the work of organisations providing institutional and technical support to grass roots development will contribute to cost reduction. So would a dynamic craft industry, which can also be deliberately encouraged through training and management support.

In addition, a general education programme on the relations between health/water/hygiene/family resources will also contribute to cost reduction, for both for investment and operations. A choice also has to in implementing such a programme between institutional alternatives which are more or less efficient and more or less expensive.

A further level of institutional choice is also necessary : the structures which exist or are set up for can limit their work to a particular sub-sector or can cover several of them. They can also cover general development activities, a much wider perspective which will obviously be more complex institutionally and cost more, but allow sharing of costs between sponsors of development programmes in different sectors.

5 Cost analysis of water supply [2]

Choice of technologies : Eight hydrogeological zones are identified (see maps) with the corresponding technologies recommended to reduce both operating and maintenance costs as well as initial investment. (see table 2). Choice within each zone will depend on the service level the community wants and is willing to pay for.

Table 2 : Recommended technology for each homogeneous hydrogeological zone

Homogeneous zone	Techniques presently in use	techniques recommended
1. Coast	Wells and bore holes Family wells with cemented walls	Use filtering points and calculate shallow well depths
2. Lagoon areas	Bore holes	Geophysical prospecting; Bore holes to paleoceneous limestone layer; Use anti--iron devices; Use equipment suitable for high temperature gradient
3. Low lying plateaux	Wells, bore-holes, tradit. family wells	Work on request; Test peoples' motivation Highest water table not to be exploited
4. Higher lying plateau	Bore holes, Electrical geophysical prospecting Trad. family wells	Capture springs Bore holes with small simplified piped system for larger villages and rural and semi-urban agglomerations; bore holes for average villages; rain water storage tanks for small villages Geophysical prospecting by electrical seismic method
5. Low lying flat lands with high water table	Bore holes	Bore holes into water table of Cretaceous sand layers
6. Peneplain on granite sub-base	Bore holes and wells Electrical geophysical prospecting Craft built wells	Bore holes Electrical geophysical prospecting Use of hydraulic fracturing to increase yields
7. Niger valley	Bore holes, wells	Bore holes, wells
8. Peri-urban areas	Family wells, often polluted	Autonomous simple piped systems with limited number of public taps - bore holes can be linked into urban distribution system at later date

Technical and institutional factors influencing costs :

* The technology chosen : springs and water tanks are far cheaper but not practical in all areas and do not give the same level of service. Construction of traditional small diameter wells could be improved and would cost less. Where wells are technically feasible, investment costs are practically the same as a bore hole; but operations and maintenance costs are lower and much higher percentage of costs go directly into the local economy. A comparative study is needed o the possible reduction of bore hole diameter, as has already been done in India and Ethiopia. Where feasible, small piped systems are relatively cheaper per person to construct, operate and maintain (Table 3).

* The failure rate of bore holes, which varies from 20 % to 45 % according to the hydrogeological context and the accuracy of hydrogeological prospecting. A failed bore hole costs from 2.1 to 3.1 million CFA francs. The accuracy is reduced by (i) use of outdated aerial photographs; (ii) inadequate geophysical prospecting : the use of electrical seismic methods is needed in the transition area between the sedimentary basin and the granite sub-base in an overall synoptic study (recommended below); (iii) inadequate time for geophysical analysis, the prospecting team usually being linked to the drilling crew and obliged to respect the drilling schedule

* The drilling depth could be reduced in certain cases by limiting the depth of penetration into the water table

* Rehabilitation of bore holes which have become silted up : use of standard bore hole tubing filter sections (ordered to simplify supplies and reduce delivery delays) means fine grained sand present in some water tables enters the bore hole and gradually reduces yields.

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[2] *All costs were identified before devaluation and are calculated at pre-devaluation exchange rates.*

Table 3: Cost comparison for different techniques

SMALL SIMPLIFIED PIPED SYSTEMS

Technique	Population covered	Total investment	Investment per pers.	investment per pers./year	Annual operating cost	Operating cost per pers./year	Total Cost per pers./year
Small piped System: thermal motor FAC	8.000	15.500.000	1.937	156	900.000	113	269
Small piped System-solar energy - lagoon areas	120.000	1.783.874.000	14.866	561	4.590.000	38	599
Small piped System-Solar energy - Entente Borgou/Atacora	20.100	77.500.000	3.856	128	1.500.000	75	203
Small piped System-Solar energy - UNICEF/Zou	3.000	6.775.600	2.258	154	150.000	50	204
LARGE DIAMETER WELLS (60 m)							
CARDER/GTZ	400	2.906.225	7.265	242	-	-	242 (without operating cost)
HD	400	3.600.000	9.000	300	-	-	300 (without operating cost)
German volunteers	400	3.150.000	7.875	263	40.000	100	363
TRADITIONAL SMALL DIAMETER WELLS (40m)							
Family wells with raised coping and an cemented walls	40	170.000	4.250	212	-	-	212
Family wells No raised coping No cemented walls	30	55.000	1.833	122	-	-	122
BORE HOLE IN GRANITE SUB-BASE (60m) + HAND PUMP							
UNICEF	400	2.808.800	7072	327	17.000	43	370
Private firm (Expatrate)	400	3.844.000	9610	411	17.000	43	454
Private firm (Beninese)	400	3.075.200	7688	347	17.000	43	390

* Inadequate time for decision making : as with the prospecting team, the community sensitisation team is tied to the drilling schedule which does not allow sufficient time to work with communities or for communities to discuss alternatives properly.

* Cost of hand pumps and hand pump repairs : operation costs for wells without a pump are lower.

The choice of a pump can reduce costs : the Afridev is estimated by the WB to cost 36 % - 60 % less in Benin than the India Mk II; the Nira model for shallow wells to cost 60 % less.

Import costs of pumps purchased directly by commercial firms - a mid-term proposal of the new government sector strategy - will be higher than supply by UNICEF. The World Bank financed project will therefore introduce bulk buying for pumps and will sell to private distributors at tax free CIF, Cotonou port during an unspecified transition period.. Private marketing - especially the setting up, supplying and management of a spare parts service - and fitting of pumps will increase costs which, in conformity with the strategy, will have to be paid for by the user communities as part (at least 150 000 CFA francs).

* Purchasing procedures : purchases through UNICEF Copenhagen are probably at unbeatable prices, even if central and peripheral overheads and management costs were included. Bulk purchasing and mid-term orders would reduce costs from private manufacturers. This could be done directly by a public body, a parastatal, a government sponsored NGO or a consortium of private firms.

* Standardisation : standardisation of pumps, of drilling supplies and drilling rigs could reduce costs.

Pump models are now officially reduced to 4 (India Mk II, ABI-MN, Vergnet, Nissaku). The WB recommends that Afridev and Nira pumps also be considered : they are expected to be cheaper, allow VLOM and would also inject money into the African economy if purchased from Nigeria and Ghana.

Standardisation of drilling rigs is difficult as there appears to be over investment in the sector. Standardisation of supplies is linked to bulk buying and advance orders.

* Inactivity : the down time of drilling rigs is costly as overheads, redemption and drill rig captain's salaries have to be paid and recovered on future contracts. Inactivity can result from over-investment in the sector (seven rigs exist for work which could be done by 4 or 5 rigs), poor planning of operations by the hydraulics department or delays in negotiating external funding. Advance orders should be considered to ensure reduction of down time.

* Rig deployment : efficient use of rigs and reduction of rig movements may be improved by deciding on rig movement by the drilling firm rather than the Hydraulic Department. However, some control is needed from the HD to ensure due respect of progress in hydrogeological prospecting and community sensitisation undertaken by other firms.

* Bidding : liberal economic theory suggests that fair competition will reduce costs; experience in India shows this can happen in larger markets. But Benin is a relatively small market (1,5 billion CFA francs/year) and care is needed in managing bidding for drilling firms, SME and craft firms to avoid distortions.

* National versus foreign firms : Bids recently submitted by national drilling and by small and medium sized building are 2.5 to 3 times lower than from foreign firms, due to lower staff costs, lower overheads and absence of travel and subsistence allowances for expatriate staff. National consultant engineers also cost less for the same reasons but may benefit from technical and/or management support during a transition period. On the job training of national drill rig mechanics will enable further savings to be made for drilling operations.

* Management structures for operations and maintenance : in most cases, decentralised management and decision making are expected to cost less; management by community structures will enable some tasks to be undertaken without remuneration. More sophisticated technology (especially solar energy) will probably require a centralised management to be effective.

Strategic proposals for cost reduction :

* Synoptic analysis of previous geological and hydrogeological studies and results or drilling operations, with electrical seismic prospecting in the transition zone between the sedimentary basin and

the granite sub-base. This could be done by a national consultancy firm and should lead to a general reduction of failure rates and a reduction of time spent by foreign constancy offices and give rise to operational programming by homogeneous zone. This should be combined with an upgrading in the accuracy of hydrogeological prospecting.

* Choice of simpler and lower cost techniques where communities accept the level of service provided, including the improved construction of family wells and improved storage tanks where water tables are low. However, small, simplified piped systems should be employed wherever settlement patterns will allow, especially in the lagoon and plateau zones (Zones 2, 3, 4).

* Support to traditional well builders, with assistance for the acquisition of adequate equipment by working groups.

* In the future, silting up should be reduced by better selection of bore hole tubing filter sections. However, bore holes are not eternal and a periodic diagnosis of rehabilitation needs by a pumping test should be undertaken in order to programme rehabilitation work, where needed.

* Improved planning of projects and negotiation of external funding to ensure a regular level of drilling operations.

* Support to private national constancy firms national : project management and cost estimation, office management; financial support for equipment.

* Support to private national drilling firms and to small and medium sized building firms : reduction of financial guarantees required in present bidding procedures; training of national drilling mechanics; reduction of down time by better programming of contract bidding and advance orders (enabling bulk purchasing of pumps and bore hole equipment, supplies and drilling rig spares); rapid payment of bills (cf. AGITIP); advocacy to the banking community for better treatment of national firms; management advisory support if needed, especially for project management, technical updating, learning from initiatives taken in other Third World countries and prospective strategic development.

* Revised marketing of spare parts, encouraged by pump standardisation.

* Pursuit of cost studies in more detail.

6. Cost appraisal of excreta disposal

Technical choices : The cost of VIP latrines, very much in vogue, is far beyond the means of most families in Benin (87 000 CFA francs [$ 310] for UNICEF model). The low level of latrine coverage (< 7 % of all households) is probably less due to the smell of non ventilated latrines than the low level of appreciation of health/hygiene linkages or to cultural concepts of body wastes.

Similarly, sewage systems - promoted in the 60's and 70's - cost 7-20 times more per capita than any other system and require exceptionally high initial investment without providing services to the poorest strata of the population, living in peri-urban areas. For cost reduction, the best technical choice is on site sanitation in rural and urban areas, for which there are many alternative solutions.

Even a "camp" latrine would be a considerable improvement in rural areas, although a simple, improved latrine with a slab made from branches and with a mat screen, but no roof, is preferable. One step better is the "improved Mozambique" latrine with a SanPlat slab (Cost : 600 CFA francs in Malawi). These latter models are also suitable for peri-urban areas as a first step in a progressive improvement programme.

Further improvement are possible : a cement block lined pit in unstable soil, single and double VIP latrines or a watertight cess pit in peri-urban areas when vacuum trucks are available.

In peri-urban areas of Cotonou and the coastal belt, where there is a high water table and families still drink well water, consumption of piped, bore hole or improved well water must be encouraged and watertight cess pits built or raised composting latrines. This means encouraging both households and craftsmen to build properly and creating a situation whereby craftsmen actively market their own products. More technical research may be needed here to reduce costs. In the lagoon areas, watertight composting latrines, serving small groups of families, could be built between the dry

season ground level and the raised floor level of the houses. A partial grant may be needed in such cases.

Monetary operating costs of most latrines is negligible, but water costs must be allowed for with pour flush latrines and WCs emptying into a septic tank : 1 440 to 4 320 CFA francs extra costs per 2 months (billing period of the water company). Renewal of all single pit latrines is necessary every 3-10 years, depending on cultural practices and pit depth and entails labour and rebuilding costs. Double VIP latrines entail labour costs for pit emptying every 2 years and in some cases skilled labour to change slab positions. Cess pit sludge removal costs 12 000 CFA francs per 12-24 months.

Technical choice should involve the householder. Three algorithms are proposed linking effective demand to a decision-making model (See figure).

Institutional arrangements for cost reduction are complex : they include investment by families and local neighbourhood, social or savings groups (*esusu*, ...); promoting sanitation work by local development groups in rural and urban areas, use of SME and craftsmen for whom suitable technical, management and marketing training and support programmes (management advisory service, savings and loan system, raw materials supply, ...) have to be set up. These can be operated by the Water company which already has delved into this area, rejuvenated government or NGOs. Suitable external financial support has to be negotiated. Besides this, organisms providing general support to grass roots development will increase rates of improvement, especially if they provide technical advice to local councils, the administrative authorities, the water company management, and the health services and also assist in setting up an adequate health education programme.

Principles of cost reduction approaches : Nine principles are proposed :

* Work with the population through popular organisations, using appropriate techniques for group dialogue, situation appraisal, problem solving and action implementation;

* Negotiate with development structures and train their personnel, in order to undertake sanitation activities as part of their programme (CARDER, Ministries of Social Welfare and Health, Health centres and NGOs). Health personnel and their supervisors need to be persuaded to integrate sanitation activities into their regular tasks, and include assessment of this activity in annual staff grading. procedures;

* Train and follow up craftsmen;

* Collect and disseminate information on appropriate and effective technical and institutional solutions;

* Communicate - in a two way process - with the various actors as to the importance of improved sanitation : this is especially needed with the poorer and less well served part of the population;

* Undertake a multimedia campaign to encourage the construction of different models of low-cost household latrines. This could have as a motto : *Everyone can improve his health; everybody can build a low-cost latrine.*

* Undertake small scale demonstrations of suitable techniques and innovative institutional arrangements.;

* Gain a better understanding of the anthropology of sanitation, through in-depth surveys : peoples day to day practices are not really known or understood nor are their perception and the values they attach to different aspects of sanitation as well as their own concepts, classification and explanation of phenomena related to sanitation.

Besides these nine points, all work to improve sanitation has to be linked in to actions designed to improve water supplies, even though they do not necessarily have to be combined in a single operation.

7. Cost appraisal of refuse disposal

Technical choices : Until recently, the choices available were not made clear. In rural areas, it was vaguely recommended that household refuse be buried. In urban areas, collection was by sophisticated garbage trucks or - in poorer towns - by an open truck or tractor with a trailer; but these systems never reached the peri-urban areas. Given the present situation, any treatment system, however simple, will be an improvement.

Precollection and collection

* On site treatment by use as raw compost, or by burying, burning or compost : only labour resources are needed. Composting can also be for small groups (of neighbours);

* Precollection by householders who carry refuse to an incineration point, a solution for denser or larger villages or for sub-sections of an a peri-urban neighbourhood : investment costs of the incinerator and a "fireman" have to be covered;

* Precollection by households who carry refuse to a raised transfer point with final collection by a donkey or ox cart cart or by a moto-cultivator and trailer. This entails a small investment for the transfer points, pre-collection and collection equipment and labour costs for supervision and collection. A more expensive variant is a large mobile skip (5-15m3) collected by a lorry (about 500 CFA franc/pers./yr);

* Door to door collection can be by hand truck, carried to a transfer point : with a neighbourhood organisation, costs can be as low as 500 CFA francs/pers./yr;

* Door to door collection by tractor and trailer or garbage truck : costs are prohibitive.

Treatment

This can vary from spontaneous composting to industrial incineration after collection. Controlled composting by farmers on a family level in rural areas (cf. popularised in Rwanda) and by market gardeners in urban areas (cf. 9 composting sites recently created in Yaounde, Cameroon) or by a specialised centre (Hamballaye, Bamako, Mali or CTOM, Porto-Novo, Benin) are probably the most cost efficient solutions. Compost produced can be sold commercially, as is done in Kenya.

Other alternatives are large scale composting (estimated cost 2 329 CFA francs/tonne) or controlled burial, which can be used as land fill (estimated cost 92 CFA francs/pers./yr).

Institutional arrangements : Previous institutional arrangements have usually included an important repressive component, often the only one in contact with the population. This has had very little effect on sanitation. Some community development programmes exist and some instruction for mother sin health centre waiting areas. I urban areas, all has been left to the State or the town administrative services, both of whom lack the necessary resources. More recently private and informal sector operators have partially filled the gap.

* Households, neighbourhood, solidarity groups and local social groups can all practice and manage on site disposal, pre-collection and cleaning up. They would all benefit from technical, management and organisational support which could be provided by local development groups, which could also undertake hygiene education. as well as negotiating collection contracts with informal sector operators, youth groups or SME.

* Committees can be set up in a community following external initiatives, which could manage the refuse situation in a given area. Although many work well, they often tend to be less efficient than internally generated structures.

* Independent labourers already collect refuse for a fee (10-15 francs/basket), as do youth groups and smaller private firms. One case of an NGO collection exists. Women's groups could also collect for a fee. Direct fee payment by householders - or better by a local neighbourhood association - could be encouraged, as this is already working in some areas with a direct municipal/private firm contract for final collection and disposal

* Development organisations are needed to support grass roots initiatives in rural and urban areas, which will integrate refuse disposal into a wider framework on promoting better health.

Principles of cost reduction approaches : Ten principles are proposed, not unlike those proposed for the treatment of faecal matter :

* Together with the populations involved, choose the lower cost technical and institutional solutions, making sure that the alternatives are known and their implications understood by the different actors.

* Promote consensus between the different actors involved through dialogue, common appraisal of the situation, common problem solving and action implementation.

* Collect and disseminate information on appropriate and effective technical and institutional solutions.

* Communicate - in a two way process - with the various actors as to the importance of improved sanitation : this is especially needed with the poorer and less well served part of the population;

* Negotiate with development structures and train their personnel, in order to undertake sanitation activities as part of their programme (CARDER, Ministries of Social Welfare and Health, Health centres and NGOs). Health personnel and their supervisors need to be persuaded to integrate sanitation activities into their regular tasks, and include assessment of this activity in annual staff grading procedures;

* Train and follow up youth and women's groups, initiating them into questions of hygiene and supporting them in the search for income generating activities.

* Assess innovations carried out by NGOs, municipal authorities, technical services, private firms and informal sector operators.

* Gain a better understanding of the anthropology of hygiene was proposed for sanitation.

* Encourage the recycling of refuse (especially by informal sector operators) and the use of biodegradable packaging.

* Set up autonomous municipal structures, as part of an overall decentralisation and democratisation process[3]. These could set up in turn and NGO - whose role would be to undertake community development with health, sanitation, hygiene and refuse collection - as has been done by Port Bouët Council (Côte d'Ivoire) or by several west African states for labour intensive public works (AGETUR).

Besides these ten points, all work to improve refuse collection has to be constantly linked into actions designed to improve water supplies and sanitation, even though they do not necessarily have to be combined in a single operation.

8 Cost analysis of sullage disposal

This aspect of sanitation was not studied in detail. Some information is given on suitable on-site disposal procedures.

* Soakaways in rural areas : this is a pit filled with stones built directly under a raised dish washing platform in wood, stones or bricks, or near the shower installation for each compound. Resources needed are family or work group labour and some masonry skills for building the pit walls.

* Soakaways in peri-urban areas : these can be built in each compound or a for a group of compounds in a private or public space (the latter will need specific legislation or local regulations on land use and ownership and maintenance of the soakaway. Costs will cover building materials, skilled masons and unskilled labour as well as design and management of construction work, together with cost of social mobilisation programme, if carried out in a participative urban development process.

To reduce costs, an important building and marketing would have to be assumed by craftsmen with support from a craft development unit (public, parastal, municipal or NGO); neighbourhood groups would assume the role of client and local development organisations or NGOs would provide institutional and technical support and, in general, promote action in this area.

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[3] Collaboration can be sought in this area with the Municipal Development Programme - West and Central Africa Unit (MDP) which operates from Cotonou.

9 Cost appraisal of community leadership and educational programmes

Conventional leadership activities (*animation*) are in fact a misnomer : undertaken as a component of each water supply programme since 1985, their aim is to set up a local water point management committee and ensure that the advance payment of maintenance costs is actually made. In the best of cases, 1/2 day is spent "training" the committee members. Even in areas where populations are sometime reluctant to accept a water point, an average of only 4 visits are made.

A leadership team exists for each administrative Department or for each project, the work being carried out either by the Hydraulic Department working with qualified staff from the Ministry of Labour, Employment and Social Affairs or by the Consulting Engineers firm, employing specialised personnel for the work. Training manuals have been drawn up by the International centre for Water Research (CIEH) and CINAM (a private French consulting office).

Local level and area mechanics are also trained, this work usually being carried out by the pump supplier and included in the pump cost.

Cost of conventional *Animation* : In the West African Development Bank (BOAD) sponsored project, costs were 32 000 CFA francs per village or 354 CFA francs per person, and represented 5 % of total project costs. In the European Development Fund sponsored project (4th & 5th Cycle), costs were 176 000 CFA Francs per village or 162 CFA francs per person, representing 4.4 % of total project costs.

Cost of health education : The cost of training trainers is 160 000 CFA francs per trainer; of training field staff is 55 000 CFA francs per agent for one session (3 sessions are needed). Total cost of setting up a 120 agents would be 3.9 million CFA francs.

Cost of improved community programmes : Far from reducing costs in these areas, more resources are needed to ensure more adequate leadership programmes which deal with peoples problems (and not the subjects decided on by the project prior to community contacts), and to undertake grass roots development support. The latter is estimated to cost 1232 F/pers. over a two year programme, without counting the costs of specific training programmes for village leaders and village groups.

Institutional arrangements for community support programmes : These should include :

* a structure promoting grass roots development which will provide support to local institution building and management as well as training.;

* Structures providing technical support in specific areas, including water, sanitation, hygiene and health, training village community members and providing technical advice in a participatory manner.

* Specialised training structures would undertake training of both community members and leaders, local administrative and technical staff in the relations between health, water, hygiene, and family resources. This could be decentralised (as in the Kumasi, Ghana Health Education project, integrated into the municipal services) or centralised as with the Ministry of Health IEC Service.

10. Community participation and cost "sharing"

In the new strategy for rural water supplies, communities are expected to continue making payments for all operating and maintenance costs and in addition, to pay up to 20 % of direct labour and material costs in construction (which represent about 10 % of total contract costs). The renewal costs are not considered. In peri-urban areas, all piped water supply is sold. The first 10m3 is sold at a lower rate to encourage small consumers and make access to piped water supply easier. Actual production costs are lower in Cotonou and Porto-Novo, but higher (sometimes much higher) in other towns and especially in the smaller towns now receiving a piped born supply. Consumers are therefore subsidised, with a view to promote social equity. Most consumers in peri-urban areas purchase from a public tap or - more frequently - from a neighbour with a piped connection.

Although there is not yet an approved sanitation strategy, the option is to ensure complete payment of costs by households for on-site sanitation, except in pilot projects where partial subsidies have been granted, especially for VIP latrines.

The strategy for refuse disposal is not yet clear : the urban refuse collection tax is far from covering operating costs, nor is there consensus as to whether families should pay directly private operators for refuse collection or not. An experimental project is underway in the Menontin neighbourhood of Cotonou to involve community structures in the decision making process and recover costs of all services, as a means of ensuring sustainability. Another experiment in three neighbourhoods of Cotonou combines door to door pre-collection by youth groups with final collection by a private firm, under combined general supervision of the Mayor, local administrative authorities and the Hygiene and Sanitation Department. No clear proposals have been made for rural areas, except the organic farming proposals of the CTOM and Songhai Centre (near Porto-Novo) and the Tampegre Rural Promotion Centre (Natitingou).

Cost "sharing" : Recurrent costs of water supply, sanitation and refuse disposal have become too high to be paid from the State budget as State finances are being cleaned up, in particular through SAPs. In addition, it is generally thought that most direct operations should no longer be undertaken by the State and that users and beneficiaries should be made "responsible".

Cost "sharing" is therefore proposed when in fact users already have to pay all operating costs if any service is wanted. In some cases, even when payments are made services are irregular or absent : this is the case for urban refuse disposal and some rural bore holes equipped with hand pumps which are managed by local administrative authorities. Real sharing implies a more equitable allocation of scarce resources whereas what is being proposed is simply cost recovery which will eventually lead to responding primarily to the demand from creditworthy consumers, while neglecting the needs of the rest of the population. Cost sharing implies in fact that more creditworthy consumers pay more than others : such a system has already been instituted by the JAK neighbourhood Association (Cotonou) for refuse collection.

The SAP component known in Benin as the Social Dimensions of Development (and known elsewhere as the Social Dimensions of Adjustment) clearly recognises even if services have to be paid for at actual market prices, market forces cannot solve the issues of equity in access to basic services such as water supply, sanitation, refuse disposal, and health care.

Besides cost sharing between the State and the population therefore, discussions **and negotiations** must face up to the issue of sharing between between different members of a given community (which are composed of poorer and wealthier households and organisations) and between different communities within the country (which are more or less endowed). Communities themselves and their representatives would need to discuss these issues in detail, discussions which could be facilitated by organisms providing support to grass roots development.

The present debate initially involves national political authorities and funding agencies and later involves specific funding agencies and national technical services, with ratification by political authorities. Cost "sharing" should certainly involve communities and people's representatives more actively in the negotiations.

Willingness and capacity to pay studies : This is a major issue, but only empirical information is available in Benin. The first "willingness to pay" study is programmed in mid 1994 by the rural water supply project funded by the World Bank. Such studies need to be critically assessed from both theoretical and practical view points.

They are designed on the basis of marketing "theories" and practices in industrialised countries which are proper to a large national market, specific attitudes to money and a consumer ethic. Their validity is questionable in smaller, developing countries.

They are based on the assumption that an "open" (perfect) market exists. This is a theoretical concept and does not exist, even in the industrialised countries.

Finally, from a theoretical point of view, the bidding game usually proposed for this type of study is not related to peoples real behaviour, although one of the first studies in the field

(WHITTINGTON, et.al., 1989) was based on a specific case study. "Bidding games have never been calibrated against people's real behaviour, the latter is preferable". 'CAIRNCROSS, 1993).

Practical criticisms also concern the validity of GNP as an indicator of poorer people's income, the lack of information in family budgetary surveys on actual monetary resources available at any given time, and the difficulty of determining transfer from one type of expenditure (for instance from food purchases) to another (such as an emergency health need) even in social surveys using open ended questions, semi-directive or focus group techniques.

It is therefore proposed that in addition to the study recommended on the anthropology of water and sanitation, an analysis be made of actual user practices as concerns consumer behaviour and attitudes, consumption patterns and payments actually made, using a small number of selected case studies.

Rhetoric on cost sharing : Six major themes of rhetoric are identified and commented : they show that differing - and sometimes contradictory - attitudes exist and different practices are encouraged on the basis of the various actors economic status and ideological position. In consensus seeking on cost sharing, the rhetoric of each actor has to be analysed, fed back to the negotiating parties and discussed objectively, in order to increase mutual understanding.

Community willingness and capacity to pay

Household monetary resources : GNP is estimated at $ 360/cap. Studies on rural monetary incomes show very low levels (65 000 CFA francs/agricultural worker/yr in food growing areas and surprisingly, 26 000 - 28 000 CFA francs in cotton growing areas).

The effect of the SAP has been to reduced household expenditure on housing, children being taken out of school, more use of traditional medical care because of inability to meet costs.

Household purchasing power has obviously dropped and the World Bank Poverty Assessment (April 993) estimates that the income of 15 % of the population is below the "Poverty Line" of 36 000 CFA francs/cap/yr and 10 % below the "Absolute Poverty Line" of 25 000 CFA francs/cap/yr.

Where new water points are set up, and water is paid for, a number of households use alternative sources where these are available, especially in the rainy season. The same behaviour is observed in the secondary towns where four times less piped water is consumed in the rainy season than during the dray season.

The conclusion is that overall resources are low and that given income inequalities, a large percentage of households have an extremely low level of resources. This is confirmed by the continued existence of chronic malnutrition in some areas of SE Benin (Oueme) in spite of intensive nutritional education. This affects poorer families, especially women headed households (21 % in the Oueme in 1979), larger families with young children and especially those with less than 1/2 ha of agricultural land.

The designation of high risk zones in cost recovery may be needed as well as the setting up of subsidies or compensatory mechanisms between households in each community and between communities.

Multiple pressures on communities : Pressure on households and communities to "share" costs comes in three major areas : health, education and water supply.

* Health : following the application of tne Bamako Initiative in Benin, families pay the cost of essential generic drug plus a mark up for management and local current expenditures by the health centres. this covers 42-46 % of all local costs (including the equivalent of salary costs).

* Education : Parents pay school inscription and uniforms; the Parents Associations are responsible for building and furniture upkeep and often contribute for school supplies, furniture and the construction of latrines and water storage tanks.

* Water supply : Since 1985, communities contribute 60 000 CFA francs advance operations costs before a water point is built and about the same sum for building work at the water point head, even more (10 % of direct costs) in the case of large diameter wells. Water is also paid for, either by a regular fixed contribution (bi-monthly or yearly in cotton growing areas) or more frequently by direct sales at 250 - 500 CFA francs/m3. Future payments will be at least 150 000 CFA francs for marketing

and fitting cost of a hand pump (up to 450.000 CFA francs for some pumps) or about 300 000 CFA francs for a large diameter well.

Willingness and capacity to pay : Numerous cases of payment of water supply operating costs exist and some cases of contributions to investment. In all cases, some families do not pay and continue to use (or return to) traditional water sources. It is not known if this is due to unwillingness to pay or to the actual lack of monetary resources.

* In secondary towns with a piped water system, about 40 % of the population do not consume piped water. 53 % purchase from a neighbour as this with low consumption levels, this costs less than paying meter charges on a water connection, insofar as rainwater is consumed in the rainy season. In Peri-urban areas, a similar situation exists. Water is purchased from the Water company at 100 CFA francs/m3 plus meter rental costs and sold to neighbours at 250-500 CFA francs/m3, and sometimes pay a water carrier at 625-1250 CFA francs/m3. A household selling to three or more families will cover its own consumption and meter rental charges. In all rural areas, water is paid at about 250-625 CFA francs/m3 which amounts to a yearly cost of 550-6750 CFA francs/yr for a 15 person compound.

* In the some areas near Abomey-Bohicon in the Zone 4 with a low water table, where traditional well digging is long, difficult and costly, up to 4/5ths of families in some villages have built rainwater catchment tanks and there is an obvious willingness to pay and the capacity to do so when a new water point is proposed, even if this means making sacrifices elsewhere. In areas with less rain, or where access to water is difficult, especially in the north, there is also a willingness to pay. Only 9 out of 245 villages refused to do so in the 4th and 5th European Development fund programme in the Atacora.

* In some areas of the south however, the percentage refusal is higher, due to easily accessible, "free" traditional supplies (up to 60 % of villages in some districts and 10 % overall in the Oueme).

* Lack of willingness to pay may also be seasonal. It may also be increased by lack of explanation of recurrent costs; the one year pump guarantee which leads people to think there are no repair costs; the high cost of spare parts; the unreliability of certain makes of pump; the misuse of funds by management committees.

Willingness to pay is linked to the accessibility of water, not to water quality. Willingness is weaker in the south and certain specific zones can be identified where an increased effort is needed in providing appropriate techniques and institutional arrangements, as well as increased family resources which will make payment easier. Most of the interlocutors during the present study consider it is merely a question of health education : these interlocutors are technical staff and have little contacts with communities and little knowledge of behavioural determinants. This problem therefore has to be tackled by staff with adequate expertise (social sciences including anthropology, psychology and social engineering - or grass roots development).

11. Cost efficiency

The assessment of the efficiency of financial resources used can only be based on the final effect of improved water supply, sanitation and refuse disposal of the health status of the population in areas where new services are operating. No mechanism presently exists permitting a follow up of cost efficiency. This mechanism has to be set up, preferably starting with local observation posts linked directly into the water supply and sanitation management units, rather than a complex national system.

Promoting cost efficiency : Ten factors are identified which will increase cost efficiency :

* Link water, sanitation and refusal disposal activities in each area of operations. This should be based on a preliminary participatory assessment of health and habitat, and the setting up of specific activities to deal with each of the three sub-sectors.

* Ensure that health education takes place in each area of operations.

* Reinforce community structures, which are still institutionally and economically fragile.

*Promote participative and rational technological and institutional choices.

* Reinforce programming, in order to ensure that the financial aspects of available choices are properly analysed and explained to future user groups, and that there is a regular programme of work for private drilling firms and that this corresponds to community demands.

* Promote private national economic operators : craftsmen, repair mechanics, SME, building firms, drilling companies, pump and material suppliers.

* Provide support to national consulting engineers offices.

* Reduce the price of supplies by bulk buying, advance orders, etc.

* Undertake action-research on the problems of the sector, especially to test innovative solutions in technical and, above all, in institutional terms.

* Obtain co-operation from financial partners who would be convinced to make positive and innovative contributions to the application of the new sector strategy and to cost reduction and an increase in cost efficiency.

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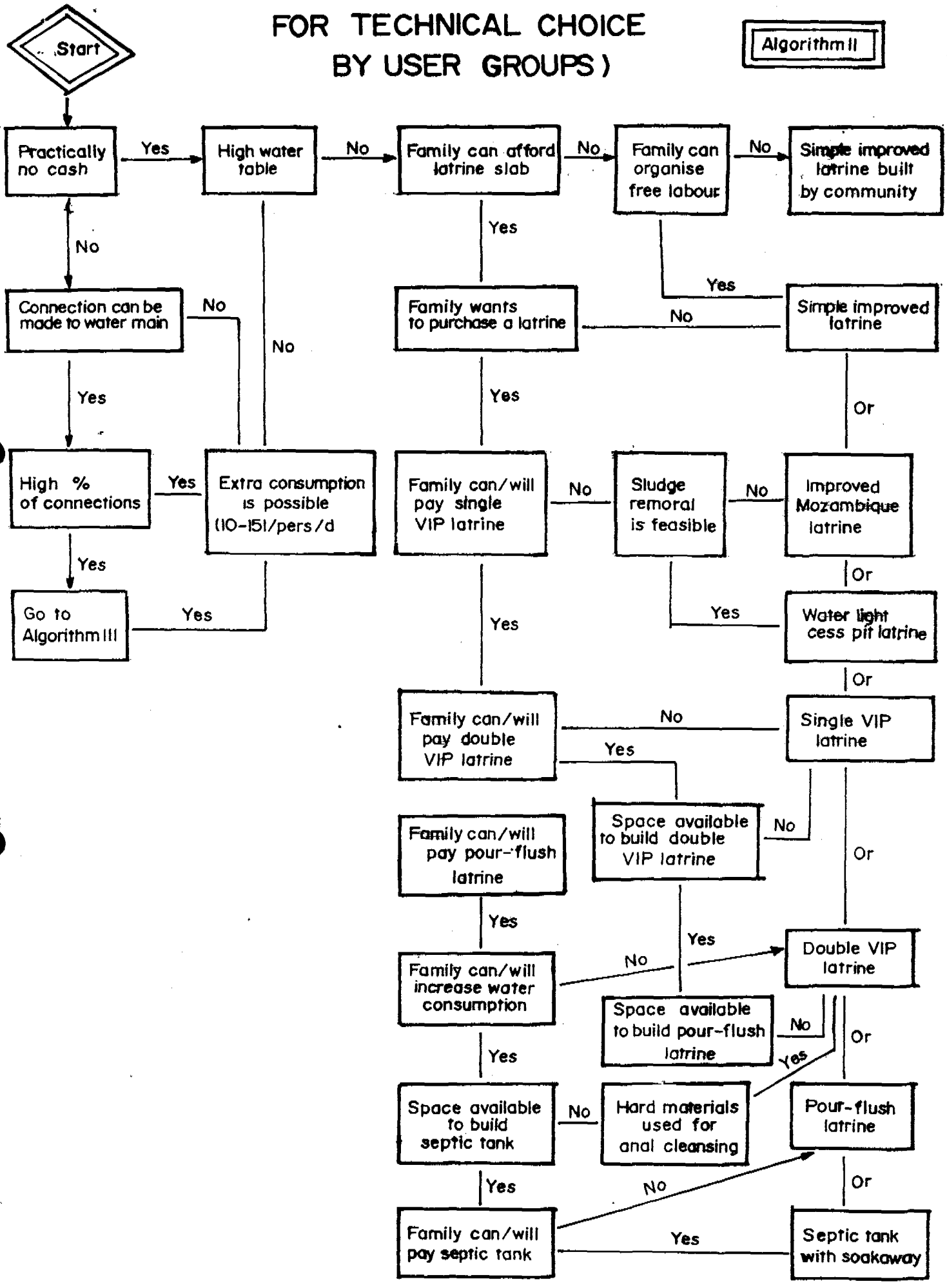
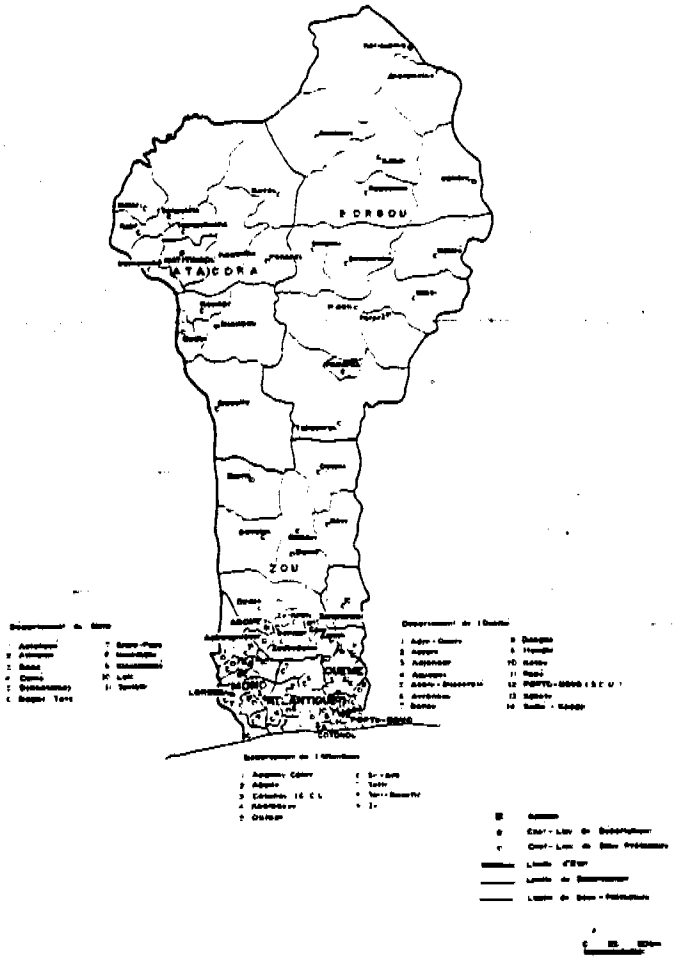
[UNICEAX1]

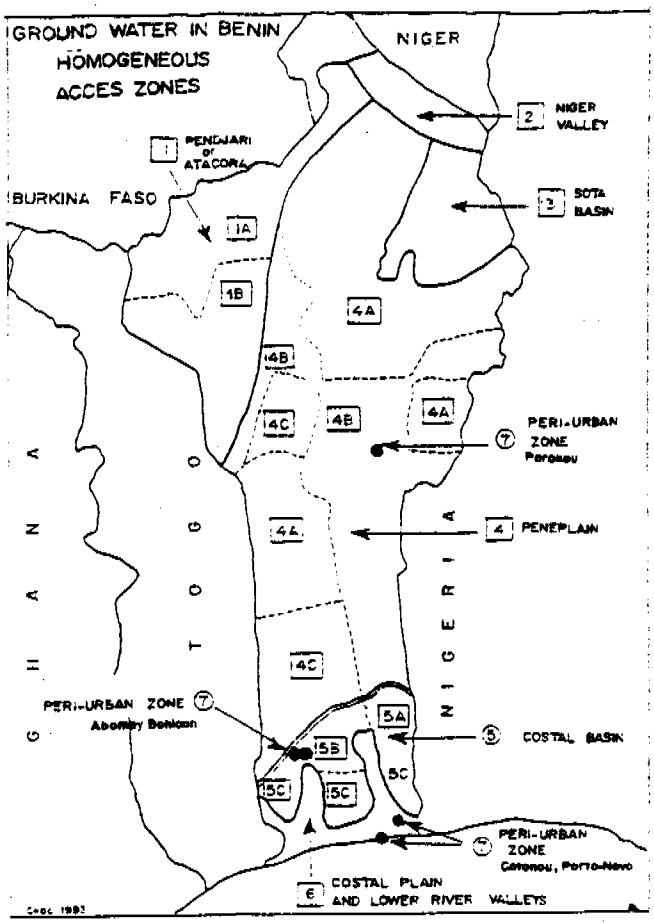
ALGORITHM I (DECISION MAKING MODEL FOR TECHNICAL CHOICE BY USER GROUPS)

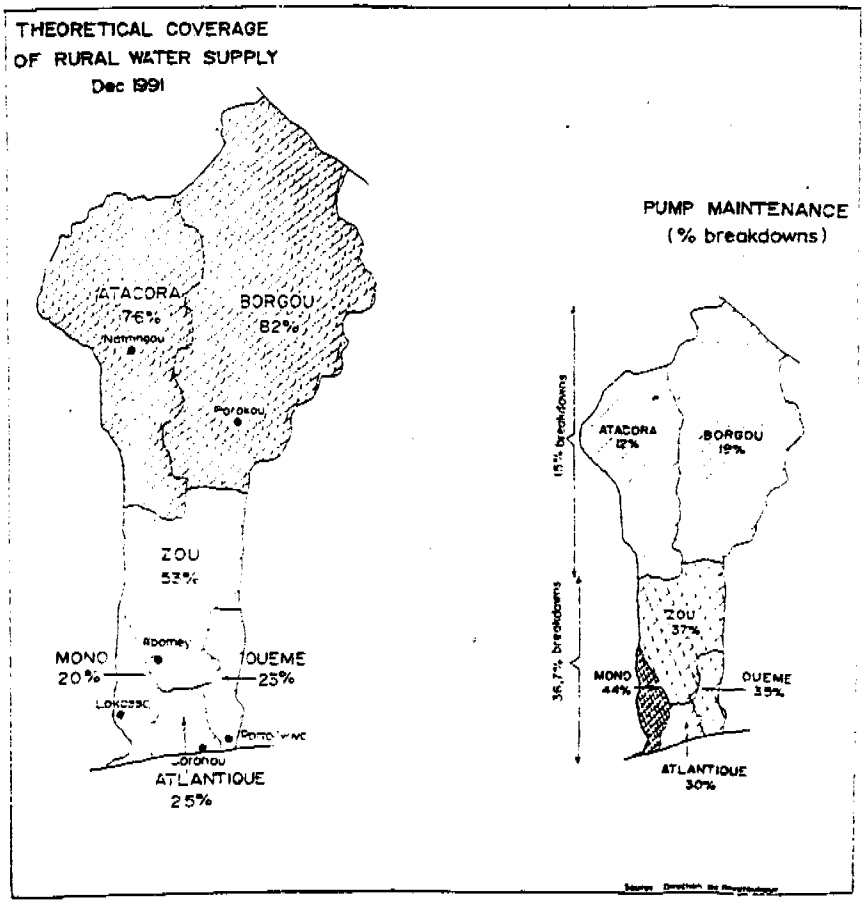


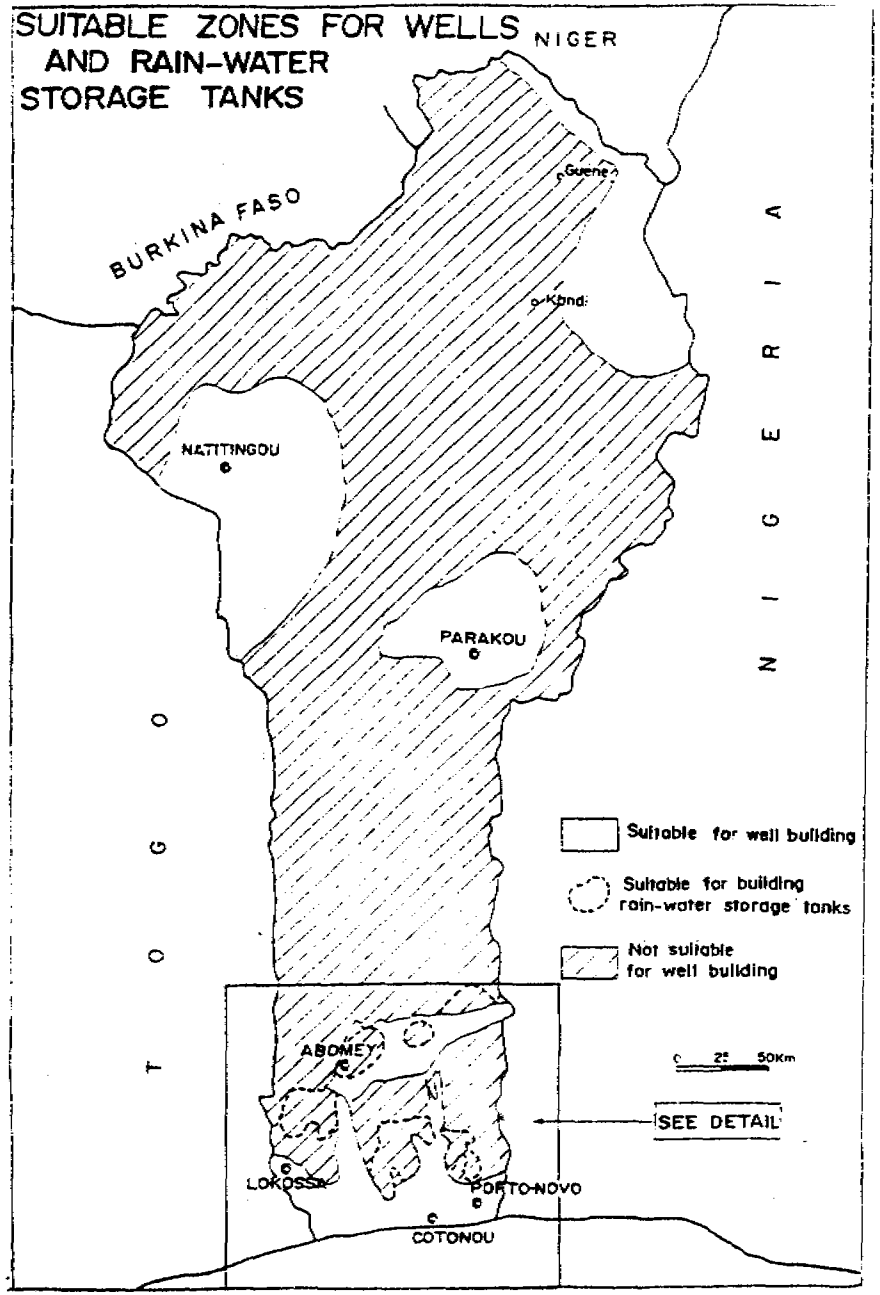
Source: Ceda, 1993

BENIN ADMINISTRATIVE AREAS









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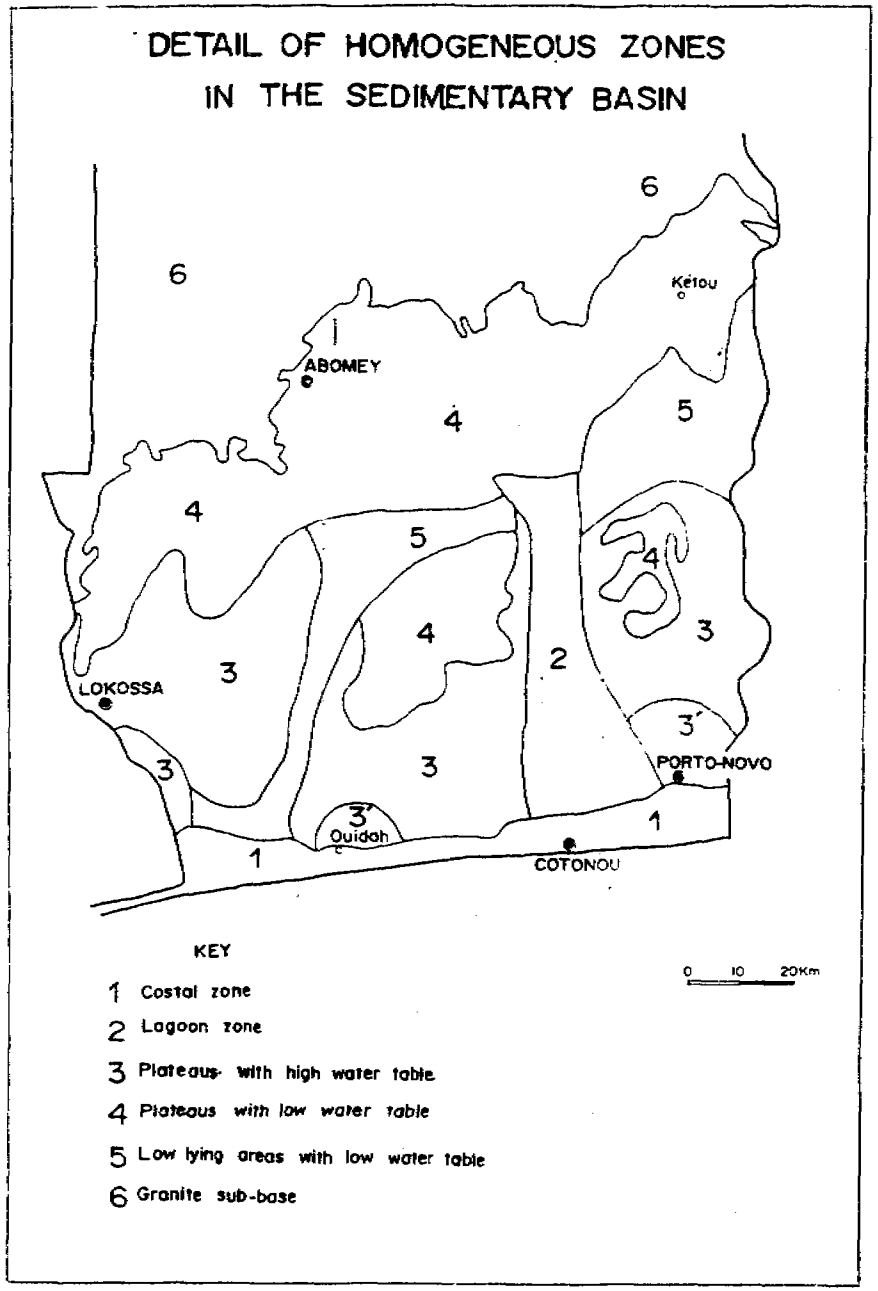

ACHIDI 1994, *adapted from* BURGEAP, 1985.

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Fax Cover Sheet

To:	Mr. Hans van Damme IRC - The Hague	The Netherlands Fax: 3170 381 4034	Page 1 of 9
From:	Vanessa Tobin Officer-In-Charge Water and Environmental Sanitation	3 UN Plaza, DH40-B, New York, N.Y. 10017 Fax: (212) 702-7150 Phone: (212) 702-7280	Date: August 2 1994 Ref: 94/
Subject:	***Bangalore Brainstorming on "Communication for Behaviour Change"***		

Text:

Last week Gourl Ghosh faxed you Anthony Hewett's memorandum on the above-captioned.

Please replace the version you received earlier with the enclosed revised version prepared by Tony Hewett on August 1, 1994.

Best regards.

cc: G. Ghosh

Louma

unicef

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New York, New York 10017
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INTEROFFICE MEMORANDUM

TO: Mr. Gourisankar Ghosh
Chief, WES, PD

Date: 1 August 1994

FROM: Anthony J. Hewett
Chief, PCSM/FFL, PD

REF: PCSM/PD/M/367/TH/94

SUBJECT: ***Review of Minutes of Bangalore Brainstorming on "Communication for Behaviour Change"***

Attached is the result of some reflection sparked by the minutes of the Bangalore brainstorming on Communication for Behavioural Change. I am sorry we were not at Bangalore and am glad of the opportunity to offer these reflections, even at this remove. I apologise in advance if much of the ground seems familiar to you personally. I see the attached as perhaps my last chance to contribute in my current capacity to a sector for which I have a lot of regard and one poised, if the Bangalore consultation is any guide, to make a remarkable contribution to development generally.

Most of what is attached will seem rather radical to the established communication fraternity. In pressing the case for facilitative communication and its role in transformative learning processes, I have certainly noted, but perhaps scanted, the valuable role that is already being played by mass and other mediated communication.

No doubt this is because I think the long-established and overwhelming emphasis on the latter has blocked our seeing a real role for the former.

My conviction after all the enquiry and study of experience we have undertaken in the past few years is that the way Programme Communication/Social Mobilization can best contribute to achieving the kind of sustained results we'd all like to see is through a major upgrading of our capacity to facilitate and promote participation by improving interpersonal and small group communication skills and by using these skills - at all levels, including policy setting and management as well as operational - to broaden and strengthen the involvement in problem solving.

The closest the present mainstream comes to these approaches is interpersonal communication, which at least embraces some of the basic skills which need to be made pervasive in our work. This however is seen as a distinctly minor activity - largely aimed at from the health or other extension workers - and as a result receives negligible attention and funding.

On the other hand, I am arguing that this neglected dimension of communication holds the key to the problems confronting the water and sanitation sector in implementing the Delhi principle on the role of community management in achieving universal access.

As you may know, I have had some involvement in this over the past four years through the work carried on under Hans Van Damme and his group and I'll summarize the basis of my understanding , no doubt simplistic, in that involvement.

One is that the community management principle is serious as a statement of intent and that, whatever the political complexities that surround agreement on any such principle, it represents a real conclusion emerging from the billions of dollars and trillions of hours of human effort, not to mention all the reflection and discussion, which constituted the Water Decade.

Another point is that, notwithstanding the above, the Watsan community is far from being agreed on what this principle entails and that, moreover, even those who would subscribe to it wholeheartedly don't necessarily know how to put it into practice on the requisite scale.

If follows from these two premises that our strategy should be to help as many as possible within the sector to strengthen skills and to clarify issues which might lead them, together with colleagues, peers and partners, to a unifying approach and process by which they might solve problems to do with implementing the abovementioned Delhi principle - diverse and context-specific as these problems are likely to be - and to find a common direction in the doing.

This suggests a deliberate approach to sector capacity-building, based on neglected principles of adult learning and the forms of communication which help learning to happen. This approach would include pursuing, as you already envisage, particular project situations where principles can be demonstrated and shown effective.

FROM UNICEF/WES SECTION FAX (212)702 7150 08.03.1994 10:56 P. 3

Indeed the brainstorming identified capacity-building, training, demonstration projects (and documentation thereof), developing political will, working at policy and planning levels as well as among water engineers, and the notion of agencies and government moving from an implementing and service delivery to a facilitating and service promotion role ... all of which seem to me very appropriate.

My immediate recommendation therefore is for WES participation in the development of the "communication for development" learning package we in PC/SM have initiated. We would like to conduct a first test of this package at headquarters in the next month or so and to have you or someone you designate take part.

Assuming this shows we are on the right track, I'd hope we can make the continuing collaboration with WES more systematic and deliberate and that we could count on your support in the deliberations on the future role and function of programme communication, currently scheduled for sometime around November 10th.

cc: Mr. Kul Gautam/Mr. Manzoor Ahmed

REFLECTIONS ON THE BANGALORE BRAINSTORMING ON COMMUNICATION FOR BEHAVIOUR CHANGE

I would like at the outset to point out that, communication *per se* is not, as the summary of the minutes suggest, "a process of behaviour change". It is a crucial factor in all human affairs, not least in people's efforts to tackle problems collectively. In that process, people may decide on individual, or group, action that may involve some change in their behaviour. But in and of itself, of course, communication alone does not produce changes in behaviour. If it did, the tobacco industry would be out of business by now!

I start from this point in the minutes because it illustrates a certain amount of imprecision in dealing with the connection between communication and "behaviour change" which recurs in different ways in the text. Some of this, I think, needs to be clarified because of its fundamental importance for future action.

In general, a number of concepts seem to have been introduced without any clear differentiation or obvious common basis of understanding among the participants. These include: "social change", "behaviour change", "empowerment", "participation", "sustainable health behaviour", "participatory mobilization and education", "learning", "communication for behavioural change", "planning and action for behavioural change", "communication as behavioural change", a "behavioural change process", "social processes", "social experiments", "social marketing", a "behavioural change model", "grass-roots management", "empowerment at the community level", "key behaviours", "interaction with community groups".

Some of these terms, Ashoke Chatterjee points out, are often misunderstood and misused and while I understand this lack of common understanding is not necessarily surprising in such a brainstorming, I am concerned that it may give rise to a false sense of consensus and a less rigorous analysis than would be desirable as a basis for future action.

Of course, as you know, I applaud the clear differentiation that was made between communication as products and messages compared with communication for the "behavioural" impact with which the brainstorming was mainly concerned.

I fear, however, that the general thrust of the discussion was towards the top-down "behavioural change model", with its emphasis on planning and action towards "behavioural change" objectives at several levels. There is even mention of empowerment objectives (if this elusive concept can indeed be reduced to measurable elements).

I apologise if my impression is incorrect; it is not easy to follow the course of debate when the concepts are, as I say, somewhat fluid. However, it does seem to me we are still talking about using communication to help change the way people act in accordance with

our perception of the problem and whatever we think people need to do about that problem.

Stimulus from above, impetus from below

This to me is still a "top-down" approach because researching people's knowledge, attitudes and behaviours and practising two-way communication in pursuit of providing this help does not change the fact that we are still arrogating to ourselves the right to say what is important to them. However defensible this may seem from a scientific/epidemiological point of view, it denies a fundamental premise of adult learning -- which is that people must proceed from their own understanding of what is important. Indeed, all evidence suggests that only when people do proceed from their own basis of understanding does real learning, and hence the basis for sustained action, take place.

This principle is also central to real participation, and empowerment, and our own strategies must recognise this or we will undermine the possibility of sustained results.

We should not assume that participation is a mere refinement of technique, simply a more sophisticated way of achieving our objectives. Participation to me represents a fundamentally different approach by which we must learn to start from people's own priorities and basis of experience.

This is not to say that we cannot help -- indeed systematically support -- people in a process which will arrive at the kind of results in which we are interested. Of course the overall health, education and social goals we espouse provide a framework of objectives which subsume many aspirations of those we would most like to help.

Stimulus can, indeed should, come from authorities and institutions responsible for the broader perspective. The impetus for change, however, derives its real power from commitment at the implementation level.

People, must proceed towards the overall objectives by their own decisions and actions and at their own pace -- with whatever help other societal forces and institutions, as well as interested outside organizations like UNICEF, can provide.

Participatory Communication...

Indeed, within this last-mentioned role, there is a great deal of scope for UNICEF advocacy and other supportive action. A great deal more attention however needs to be paid to how participation is made real and to how adults learn -- and thus to the forms of communication which facilitate and promote these processes. In participatory processes, the communicator, like the Freirean teacher, joins a dialogic process on the basis of equality with, and respect for, the other participants. Participation-oriented communication is

equally important for work with allies and partners at all levels of the process, as they are for our own management ... indeed for all management which emphasizes collaborative working and team approaches.

The fact that participatory communication is practised on the group and interpersonal scale (in contrast to "mediated" communication which uses the mass media or other significant channels) does not in the slightest diminish its central importance.[1]

Rather should recognition of the power of, and necessity for, participatory approaches to communication lead us to rational and systematic ways of supporting and promoting the much-needed reform of educational and training processes (to become learning ones!), along with other capacity-building in this area.

...And mediated

There is still plenty of communication work to be done via the mass media -- work which builds on its comparative advantage in reaching large numbers of people --- in stimulating discussion of new ideas, and conveying of timely information, for instance. The mass media -- acting as a mirror to the society -- has a long-term influence on the attitudinal environment, which influence indeed ultimately may facilitate social change.

How this last-mentioned interaction works, however, and at what pace, depends very much on change, or lack thereof, in other economic, political or cultural factors and is not to be confused with the process by which individuals decide to change specific behaviours. As already suggested, of course, mediated communication and larger social change can be complementary, as I believe they have been over the past two or three decades in family planning.

Nevertheless, as we run out of problems like epidemic diseases which perhaps lend themselves more to centrally-coordinated intervention and as we begin to confront more complex, even inter-generational, problems rooted in traditional cultures and long-standing power relationships, we will need increasingly to rely on processes which engage all involved, notably those suffering the most, in the development of solutions. That is to say participation and learning ... participation and learning moreover, which takes place around - and results in - problem-solving (analogous to what in some medical faculties is called problem-based learning). The skills needed to facilitate these participatory learning and problem-solving processes are essentially communication skills.

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[1]Although the lure of scale - and the implied distance from the subjects of our communication - does perhaps explain why international development cooperation gravitated so readily to mass and other mediated approaches and why we have so long persisted in trying to make broadscale communication do things for which it is manifestly inappropriate.

It is axiomatic that one cannot preach participation and not practise it. Hence the "learning package" currently under development in Programme Communication/Social Mobilization strives to manifest, or "model", the values and principles which inform it. The same needs to be done for all "training" we undertake or support, be it for water engineers, policy makers, or pump attendants.

People need to experience participation to internalise the centrality of its importance. So far, by the way, many more community developers, change agents, NGO workers and new literates (especially in Latin America) have had that experience than have we international civil servants -- although Lyra Srinivasan and PROWWESS provided a reasonable model. I think it about time the rest of us caught up.

The individual, the mass and "behavioural change"

I have perhaps not said enough about the interaction of mass media (with its acknowledged influence on the attitudinal environment) and the more intimate processes of personal decision-making and "behavioural change".

It is obvious that individuals in their personal decision-making, and in their contributions to the decisions made by peer groups, families, neighbourhoods and larger social groupings, contribute -- in a dynamic, often unpredictable way -- to overall attitudinal and behavioural change, which is to say social change.

Behaviourists, above all the social marketeers, feel we can reduce this unpredictability in the case of specific behaviours (improved weaning practices, handwashing, use of ORT, condoms, etc.) by researching consumer preferences, underlying reservations, and intervening attitudes -- and by using communication to "position" the "product" (the technology) according to that research, paying due attention to other concepts of marketing, or for that matter development commonsense, such as availability (service delivery) and pricing (financing) in the process.

There are innumerable examples of how - in the short term - this approach has met the behaviourists' objectives by increasing family planning acceptors, condom or ORS usage and other consumer actions. This approach, however, shares the same difficulty as do others which come from outside the personal decision-making process: the results tend not to be sustainable. Indeed, Robert Hornik, one of the most respected evaluators of mass and other mediated communication interventions knows of no such effect which has been sustained without continuing, year in - year out promotion (along the lines of maintenance advertising).

According to Everett Rogers' classic "diffusion of innovation" theory, populations distribute normally across a spectrum -- ranging from the most ready to respond to new ideas to those most resistant. Unfortunately, those who most need to grapple with new

ideas, probably are not among the "early adopter"/"early majority" groups. The most needy probably cluster in what Rogers calls the "late majority" and "resistor" groups.

Lyra Srinivasan, on the other hand, looks at the challenge from the perspective of the individual. She identifies seven stages in the progress from denial of a problem to willingness to act -- the initial four stages of which progression are not susceptible to mediated communication. Individuals in these four stages of psychological unreadiness need to progress through them on the basis of direct and personal learning processes for which the only relevant mode of communication is participatory.

Combining these two frameworks of analysis, one can see that each of Rogers' different categories can be disaggregated into those who are more and less likely to be open to innovation, in effect opinion leaders and followers, who also can be helped to progress at their varying speeds through Srinivasan's seven stages. So that we need not condemn the "late majority" and "resistors" (who are likely to be our first priority) to trailing along in the wake of broader societal changes; "leadership" can be found also within their ranks and successfully initiated, through participatory decision-making/action processes around the problem as it is perceived by these groups. India has provided significant examples of this effect, notably in Rajahstan -- and, I venture to say, in Ashoke Chatterjee's work for the water "mission".

In any case, as is shown by Hornik's longitudinal research on the broadscale mediated communication approach to behaviour change, even the gains posted by these interventions dwindle to insignificance a year or so after cessation. So not even most of those who took up the behaviour persisted with it.

Why not? Probably because they did not own it. It was not their idea, or necessarily their priority, in the first place. Or, and perhaps in addition, the seeming advantages of the new behaviour - not having been chosen (or even examined) in any thoroughgoing process of reflection and discussion -- proves susceptible to unfavourable comparison with the comfortable familiarity of the old ways and is therefore discarded. We all have experience of taking up behaviours on a relatively casual basis and dropping them just as casually for a variety of reasons after a while. There are various reinforcing or countervailing factors impinging on sustainability, just as there are on acceptance.

The most solid basis for all the changes we would like to see taking place remains the freely-taken decision of the individual, based on relevant information which provides a rational basis for action, usually in some kind of discussion with those closest and/or most trusted in their competence. We all have our own experience of this, too.

Looking for the handle

I have spent time on individual decision-making processes because that is the basis of all change but of course neither UNICEF nor any other instrumentality can intervene

This is where the problem orientation proves most useful. Community groups, peer groups, affinity groups -- peasants, parliamentarians or plumbers -- all can and do come together around their own problems. And that dialogue/reflection process, wherein the same dynamic is at work as in effective adult learning, provides the opportunity for relevant information to be introduced. In Tanzania, extension workers and sub-district government personnel are trained as *animateurs* to be able to facilitate such sessions with community groups; in turn they pass on skills to volunteers within communities. In Sierra Leone, a cadre of trained *animateurs* found such volunteers emerging spontaneously in many communities, freeing the trained personnel for work elsewhere.

So, putting the elements together: adults learn when their life-knowledge and experience is recognised and valued and their individuality is respected, when they are considering what they and their peers see as a relevant issue or problem which they want to do something about -- and when they learn from the experience of carrying out their own solutions, seeing the results and improving on those solutions. These dynamics are more common in small groups which share the bond of a common problem -- and the common context in which that problem occurs. The participants may be mothers or civil servants but whatever their dissimilarities they experience the same identification and bonding with the group articulated by sociologist Kurt Lewin 60 years ago.

These Lewinian principles, together with contributions from the disciplines of psychology (notably community psychology) and anthropology, as well as sociology, have laid the basis over the past fifty years for what is known as applied behavioural science.

The difference between applied behavioural science and behavioural change communication is that the former works with the processes by which action is taken whereas the latter is concerned to ensure rather specific, and pre-selected, behavioural outcomes.

In that pre-selection lies the fatal hubris. Most patterns of action, or behaviours, are rooted not only in values but in what psychologist Howard Goldstein calls our personal cognitions which shape attitudes in ways even the individual himself may never have examined, and frequently exercises quite unconsciously. Attitudes and behaviours may be inherited from what we know as culture but are mediated by life experience, which either reinforces or challenges the influence of traditional belief. In contradistinction to knowledge arrived at by scientific process, this is "social knowledge".

The Knowledge Path to Action

We inheritors of Cartesian rationalism have been conditioned by our emphasis on scientific method to discount, perhaps even disparage, "social knowledge" in determining

solutions, particularly where the problems belong to people who possess little if any of our "scientific knowledge".[2]

Hence our prescribing of solutions and consequent pre-selection of desired behavioural outcomes.

Yet the complex origins of social knowledge mean that sustainable patterns of action are unlikely to be achieved without a conscious adjustment of those above-mentioned personal cognitions, (which reflect, depend upon and interact with other changes in the attitudinal and "enabling" environment such as may be provided by effective leadership or even timely direction from some crucial individual or entity).

This kind of adjustment in our social knowledge is of course a common feature of human experience (and no doubt becoming more so as the pace of generalised change quickens). However such change takes place most reliably, and therefore predictably, as the result of a more or less deliberate process in which the individual is fully engaged. In other words, when he or she is learning. The result has been called "transformative knowledge" and described as the interaction of social and scientific knowledge.[3]

I say "most reliably" because much transformative change undoubtedly is not the result of a deliberate learning process but of sudden and unplanned insights -- something heard, read or observed -- which fit so perfectly with some other piece or pieces of retained information (which could be termed latent knowledge), that a revelatory glimpse of larger meaning is vouchsafed. This is why I point to the interconnection of the attitudinal environment (and the undoubted influence of the mass media in this area) with personal decision-making. Such change does take place and over time, and in the aggregate may be immensely powerful.

However, this spontaneous transformative change is not predictable except over time and in the aggregate -- as change factors begin to reinforce each other and trends begin to take shape. Unfortunately, the way mass media catalyses the aggregation of main spontaneous individual impulses eventually resulting in a different perspective and new pattern of action is often misconstrued as being deliberate and causal.

I don't think behaviourist communicators actually make that mistake but they profit from it nevertheless by promoting the centrality of "communication" skills, such as message

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[2]I think this is the insight which Cornell's Norman Uphoff came to in his years of exposure to the reorganization of an irrigation system in Sri Lanka, detailed in "Learning from Gal Oya".

[3]"Training for Transformation", Anne Hope and Sally Timmel, Mambo Press.

design, and targeting, and audience segmentation -- not to mention the "scientific"[4] processes of social research -- at the expense of the personal and interpersonal individual and group learning processes which are at the heart of all change.

The basic paradigm governing behaviourist communicators' work remains withal the same old one: development solutions are still to be prescribed by scientific knowledge, the province of the (outside) experts rather than of any dynamic interaction with those whose problem it is.

I for my part do not believe extrinsic factors can reliably (that word again!) effect sustained and predictable human behavioural change of any real significance or magnitude. Effective communication may reinforce and extend it -- as I have already said I believe has happened in many places with the adoption of family planning -- but that is leaning on an opening door. Where the door is wedged shut by resistance which is largely informed by, or based on, social knowledge, the large-scale transmission of "our" scientific knowledge is not the way to loosen those wedges ... that requires the power of the **transformative** knowledge generated by a genuine learning process, in which those concerned with the problem participate in -- and control -- the development of their own solution.

I share the conviction that this participatory and learning approach constitutes a fresh paradigm for development which we must understand and, most importantly, come to terms with. Otherwise the development cooperation business risks becoming increasingly irrelevant, if not actually counterproductive.

Anthony J. Hewett

[4] I put the word scientific in quotation marks to emphasise the essentially top-down character of such research, not to impugn the seriousness of the discipline. In the nutrition workshop on the "behavioural change" theme in early March some of the most expert practitioners of behaviorist communication showed how sophisticated the skills of social research in these areas have become.

END

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This to me is still a "top-down" approach because researching people's knowledge, attitudes and behaviours and practising two-way communication in pursuit of providing this help does not change the fact that we are still arrogating to ourselves the right to say what is important to them. However defensible this may seem from a scientific/epidemiological point of view, it denies a fundamental premise of adult learning -- which is that people must proceed from their own understanding of what is important. Indeed, all evidence suggests that only when people do proceed from their own basis of understanding does real learning, and hence the basis for sustained action, take place.

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It is obvious that individuals in their personal decision-making, and in their contributions to the decisions made by peer groups, families, neighbourhoods and larger social groupings, contribute -- in a dynamic, often unpredictable way -- to overall attitudinal and behavioural change, which is to say social change.

Behaviourists, above all the social marketeers, feel we can reduce this unpredictability in the case of specific behaviours (improved weaning practices, handwashing, use of ORT, condoms, etc.) by researching consumer preferences, underlying reservations, and intervening attitudes -- and by using communication to "position" the "product" (the technology) according to that research, paying due attention to other concepts of marketing, or for that matter development commonsense, such as availability (service delivery) and pricing (financing) in the process.

There are innumerable examples of how - in the short term - this approach has met the behaviourists' objectives by increasing family planning acceptors, condom or ORS usage and other consumer actions. This approach, however, shares the same difficulty as do others which come from outside the personal decision-making process: the results tend not to be sustainable. Indeed, Robert Hornik, one of the most respected evaluators of mass and other mediated communication interventions knows of no such effect which has been sustained without continuing, year in - year out promotion (along the lines of maintenance advertising).

According to Everett Rogers' classic "diffusion of innovation" theory, populations distribute normally across a spectrum -- ranging from the most ready to respond to new ideas to those most resistant. Unfortunately, those who most need to grapple with new

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ideas, probably are not among the "early adopter"/"early majority" groups. The most needy probably cluster in what Rogers calls the "late majority" and "resistor" groups.

Lyra Srinivasan, on the other hand, looks at the challenge from the perspective of the individual. She identifies seven stages in the progress from denial of a problem to willingness to act -- the initial four stages of which progression are not susceptible to mediated communication. Individuals in these four stages of psychological unreadiness need to progress through them on the basis of direct and personal learning processes for which the only relevant mode of communication is participatory.

Combining these two frameworks of analysis, one can see that each of Rogers' different categories can be disaggregated into those who are more and less likely to be open to innovation, in effect opinion leaders and followers, who also can be helped to progress at their varying speeds through Srinivasan's seven stages. So that we need not condemn the "late majority" and "resistors" (who are likely to be our first priority) to trailing along in the wake of broader societal changes; "leadership" can be found also within their ranks and successfully initiated, through participatory decision-making/action processes around the problem as it is perceived by these groups. India has provided significant examples of this effect, notably in Rajahstan -- and, I venture to say, in Ashoke Chatterjee's work for the water "mission".

In any case, as is shown by Hornik's longitudinal research on the broadscale mediated communication approach to behaviour change, even the gains posted by these interventions dwindle to insignificance a year or so after cessation. So not even most of those who took up the behaviour persisted with it.

Why not? Probably because they did not own it. It was not their idea, or necessarily their priority, in the first place. Or, and perhaps in addition, the seeming advantages of the new behaviour - not having been chosen (or even examined) in any thoroughgoing process of reflection and discussion -- proves susceptible to unfavourable comparison with the comfortable familiarity of the old ways and is therefore discarded. We all have experience of taking up behaviours on a relatively casual basis and dropping them just as casually for a variety of reasons after a while. There are various reinforcing or countervailing factors impinging on sustainability, just as there are on acceptance.

The most solid basis for all the changes we would like to see taking place remains the freely-taken decision of the individual, based on relevant information which provides a rational basis for action, usually in some kind of discussion with those closest and/or most trusted in their competence. We all have our own experience of this, too.

Looking for the handle

I have spent time on individual decision-making processes because that is the basis of all change but of course neither UNICEF nor any other instrumentality can intervene

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This is where the problem orientation proves most useful. Community groups, peer groups, affinity groups -- peasants, parliamentarians or plumbers -- all can and do come together around their own problems. And that dialogue/reflection process, wherein the same dynamic is at work as in effective adult learning, provides the opportunity for relevant information to be introduced. In Tanzania, extension workers and sub-district government personnel are trained as *animateurs* to be able to facilitate such sessions with community groups; in turn they pass on skills to volunteers within communities. In Sierra Leone, a cadre of trained *animateurs* found such volunteers emerging spontaneously in many communities, freeing the trained personnel for work elsewhere.

So, putting the elements together: adults learn when their life-knowledge and experience is recognised and valued and their individuality is respected, when they are considering what they and their peers see as a relevant issue or problem which they want to do something about -- and when they learn from the experience of carrying out their own solutions, seeing the results and improving on those solutions. These dynamics are more common in small groups which share the bond of a common problem -- and the common context in which that problem occurs. The participants may be mothers or civil servants but whatever their dissimilarities they experience the same identification and bonding with the group articulated by sociologist Kurt Lewin 60 years ago.

These Lewinian principles, together with contributions from the disciplines of psychology (notably community psychology) and anthropology, as well as sociology, have laid the basis over the past fifty years for what is known as applied behavioural science.

The difference between applied behavioural science and behavioural change communication is that the former works with the processes by which action is taken whereas the latter is concerned to ensure rather specific, and **pre-selected**, behavioural outcomes.

In that **pre-selection** lies the fatal hubris. Most patterns of action, or behaviours, are rooted not only in values but in what psychologist Howard Goldstein calls our personal cognitions which shape attitudes in ways even the individual himself may never have examined, and frequently exercises quite unconsciously. Attitudes and behaviours may be inherited from what we know as culture but are mediated by life experience, which either reinforces or challenges the influence of traditional belief. In contradistinction to knowledge arrived at by scientific process, this is "social knowledge".

The Knowledge Path to Action

We inheritors of Cartesian rationalism have been conditioned by our emphasis on scientific method to discount, perhaps even disparage, "social knowledge" in determining

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solutions, particularly where the problems belong to people who possess little if any of our "scientific knowledge".[2]

Hence our prescribing of solutions and consequent pre-selection of desired behavioural outcomes.

Yet the complex origins of social knowledge mean that sustainable patterns of action are unlikely to be achieved without a conscious adjustment of those above-mentioned personal cognitions, (which reflect, depend upon and interact with other changes in the attitudinal and "enabling" environment such as may be provided by effective leadership or even timely direction from some crucial individual or entity).

This kind of adjustment in our social knowledge is of course a common feature of human experience (and no doubt becoming more so as the pace of generalised change quickens). However such change takes place most reliably, and therefore predictably, as the result of a more or less deliberate process in which the individual is fully engaged. In other words, when he or she is learning. The result has been called "transformative knowledge" and described as the interaction of social and scientific knowledge.[3]

I say "most reliably" because much transformative change undoubtedly is not the result of a deliberate learning process but of sudden and unplanned insights -- something heard, read or observed -- which fit so perfectly with some other piece or pieces of retained information (which could be termed latent knowledge), that a revelatory glimpse of larger meaning is vouchsafed. This is why I point to the interconnection of the attitudinal environment (and the undoubted influence of the mass media in this area) with personal decision-making. Such change does take place and over time, and in the aggregate may be immensely powerful.

However, this spontaneous transformative change is not predictable except over time and in the aggregate -- as change factors begin to reinforce each other and trends begin to take shape. Unfortunately, the way mass media catalyses the aggregation of main spontaneous individual impulses eventually resulting in a different perspective and new pattern of action is often misconstrued as being deliberate and causal.

I don't think behaviourist communicators actually make that mistake but they profit from it nevertheless by promoting the centrality of "communication" skills, such as message

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[2] I think this is the insight which Cornell's Norman Uphoff came to in his years of exposure to the reorganization of an irrigation system in Sri Lanka, detailed in "Learning from Gal Oya".

[3] "Training for Transformation", Anne Hope and Sally Timmel, Mambo Press.

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END

esign, and targeting, and audience segmentation -- not to mention the "scientific"[4] rocesses of social research -- at the expense of the personal and interpersonal individual nd group learning processes which are at the heart of all change.

The basic paradigm governing behaviourist communicators' work remains withal the ame old one: development solutions are still to be prescribed by scientific knowledge, the rovince of the (outside) experts rather than of any dynamic interaction with those whose roblem it is.

I for my part do not believe extrinsic factors can reliably (that word again!) effect ustained and predictable human behavioural change of any real significance or magnitude. Effective communication may reinforce and extend it -- as I have already said I believe has happened in many places with the adoption of family planning -- but that is leaning on an opening door. Where the door is wedged shut by resistance which is largely informed by, or based on, social knowledge, the large-scale transmission of "our" scientific knowledge s not the way to loosen those wedges ... that requires the power of the **transformative** knowledge generated by a genuine learning process, in which those concerned with the problem participate in -- and control -- the development of their own solution.

I share the conviction that this participatory and learning approach constitutes a fresh paradigm for development which we must understand and, most importantly, come to terms with. Otherwise the development cooperation business risks becoming increasingly irrelevant, if not actually counterproductive.

Anthony J. Hewett

[4] I put the word scientific in quotation marks to emphasise the essentially top-down character of such research, not to impugn the seriousness of the discipline. In the nutrition workshop on the "behavioural change" theme in early March some of the most expert practitioners of behaviorist communication showed how sophisticated the skills of social research in these areas have become.

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INTEGRATED RURAL WATER SUPPLY AND ENVIRONMENTAL SANITATION PROJECT: TRAINING PROGRAMME

GOVERNMENT OF KARNATAKA

AN APPROACH PAPER

PRESENTATION

VENUE: PHE OFFICE, BANGALORE
DATE: MAY 6, 1993
TIME: 11 AM

SRI JAYACHAMARAJENDRA COLLEGE OF ENGINEERING, MYSORE

I. PREAMBLE

Welcome to the presentation. The Integrated Rural Water Supply and Environmental Sanitation project in Karnataka is funded from the World Bank's soft loan window, the International Development Association. The project covers 12 districts in Karnataka, bringing water and sanitation facilities to about 4.8 million people in 1200 villages. The project will be implemented by the department of Rural Development, Government of Karnataka. The estimated completion date is the year 2000. The objective of the project is to:

> raise the standard of living in rural areas through improved health and productivity by expanding access to potable rural water supply systems and environmental sanitation facilities.

To achieve success in this project, three major problems will have to be tackled.

- bridging the conceptual gap between people and planners;
- emphasising on continued functioning and utilization of facilities;
- effective back up support to communities, particularly after the completion of the project.

Efficient implementation and operation and maintenance of the facilities created through this project in Villages can be achieved only with the help, support and commitment of different categories of people. Therefore, training of human resources of all categories is the heart of the total massive effort of this project in order to achieve the objective of ensuring a better quality of life in the villages. The essential feature in the document titled "Training Needs Assessment" has been "Concept of Participation". The intention of this presentation is to convey:

- How do we convert the objectives mentioned in the training document into a viable curriculum?
- How such a curriculum will be converted into course materials? What are the checks and balances?
- What is our strategy for implementation of training programmes?
- How do we monitor and evaluate the total training programme? What are the methods to apply corrective measures?
- What is the organizational structure we are proposing to have?
- Logic of our price offer;
- Proposed payment schedule;
- Our strengths and track record;
- Current status of the project;
- Conclusions.

II. CONVERSION OF OBJECTIVES INTO CURRICULUM

The objectives mentioned under each of the training programmes will have to be broadened into a curriculum. While writing a curriculum, one has to see that not only all objectives are covered but also see how they can be covered within the duration envisaged. Curriculum design is a team effort and the team has to have curriculum design experts and subject experts. Such a team has been identified and with their efforts curriculum design has been completed for all 16 courses. The curriculum is prepared in the format:

- Title of the course
- Target Group
- Objective
- Duration
- Curriculum [ANNEXURE - 1]

The Curriculum thus prepared will be sent to Public Health Engineering Department for their comments.
Feed back will also be obtained from the programmes in Pilot Villages.

III. CONVERSION OF CURRICULUM INTO COURSE MATERIAL

It is now the work of another group of experts to write descriptive material in simple language with illustrations. The expert has to cover the curriculum so that the course could be offered within the duration designed for that course. The expert will also have to identify the audio visual aids to be used while organizing the course. He will prepare the required transparencies.

A course material prepared thus will be sent to an expert reviewer and Public Health Engineering Department for their comments. He is expected to see :

- Whether the objectives have been covered;
- Would he like any more information to be added;
- Comments and suggestions on audio-visual material.

The feedback will be made available to the original author/s to make suitable modifications.
We have identified the expert authors as well as expert reviewers. [ANNEXURE - 2].

IV. STRATEGY FOR IMPLEMENTATION OF TRAINING PROGRAMMES

IV.1 Programmes

We have planned a programme for the first year. We intend carrying out :

A. Course Material Preparation
   a. 16 Course Materials

b. 7 Course Materials for Training the Trainers Programme.

c. 9 Handout Materials for Pilot Villages.

B. Organization of training

a. All the 16 Courses will be conducted [Details like number of programmes and number of people covered is shown in ANNEXURE - 3].

b. 3 Training the Trainers Programmes.

c. 9 Courses in 11 Pilot Villages.

C. Production of Course Materials as per need.

We have worked out an organizational structure to carry out this gigantic task. [ANNEXURE - 4].

IV.2 Training Advisory Committee

The Training Advisory Committee has the following members:

1. Director General, Administrative Training Institute, Mysore.
2. Secretary, Rural Development and Panchayat Raj.
3. Director, Health and Family Welfare Services.
4. Director, Women and Children Welfare.
5. Engineer-in-Chief, Public Health Engineering Department.
6. Director, Indian Society for Technical Education
7. Director, Health Section, Government Medical College, Mysore
8. One representative of DANIDA.
9. Two representatives of NGO
10. Director, Training Cell, SJCE.

The functions of the Advisory Committee are :

- Setting norms and overseeing selection of participants
- Advising the cell on scheduling of programmes
- Advising in the organisation of training programmes
- Looking into feedback and suggest to the cell corrective measures.

IV.3 Training Cell

The Cell is the executive authority to carry out training programmes. The cell has wide range of tasks including planning, organising, controlling and monitoring the training programmes. The cell will have to create an effective learning environment. They will have to take action during

- Pre-course activities;
- course activities;
- Post course activities.

The training cell will be responsible for overall Administration, Management and Accounting, Scheduling the courses, ensuring proper communication with the Government, PHED, Nodal institutions, NGO's and the participants. The head quarters of the cell will be at Mysore.

We have worked out an organisational structure for the cell. The cell will be headed by a Director. The Director has to be a very competent person with an excellent track record. Such persons have to be paid high salary and as per international standards. We have identified such a person to head the cell.

Most of the other personnel for the cell has also been identified.

IV.4 Infrastructure for the Cell

A group of experts met recently and went into the total activity of the Training Cell. They have identified the required infrastructure for the Cell. The experts suggestions are enclosed. [ANNEXURE - 5].

IV.5 Nodal Institutions

The total activity will be organised with a network of institutions spread in the 10 districts. We have identified 10 Engineering Colleges, 10 District Training Institutions, 10 District Health Offices, ATI and SJCE for carrying out training programmes. We have started dialogue with them. After finding out the infrastructure they have, we will work out the funds to be provided to each institution for augmenting their facilities.

IV.6 Approach and Methodology

Our objective is to ensure:

- that awareness of the project is created in the user group;
- to train the personnel who will implement the project;
- to train people for operation and maintenance of the facilities created;

To achieve these objectives we are:

- Setting up a training Cell to control the entire training programme;
- Identifying panel of experts, authors, reviewers, nodal institutions, Non-government voluntary organisations that can play an important role in the project;
- Finalising the courses to be conducted, their curriculum and actual course material. Review the course material through experts and PHE.
- Conducting training courses for the Pilot Villages. Monitor the programme and incorporate the feedback of monitoring group and the participants;
- Finalising schedule of courses for other Villages;
- Conducting the training programme with the Support of the Nodal Institutions. Get the feedback of the participants and incorporate the same;

- Arranging the monitoring of Training Programmes closely by a team of experts, who will suggest suitably regarding the methodology of Training, Selection of participants, course contents, etc..
- Keeping track of the physical and financial progress of the project.

IV.7 Conceptual Phases of the Project

We visualise the following sequence of activities :

1. Preparation phase
   - set up Training Cell, identify experts and Nodal Offices.
2. Planning phase
   - Identify the courses, their contents, prepare course material and prepare a preliminary schedule of courses.
3. Training for Pilot Villages
   - Identify experts to monitor the programme, execute the training programme, conduct post course study.
4. Pre-execution phase
   - Finalise courses schedules and inform the participants, institutions and other organisations about the courses.
5. Execution phase
   - Conduct the courses. Get the feedback from course participants, Monitor physical and financial progress, Monitor Quality of Training. [ANNEXURE - 6].

IV.8 Pilot villages - Training Programmes

This programme will be carried out at 11 villages on a priority basis. This is a 'dry run'. Nine courses will be organised in the Pilot Villages

1. Awareness of the Integrated Water Supply and Sanitation Project.
2. Village Water Supply Committee [WS & Sanitation] - Training to members.
3. Orientation of Primary School Teachers [WS & Sanitation]
4. Training in Construction Methods.
5. Training in Skill - Training of Masons
6. Training in Skills - Pipe layers and labour.
7. Composite Mechanics.
8. Training of valvemen and helpers.
9. Caretaker Programme - WS & Sanitation.

We have worked out a programme schedule for organising these programmes [ANNEXURE - 7]. We have prepared handouts for these nine programmes. Four

courses (1, 2, 3 & 9) will be organised in the villages with the help of four member team. The team would have :

- Team Leader
- Environmental Engineer
- Social Scientist
- An Audio-Visual expert

The team will be giving instructions in Kannada. However, the spoken Kannada Language is very different in different parts of Karnataka. We are going to incorporate the best spoken language to be used in different parts of Karnataka.

Remaining five courses will be organised at SJCE.

We will look into the total feedback and use this knowledge while organising courses in other villages of the project.

V. MONITORING AND EVALUATION

A managerial process has to be applied in order to formulate and implement the strategy for reaching the goals of this project. We have to see that the resources obtained are utilised effectively and efficiently in the accomplishment of the objectives of the project. To achieve this purpose we propose to have a strong monitoring group:

- to establish standards of performance;
- measuring actual performance;
- comparing actual performance with the established standard and identify deviations;
- identifying causes of deviations;
- implementing corrective actions;

Programme monitoring is a continuous process of observing, recording and reporting on the activities of the organisation/ programme/project. Monitoring is the on line follow up of activities during their implementation to ensure that the programme is proceeding as planned and are on schedule. It keeps track of ongoing activities, milestones achieved, supply of equipment, and other related aspects of Training Programme and makes an independent assessment of the Training Programme. We think that there is an inherent need of the monitoring and the impact evaluation is essential for this elaborate consultancy programme.

Monitoring and evaluation is an expert job. We have identified two experts for this work very carefully. They are amongst the best in the country.

V.1 Computer Support

The magnitude and the complexity of the project calls for a well organised, event tracking monitoring system. The monitoring professionals identified by us need the assistance of computers and computer experts to handle such an extensive job. It is, therefore, proposed to develop a software with the help of monitoring experts and computer experts.

The objective of the software will be :

- To Monitor the identification of institutions to conduct courses and their progress;
- To monitor the preparation of course materials;
- To monitor the schedule of courses at various institutions and at various villages;
- To monitor the correspondence between the training cell, Institutions, Participants, NGO's, etc.;
- To monitor the feedback of expert and participants on various courses;
- To keep track of budget and expenses under various heads;
- To generate reports against exceptional cases.
- To generate a variety of Management Information System reports on topics like course schedules, course material preparation, budget and expenses, physical and financial progress;
- To support fast and efficient queries on issues like course schedules, delays, physical and financial progress, etc..;
- To provide facilities to limit the user's access to modules through password's.

VI. LOGIC OF OUR PRICE OFFER

VI.1. Training Cell

We have worked out each component of expenditure for establishment of the cell.

VI.1.A. Director :This is a key post and a very competent person has been identified.

VI.1.B. Consultants : We have identified 14 Consultants. Each one of them has specialisation in key area. Broadly the consultants expertise is in the areas of:

> Educational Technology, Environmental Engineering, Social Science, Computers, Audio-visual aid development, Skill development, Management, Financial management, Health and Social Services, Organization development.

VI.1.C. Office Equipment : We have identified the infrastructure needed for the Cell. The costs have been worked out as per the prevailing prices. [ANNEXURE - 5]

VI.1.D. Vehicles : Two transport vehicles will be purchased - One tempo traveller (diesel driven). This is basically for outdoor work. The seating will be designed in such a way that meetings can be held while traveling.

One petrol Ambassador for Office use.

VI.1.E. Support Staff : The support staff consist of Project assistant, Accounts officer, Administrative assistant, Stenographer, Programmer, DTP Operators, Attenders, Drivers.

VI.1.F. Contingency : We have made a very small provision for unforeseen expenses:

VI.1.G. Price Offer Details: [in Rupees]

Director & Technical Assistant - their Salary	Rs. 3,60,000-00
Consultants fees	Rs. 3,60,000-00
Office Equipment	Rs.11,70,000-00
Vehicles	Rs. 6,00,000-00
Support staff	Rs. 3,10,000-00
Travel - Director & his Staff	Rs. 1,00,000-00
Office Expenses : Consumables, Stationary, Telephone Telex, Fax, Electricity bills, Petrol and diesel, vehicle maintenance, and Computerisation	Rs. 5,50,000-00
Consultants travel	Rs. 2,00,000-00
Training Advisory Committee	Rs. 1,00,000-00
Contingency	Rs. 26,000-00
Total	Rs.37,76,000-00

VI.2 Production of Course materials

According to training document, there are in all 22 course materials to be prepared. The document also specified which programs are preferably to be offered in the beginning of project, during the middle of the project and some later at the tail end of the project. Majority of the courses are to be offered in the beginning of the project. We therefore went through in detail and considered that 16 courses will have to be offered during the first year. We have planned that all orientation and awareness programs will be offered in the first year. The skill training programmes can be taken-up in the beginning of second year.

The total cost of preparation of course material with Production has been worked out.

Our Price Offer is : Rs. 5,79,600-00.

VI.3 Running of short-term training programs

We looked in great detail the training document. In general the expenditure for running short-term programs is on the 4 items:

TA & DA to resource persons

TA & DA to participants

Honorarium to resource persons

Contingency

There has been a steep increase in travel fares both by road and railways. The daily allowance needed to provide a reasonably comfortable stay and food has also seen a steep increase. The honorarium demanded by resource persons has also gone up.

In addition, we believe in properly monitoring and evaluating the program. In this process, it may be necessary for us to retrain in some instances, provide additional inputs, etc. This is expected because the learners to this programme are going to be from varied background.

There are also a number of hamlets in this project. Our initial discussion showed that several hamlets are big and they may need independent programs.

We have, therefore, provided for marginal increase in the cost of organising the courses due to these factors .

Our Price Offer is: Rs 65,50,400-00

VI.4 Training the trainers programmes

There are seven training the trainers program as envisaged in the training need document. We will be preparing the course material for all the seven.

Our expert group stressed the impact of the Training the Trainers programmes to bring uniformity in training in all 10 districts. They have suggested that in addition to the seven mentioned in the document, it will be necessary to organise training the trainers programs in other areas also. The additional programs identified are:

1. Awareness of the Integrated Water Supply and Sanitation Project.
2. Village Water Supply Committee (WS and Sanitation)
   Village Water Supply Committee (Health and Hygiene).
3. Orientation of Primary School Teachers - WS and Sanitation.
   Orientation of Primary School Teachers - Health & Hygiene.
4. Training of project facilitators (Health & Hygiene)
   Training of project facilitators (WS & Sanitation).

We propose to prepare these course materials, and organise additional Training the Trainers programmes, on our initiative.

In addition, our experts have suggested the following.

> In the case of Awareness to Villagers, there should be a number of teams distributed in the 10 districts. The two teams identified for carrying out this programme in the Pilot Villages should train these teams in carrying out the task.
>
> We have accepted this suggestion.

Our Price Offer is :	Preparation and production of Course Materials	Rs. 70,000-00
	Organising Programmes	Rs. 75,000-00
	Total	Rs.1,45,000-00

VI.5 Strategy for the preparation of course materials:

The course material after preparation by experts and reviewed by experts of National importance will be stored in floppies. Reproduction of the course material as needed for organising the first year programs will be carried out. The feed back from participants and the monitoring group will be incorporated and the floppies would be corrected. The floppies can be used for production of course material in the second year onwards.

VI.6 Long term courses:

We will discuss with the PHED and identify 10 professionals from the department for three months program within the Country. We have at present identified institutions within the Country which are offering advanced programs in Environmental Engineering.

We will initiate the process of selecting professionals to P.G. Programmes within the country.

Our Price Offer is : Rs 5,00,000-00

VI.7 Monitoring the programme;

We are of the view that there is an inherent need of monitoring and the impact evaluation of the training programme. We have, therefore, suggested a very strong group of experts to carry out this task.

Our Price Offer is: Rs. 5,10,000-00.

VI.8 Materials and equipment for Training Schools and Training Centres:

There are 31 Centres identified for organising training programs. Since, the Villages are distributed in 10 districts, the net working of institutions is essential. The institutions are well established institutions. However, certain amount of augmentation of resources is necessary. We will work out the financial input to each institution to augment the resources.

Our Price Offer is :Rs. 20,000,00-00.

VI.9 Pilot Villages - Training programs:

There are 9 training programs to be carried out in pilot villages - four of them will be organised in the individual village and the remaining five at S.J.C.E. campus. The cost of organising the program will include: preparation of handouts, duplication of hand outs, organising programs, managing the programs, feed back and improvement of handouts. We are preparing hand outs in this case. The purpose is to modify the handouts as per the feed back and make this information available to the experts while preparing the course materials. We are going to try preparation of material in different colloquial language as used within the state.

Our expert group has made a following suggestion:

> We are organising a 4 week training programme in "Composite Mechanics" for participants from 11 pilot villages. The expert group

has suggested that while doing this programme, invite technicians from 10 nodal centres (Engineering Colleges) to participate in this programme. This will help very much, later, when these institutions are organising 'Composite Mechanics' training programme. We have accepted the expert groups advice.

Our Price Offer is: Rs. 4,20,000-00.

VI.10 Summary

The summary of our price proposal is given in the table.

			Rs. P.
1.		Training Cell at SJCE:	37,76,000-00
2.	a.	Production of Course Materials (Including duplication)	5,79,600-00
	b.	Production of Course Materials - Training the Trainers. (Including duplication)	70,000-00
3.		Materials and Equipments to training Schools and training Centres.	20,00,000-00
4.	a.	Running Short term Training Courses	65,50,400-00
	b.	Organising Programmes - Training the Trainers	75,000-00
5.		Long term Courses	5,00,000-00
6.		Monitoring the Programme	5,10,000-00
7.		Pilot Villages	4,20,000-00
		Total	1,44,81,000-00

VII. PROPOSED PAYMENT SCHEDULE

We have worked out the immediate expenditures that will have to be incurred. They are:

		Rs. in Lakhs.
a.	Infrastructure of the Cell:	11.70
b.	Vehicles:	6.00
c.	Infrastructure to the training centres	20.00
d.	Preparation of Course Material (including Training the Trainers Programmes)	3.00
e.	Training Programme in Pilot Villages	4.20
	Total	44.90

In addition, 3 months expenditure on the following items is needed.

	(Rs. in lakhs)
a. Director's & Technical Assistant's Salary	0.90
b. Consultants fees	0.90
c. Support staff	3.20
d. Production of Course Material	0.80
e. Organising Training Programmes	16.50
f. Monitoring	1.30
Total	23.60

Grand Total Rs. 68.50 Lakhs

This works out to about 50% of our Price Offer.

We would therefore,suggest, payment Schedules as:

Mobilization Advance:	40%
3 months from start	30%
6 months from start	30%
9 months from start	30%
11 months from start	5%
After Completion of assignment	5%

Note: The mobilization advance is to be deducted in 3 equal instalments i.e., at the end of 3 months, 6 months and 9 months.

VIII. SJCE'S STRENGTH AND TRACK RECORD

JSS Mahavidya Peetha has been in operation since 60 years with the objective of imparting Education, Training and dissemination of knowledge through Schools and Colleges. It has setup over 150 Institutions covering the areas of Medical, Paramedical, Pharmacy, Technical (Engineering), Vocational Training etc.

The Directorate of 'Technical Education' has the following Institutions and Activities.

1. SJCE: Technical Education for Graduate and Post Graduate level.
2. Four Polytechnics.
3. Three Industrial Training Institutes.
4. SJCE-STEP: Involves in Entrepreneurship development, Training Programmes, Continuing Education Programmes, Product Development and Information Center.

The following is a Partial List of Training Programme that have been taken up and executed.

- Corporate Planning.

  Updation of Skills and Knowledge for employees.

  (M/s. KPCL Ltd., M/s. Vikrant Tyres Ltd., KPWD)

- Training for specific requirements.

  M/s. BEML .... Electronics for Mechanical and Electrical Engineers.

  Knowledge of Mechanical Engineering for Electronic Engineers.

  M/s. Kirloskar Electric Company Ltd., Training in Fortran-77.

  M/s. Larsen and Toubro Ltd., ... Training on Basic Electronics.

General Programme.

The STEP advertises a variety of programme for industries and industries sponsor persons to each of these programmes of short duration.

SHORT-TERM COURSES

1. Short-Term Courses of three months duration are organised for Public Health Engineers 3 times a year for which Engineers from throughout the Country are selected by CPHEEO.
2. Training in computer courses from basic to advanced sponsored by Department of Electronics both in-house and correspondence- cum-contact programme were organised for academics all over the country.
3. The Department of Water Supply and Sanitation, Govt. of Zambia had deputed their Engineers for a 9 months Short-Term Course in Water Supply Engineering.
4. A variety of courses on water supply, sanitation, water quality testing, environment awareness and practices, are organised under National Drinking Water Mission and International Training Network.
5. The college is the South Zone Centre for National Drinking Water Mission and is one of the 4 centers of the Country under International Training Network.
6. A variety of courses for the academic group are organised in large numbers sponsored by Indian Society for Technical Education and University Grants Commission. 3 to 4 programmes are organised each year. The target group is academic community from all over the Country and programmes are in the advanced technical area. At the same time, the industry people also participate in this.
7. The College organises Seminars and training programmes in the area of Energy, and has sponsorship from Department of Non-Conventional Energy Systems (DNES), UNESCO, periodically.
8. The INTELSAT, Washington D.C., has approached the Institution to run courses in 'Digital Communication'.

9. The Institute of Armament Technology, Pune, has approached the Institution to run two courses on 'Computer Hardware and Maintenance' and 'PC Servicing'.

10. The Mass Employment Generation through Science and Technology (MEGSAT) a programme of Department of Science and Technology have entrusted to us during the last 3 years training at the skill level. We have organised a large number of courses in several areas like Masons, Composite Mechanics, Pump Repairs, etc.. We have also trained the trainers and initiated this training programme in other Engineering Colleges and Polytechnics.

11. We have also organised skill training programme for hand-pump mechanics for maintenance of hand-pumps, a project jointly conducted with Zilla Parishat of each district. This programme is very successful and we recently got it monitored through a independent agency which has commended the positive impact of this programme in first level maintenance of hand-pumps.

12. More recently, the College has undertaken training (as a part of the Consultancy) Senior Engineers, Accounts Officers, Accounts persons and Junior field workers of Upper Krishna Project in computer area. The Engineers from Engineer-in-Chief to the Junior Engineers have undergone hands-on training in the institute.

These are the few examples of variety of short-term programmes, the College has undertaken. On an average, the institution runs more than 70 programmes a year which means that on an average every day a short-term programme is going in the Institution.

RESEARCH AND DEVELOPMENT:

The College has undertaken several research and development activities from basic to advanced technologies.

The College has more recently taken-up several consultancies to various organisations and has now been involving in several major consultancy. To quote a few:

i. UNICEF - Design and development of software for 'Decision Support System' of Rural Water Supply System.

ii. U.K.P - Design, Development and implementation of software on "Management Information and Control System" for Upper Krishna Irrigation Project, Govt. of Karnataka.

iii. Integrated Rural Water Supply and Environmental Sanitation - Phase-1:

- Design of rural water supply system for Rural Water Supply and Environmental Sanitation - Phase 1, under the assistance of World Bank.
- The total training requirement in this project was designed by Indian Society for Technical Education - Continuing Education Project in close co-ordination with SJCE. This project was commended and approved by World Bank during its appraisal meeting and has been approved in total.

IX. CURRENT STATUS OF THE PROJECT

1. Govt. of Karnataka has constituted the Training Advisory Committee.
2. A Training Cell has been established and the personnel has been identified.
3. The infrastructure need of the training cell has been finalised and the process of procuring them is underway.
4. Curriculum design for all courses including training the trainers program is complete.
5. Expert authors to write the course material has been identified.

   Experts to review the course material identified.
6. Handouts for the training programs in pilot villages is under preparation. Four hand out materials are ready. Feed back obtained from PHED, Pilot Villages and Monitoring Experts is being incorporated.
7. Detailed schedule for training programs in 11 pilot villages has been worked out in consultation with Zilla Parishats and communicated to PHED and Om Consultants.
8. Teams for carrying out the following training programmes in pilot villages has been selected. The programmes are:

   Awareness to Villagers

   Training for VWSC members

   Training for School teachers

   Training for Caretakers
9. Training programs have been completed in three pilot villages.
10. A method of selection of participants to skill development programs (masons, pipe layers, composite mechanics, valvemen) is finalised. This method of selection is being used for selection of participants in the pilot villages [ANNEXURE - 8].

X. CONCLUSION

This is a gigantic project covering 1200 villages in Karnataka. This training program concentrates on developing the human element and involving them in this project. We are very happy to have the opportunity to carry-out this task. We will work on this project in close collaboration with Department of Rural Development, Govt. of Karnataka; PHED, OM Consultants, Zilla Parishats and NGO Organisations. This is a difficult project and we need support and help form all. Recently, World Bank appreciated that the housing projects undertaken in Tamil Nadu are a model to this Country. We hope, with the help of everyone, that it will be possible to make Karnataka a model for development of rural water supply and sanitation programs in this Country.

Thank you.

BENEFITS

OR

BCAA-BUTT

FOR

WOMEN?

R. FINNEY HAYWARD
BANGKOK
MARCH 29

IN THE FIELD

1. BEGIN BY THINKING AND (NO COOKIE CUTTER) CONSULTING

- Leaders
- WHO
  - Women
  - Men
- ABOUT - PROBLEMS/SOLUTIONS - BENEFITS

b. OUR OWN EMPOWERMENT

- TRAINING
  - UNDERSTAND / CONCEPTS
  - CONTROL
  - CARE
  - CHANGE, FOR CHANGE

- # WHY WOMEN?

OVERVIEW

1. TECHNOLOGY SERIES IDEAS, VALUES TO SOLVE PROBLEMS (ALSO, CREATES NEW ONES)

2. START, THEN, WITH IDEAS
   - IN STRATEGY
   - IN OUR HEADS — WHY?
   - IN OUR HEADS — HOW?

   → EMPOWER OURSELVES
   → BE NEGOTIATORS

3. IN THE FIELD, CONSULT WITH LEADERS, ~~OF~~ &
   - about benefits
   - gender roles

   (KARI B)

4. PLAN BENEFITS, DON'T ASSUME THEM,
   → INCLUDES MONITORING, BY COMMUNITY

5. FOR TRUE EMPOWERMENT, "THE PROBLEM IS THE SOLUTION"

AND

DON'T FORGET THE MEN:

RESPECT
DISCUSS
NEGOTIATE

INVOLVE
REDUCE
G.D.

REMINDER:

- TECHNOLOGY SERVES IDEAS, VALUES FOR SOCIETY

FOR EMPOWER-MENT,

"THE PROBLEM IS THE SOLUTION"

= POTTY EXAMPLE

MEN CAN CHANGE THEIR ROLES AND BENEFIT TOO

"GENDER" ISN'T JUST FOR / ABOUT WOMEN

GENDER & SEX ROLES

GENDER ROLES — VARIES FROM CULTURE TO CULTURE, PLACE TO PLACE, TIME TO TIME!

SUBJECT TO CHANGE

SEX ROLES : FIXED BY BIOLOGY

WHY? AGAIN

- CSD
- IMPROVED CONDITION &
- SUSTAINABILITY
- MEET PARTIAL TARGETS

PRACTICAL — ETHICAL

PRE-CONDITION + RIGHT ACTION

- FIND OUT WHAT G/OT DO/WANT

- DETERMINE BENEFICIAL CHANGES
  - BLOCKS, POSSIBILITIES
  - NEGOTIATE
- EMPOWER COMMUNITY MEM +9

REASONS FOR WID, GEND ETC

Administrative Practical	Ethical Humanistic
MANDATES "DO IT"	ABOVE ALL, DO NO HARM
EFFICIENCY — AT PROJECT LEVEL	EMPOWERMENT
PRECONDITIONS AT DEV. GOAL LEVEL	HUMAN RIGHTS, EQUALITY

less abstract

→ NEGOTIATION TOOL / EMPOWERMENT "

WHAT OTHER TOOLS?

+ OTHER
- TRAINING
- UNICEF FRAME
G. DISPARITIES

NGO'S, BI-LAT GOV'T U.

RGA / AAA gender

KARIB

- K - Knowledge
- A - Activities
- R - Responsibilities
- I - Incentives
- B - Benefits

Planning Benefits

GENDER ANALYSIS FOR SECTOR(S)

- → KARIB
- → AAA
- → OTHER TOOLS

MORE TIME ON IDEAS

- CONSULTATION WITH COMMUNITY FOR EMPOWERMENT
- THAT ISN'T PATRONIZING

HOW DO YOU KNOW ONE WHEN YOU SEE ONE?

- Specifications
- Says WHO? ♀?♂

→ PROJECT INDICATORS

THEY CAN:

INCREASE:

- ACCESS TO RESOURCES
- CONTROL OVER "
  - WATER
  - TIME
  - $
  - INFORMATION
  - DECISION-MAKING
  - FOOD, HEALTH INPUTS

- + NEW OPPORTUNITIES
- + NEW ↑ STATUS

- DECREASE
  - ENERGY ~~EXPENDITURE~~
  - TIME "
  - SUBORDINATION

ETC.

THEY CAN ALSO BACKFIRE:

- MORE WORK, LESS $
- MORE RESPONSIBILITIES

"I TALK TO MY ABOUT MY MOTHER, AND I WILL INSIST ON RESPECT;

TALK TO ME ABOOT MY WIFE, AND I WILL

- SAY IT IS NOT YOUR CONCERN;

TALK TO ME ABOUT MY DAUGHTER, & I WILL

- OPEN MY ~~HEART~~, MY
- MIND, MY LIFE."

↳ AND THE STRATEGY?

DOES IT HAVE ENOUGH?

PROBLEMS

?

INCOME - EARNING

- MAINTENANCE?

PAY FOR SERVICE?

- COMMITEE - MEMBERSHIP?

OR NOT?

TECHNOLOGY & ITS CONTROL

WHAT IS IN STRATEGY NOW?

- NOT MUCH; NOT FOCUSED; SYSTEMATIC; DEVELOPED? OR L.K?

p.9; 2.2.4 – REFERENCE TO PROTECT WOMEN, (WS)

– SCATTERED REFERENCES

p.9-10, 14 TIME-SAVING – (Advocacy)

- p.13, 15, 17 EMPOWERMENT – (Consume SERVICES? (C.F. E) RID & IS PARTICIP. (STRATEGY)

p.14 INSTITUTIONAL REFORM

p.17 GENDER AWARENESS↑ (CAPACITY BUILDING)

NOT IN SECTORAL LINKAGES MONITORIN & EVAL,

+ NOT CLEAR? IN...

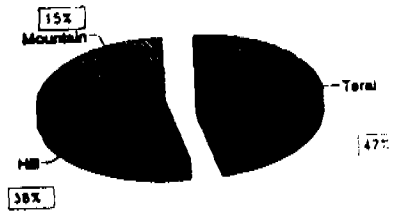
SECTOR PROFILE
OF
COMMUNITY WATER SUPPLY AND ENVIRONMENTAL SANITATION WITH WOMEN'S INVOLVEMENT

NEPAL

MARCH 1994

SECTOR PROFILE
OF
COMMUNITY WATER SUPPLY AND ENVIRONMENTAL SANITATION WITH WOMEN'S INVOLVEMENT

Nepal's population of 18.4 million is spread out in the three major geographical terrains of mountains (15%) hills (38%) and terai (47%) having distinct topographical, hydrogeological, socio cultural and economic features. 92% of the population live in rural areas and more than half are near or below poverty line.



Water is the most important natural resource of the country with 6,000 rivers and stream. However, safe drinking water continues to be an area of concern.

The health profile of Nepal reveals a high incidence of illnesses related to water, sanitation and household/personal hygiene.

> Diarrhoea and dysentery are leading causes of morbidity (40 per 1000 cases) & child mortality (16.5% of total deaths). It is estimated that 45,000 diarrhoea associated deaths occur in children under the age of 5 each year. Typhoid, hepatitis and parasitic infestation are very common. The maternal mortality rate in Nepal (8.5), like the infant mortality rate (107) and under-five mortality rate are very high.

Inadequate access to safe and reliable water supplies and sanitation facilities combined with unhealthy personal, household and community hygiene practices are known to be aggravating the continued prevalence of these diseases.

The linkage between reduced MMR, IMR and provision of safe water and environmental sanitation with hygiene education is more obvious than earlier believed for the critical intervention of water supply and environmental sanitation to be given due recognition.

For the last 22 years, UNICEF has been assisting HMG with Community Water Supply and Environmental Sanitation. This cooperation has reached at least 1.7 million people in the villages. While the coverage situation for water has reached 42%, sanitation trails behind at 6%.

The table below gives an overview of the current situation and mid-decade goals translated to Nepal situation and the Government of Nepal goals.

Global Goals for 2000	Nepal's Situation 1990	Nepal's Situation 1992	Global Goals Applied to Nepal for 1995/96	Nepal's Goals for 1995/96	Nepal's Goals for 2001/02
Universal Access to Safe Drinking Water	Rural:35% Urban:66% Total:32%	37% 66% 42%	51% 75% 54%	61% 75% 63%	100% 100% 100%
Universal Access to Sanitary Means of Excreta Disposal	Rural: 3% Urban:34% Total: 6%	3% 35% 6%	13% 41% 18%	15% 50% 19%	25% 75% 31%

For sanitation the positive steps taken by the government in issuing the policy and implementation guidelines is expected to yield results in coming years. However, achieving the ambitious goal of 18 percent population coverage with rural sanitation would be extremely difficult.

PROBLEMS, CONSTRAINTS AND OPPORTUNITIES

The major constraints and problems in the implementation of the programme towards reaching goals have been:

* Insufficient political will and commitment at policy level on the desired strategies and programme components and low priority accorded for sanitation.

* Low community awareness on relationship between water and sanitation and health and low literacy level, particularly Women's.

* Lack of appropriate technical knowledge and experience and specialized human resources and institutions.

* Difficult terrain and remoteness of areas for accessibility and transportation of materials.

* Weak operation, maintenance and use, of facilities due to lack of strong ownership concept.

* Paucity of funds as required for this sector, from Government and Donors (among which UNICEF).

* Weak coordination between line agencies involved and concerned with WES activities.

* More than half the population under or near poverty line.

However, efforts have been made by the Government and other partners to overcome the above concerns and many opportunities are seen to exist which will enhance the process of reaching towards the national goals.

* Growing political will and policy directives to prioritize the sector issues for example the formulation of the national sanitation policy and guidelines.

* Community participation and involvement of women have been gradually adopted as key strategy by all partners including HMG for sustainability.

* A positive response from communities following awareness programme, towards demand creation and adoption of practices.

* Central Human Resources Development Unit (CHRDU) set up and institutionalized with in DWSS for training and capacity building.

* Creation of Sanitation Section at central level and Sanitation and Training Cells at Regional and District levels.

* To strengthen the capacity of the DWSS, Sanitation Cell and CHRDU, a Central Sanitation Training Unit (CSTU) has been set up with in UNICEF and currently situated at DWSS.

* Gradual decentralization of responsibilities and management of programme from district to Village Development Committee (VDC) level & decentralization act being made operational by HMG.

* Range of positive experiences from pilot projects undertaken by NGOs, INGOs and HMG in field of technology and hygiene education and social mobilization for going to scale.

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

* Financial commitments made by donor and bilateral agencies as well as government for the implementation of the WES programme. HMG has committed 7.5% of district water supply project funds for sanitation and training activities.

* National Technical Standards have been developed and being used by all partners.

GENERAL STRATEGIES DEVELOPED TO ACHIEVE THE GOALS.

Experience gained in the implementation of the WES 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 as shown in the summary chart. These approaches have led to formulation of national approaches for all WES programmes and comprise the following aspects:

COMMUNITY WATER SUPPLY AND SANITATION
SUMMARY CHART
(1990/91 - 1992/93)

S. N.	Activities	91/92	91/92	92/93	Remarks
1	Number of User's Committees Formed	83	83	131	Each committee has 8 - 11 members
2	No. of Community Volunteers Selected	2256	4738	3361	All selected by communities
3	No. of Water Collection Point Constructed	1937	2326	2982	Coverage is about 10 - 15 Households
4	No. of People Served	148508	180541	252156	From gravity flow, handpump & spring protection schemes
5	No. of Community Level Trainings Conducted	214	236	281	15 - 20 participants in each training
6	No. of Government Functionaries' Training Conducted	22	22	22	20 - 25 participants in each training
7	No. of Household Reached with Health Education	22847	27775	39793	Through govt. functionaries & community volunteers

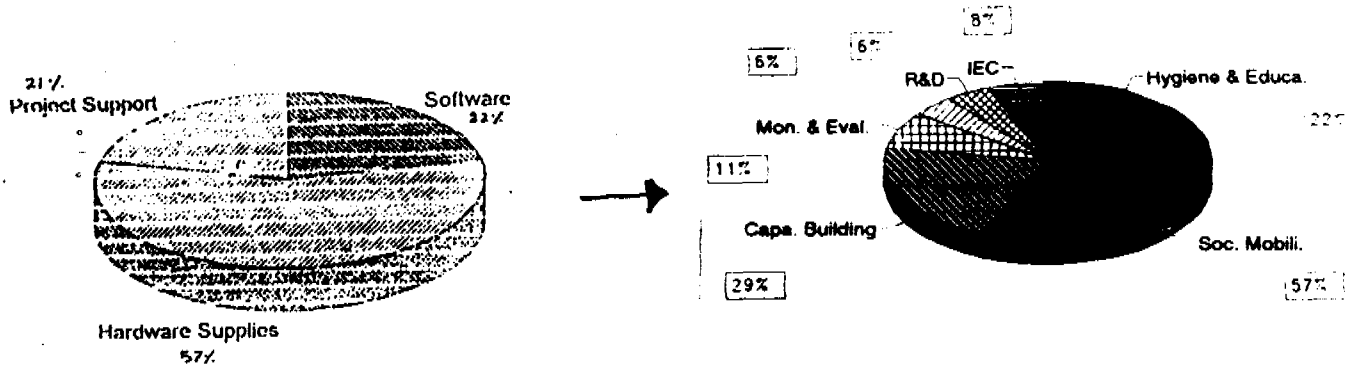
* Implementation of the programme in selected regions and districts for greater impact.

* The WES programme is visualized as a programme for empowering community particularly women and involve their participation at all stages of planning, implementation, monitoring and maintenance.

* **Community participation at all stages of programme implementation with User's Committees as managers and design makers. Community is providing locally available materials, Unskilled Labour and Cash contribution towards community revolving funds.**

* **Emphasis on awareness Creation and hygiene education at community and institutional level using appropriate strategies and channels.**

WES UNICEF FUND BREAKUP



* **Baseline data and KAP information forming the basis of programme planning at grass-root level and micro planning with community participation.**

* **Low cost appropriate technologies for the hills and terai, based on the need and socio-cultural aspects for easy adoption for both Water Supply and Sanitation.**

* **Uniform community based decentralization approach for sustainability.**

* **Emphasis on small scale projects.**

* **Integrated approach of Water Supply, Sanitation, Health, Education, Environment and Income generation.**

* **Capacity building through training to all level of programme functionaries as a key intervention.**

* **Implementation of innovative strategies are promoted like setting up revolving funds for soft loans to community through NGOs.**

* NGOs are involved as important partners in the WES promotion activities.

* Manufacturing and delivery of parts of a sanitation unit through Village Development Committees (VDC) with technical and materials support in the terai areas and development of local manufacturing capacity for sustainable water supply schemes at community level.

SPECIFIC STRATEGIES TO ACHIEVE GOALS

Environmental Sanitation with Women's Involvement

Experience gained in the implementation of the sanitation programme in the past years through the government and NGOs, provides useful insights in terms of strategies and approaches for going to scale. These approaches have now been adopted as National approaches for all WES programmes in the country.

Women are involved at all stages of planning, implantation monitoring and maintenance. The positive result of the women's participation is already witnessed in the improved maintenance of WES projects and more vocal and communicative an aware women. It has also led to an improved village environment and significantly lower incidence of water borne diseases in areas where women's involvement has been active.

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

Capacity building through training at all levels of programme functionaries is stressed. Central Human Resource Development Unit (CHRDU) has been established and institutionalized within DWSS for training and capacity building.

NGOs are identified as important partners in the sanitation promotion activities and collaborative programmes are launched with key partners like Water Aid, Nepal Red Cross Society and American Peace Corps.

EMPOWERMENT AND LEAD ROLE OF COMMUNITY AND WOMEN

Village Development Committee and water User's Committee play a key role in planning and managing the programme activities. VDCs as well as User's Committee are now involved in manufacturing and delivery of sanitation unit parts through a system of soft loans and revolving funds.

The WES programme is directed mainly at women and stresses the community participation approach, enabling communities to decide and plan for themselves. Keeping the traditions and customs in view, Women are being reached through Women.

Decision making process elaborates the modalities for Women's involvement at key stages like site and technology selection, operation & maintenance, sanitation, 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 decision, in spite of being women's domain.

In the Water User's Committee (WUC) formed around tubewells and gravity flow schemes, at least two members are women and they are responsible for managing and voicing Women's concerns. 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.

This strategy has been adopted by government as national strategy with appointment of women workers in other districts with necessary fund allocation.

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. 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 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 water borne diseases in areas wherever women's involvement has been effective.

PROGRAMME LINKAGES OF SANITATION AND WATER SUPPLY

* Sanitation promotion is an integral part of all the water supply programmes. To advocate sanitation and hygiene as a "Way of Life" more partners are being taken up in its promotion like - health, education and women's development and NGOs.

* Sanitation activities and their outcome become the natural indicators for the success of the programme and vice versa.

* The linkages of sanitation 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.

* Water User's Committees now taking up implementation and management of literacy classes of Ministry of Education.

LINKAGES WITH ENVIRONMENTAL ISSUES

Although the Water and 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, puts added strain on the environment which is threatened with rapid deterioration, particularly with 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 national 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 environmental sanitation promotional activities. Planting of trees in the catchment areas, promotion of smokeless chulos, bio-gas plants, kitchen gardens are some of the activities which are included in the programme for improved community environment.

The overall outcome of the WES programme is envisaged to be an improvement in the environmental condition at household level contributing to an improved environment at the community level and leading to national level.

Monitoring Arrangements

The monitoring of implementation, progress and coverage rests with MHPP/DWSS, but is supported by all others implementing agencies. The monitoring includes the member of systems installed and in operation, as well as coverage area.

The sanitation and women involvement programme is linked with the Water Supply programme with a participatory monitoring system and merged indicators. The intensive monitoring checklists cover the key monitoring areas, which have been identified in the Plan of Action and Policy Document, with measurable indicators. The information collection channels are identified and are in existence at Village and District level. The information collected are through - KAP, PRA, Baseline survey, door to door data collection, Village Mapping exercises and Programme monitoring formats.

MONITORING ENVIRONMENTAL SANITATION ACTIVITIES

Key monitoring area	Indicators	Channel
Community Organisation, Management and empowerment	- Formation of UCs/Sani. Committees	DEs WSST/WW
	- Women motiv.selected, appointed, trg. & functioning	WWs/WS
	- Community contribu.	AEs/UC/WW
	- Decision making in adoption & installation of facilities by community/women & managmt. of commu. funds & programmes.	UC/Motiv.
Better awareness regarding sanitation and resulting behavioural changes	- Water quality maintenance from source to mouth (water quality test results)	WSST/VSMW
	- Maintenance of water point, and sanitation facilities, proper storage and handling of water at household level,	Motiv./Sevika/ WSST
	- Waste, human waste & waste water disposal	Motiv/ Sevikas/WW/
	- improved environmental sanit.	WSST
Improvement in information dissemination through social mobilisation activities	- Increase in demand for facilities by community/women	UC/WW
	- Adoption of facilities/practices	Motiv/Sevikas
	- Increase involvement in preventive health activities	WW/WSST/ VHW/SHCs
	- Decrease in diarrhoea gastroenteritis & skin diseases	VHW/SHCs/PHC
	- Households reached and 'Tol batithaks' held by motivtors	Motiv/ Sevikas/WW

Note: DE - Disrtict Engineer
AEs - Asst. Engineers
WS - Women Supervisor
WW - Women Worker
VHW - Village Health Worker
WSST - Water Supply & Sani. Technician
SHCs - Sub Health Centres
UC - User Committee
Motiv - Motivators
PHC - Primary Health Centre

PROGRAMME IMPLEMENTATION:

In the three fiscal years 1993-95, the urban water supply sector will implement schemes with an outlay of $ 56 million to enhance the water supply and sanitation situation in the urban and semi urban areas. Major contributors are World Bank, JICA, Norway, ODA/UK and the Government. At an average per capita cost of $ 50, this investment will provide drinking water supply to an additional population of 1.12 million during the period. This is estimated to increase the urban coverage from 67 percent (1992) to 77 percent (1995).

Similarly, in the rural water programme sector the donor contribution amounts to 60 percent of the total annual budget. The various projects implemented in the rural WATSAN programme with their annual inputs are given below:

Project/Implementing Agencies	Annual Budget (US$'000)	Beneficiaries Population/Year
1. HMG/DWSS	8.40	420,000
2. ADB/DWSS	5.00	180,000
3. UNICEF/DWSS/NRCS/Water Aid	3.50	535,600
4. FINNIDA/DWSS	2.35	43,750
5. WB/DWSS	3.35	167,570
6. HELVATES	0.20	10,000
7. DISVI	0.23	42,000
8. OTHERS	2.00	67,000
Total:	*25.03*	*1,465,920*

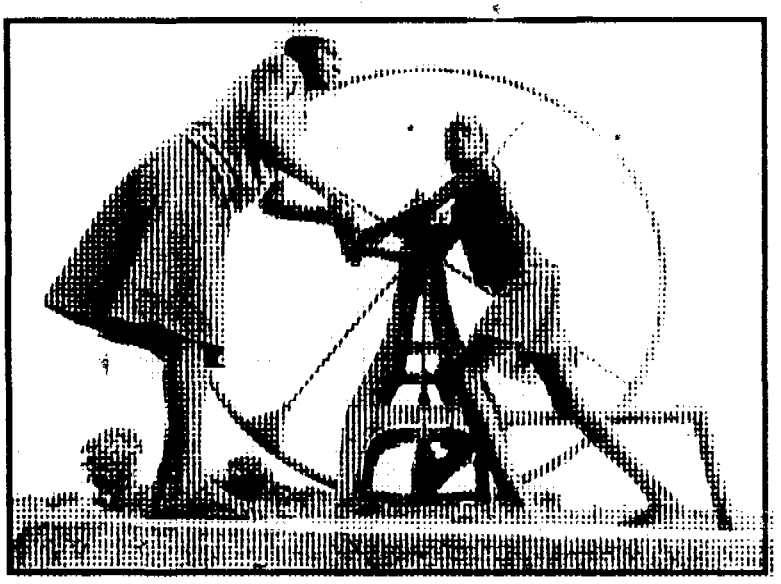
In the next three years, about $ 76 million is being invested in the WASTSAN programme making a total of benefitting rural population of 4.4 million. At the same time, Nepal's population is projected to have increased from 18.4 million in 1990 to 20.4 by end of 1995-96. During this period the WATSAN programme is planned to extend water supply to 5.52 million people (Rural 4.4 + Urban 1.12 = 5.52) increasing the 1992 coverage of 42 percent to about 63 percent by end of 1995-96. While it is possible to exceed the mid-decade goals in water supply given full funding and 100 percent implementation rate, the accomplishments in sanitation and hygiene education will be limited.

Major donors to the rural sector are uncertain such as the World Bank, FINNIDA and UNICEF. Together, they represent 36 percent of the annual budget for the rural WES sector.

The global goal applied to the water sector of Nepal will be met only if the UNICEF assisted programme is fully funded. However, achieving sanitation goals may be uphill task in light of situation in Nepal.

Potable Water in Conflict Zones:

Angola's Experience in Emergency WES Programmes



Presentation of:

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To the:

Global UNICEF WES Professionals Meeting

Bangalore, India

25 - 30 March, 1994

1. CURRENT SOCIO-POLITICAL SITUATION OF ANGOLA

The Republic of Angola, situated in the south-western region of the African continent, gained its independence from Portugal in November 1975. The country, with an area of 1.24 million square kilometres, is extremely blessed with natural resources such as oil, diamonds, gold and iron, and is considered to be potentially among the top richest countries of Africa. Alas, however, Angolans have not seen real peace for over thirty years.

Angola's reality today is one of devastation and trauma as a result of the prolonged civil strife, which has caused thousands of deaths, injuries, massive internal displacement, destitution, material deprivation, and the collapse of social and economic systems. The pervasive insecurity and inaccessibility to some areas of the country have almost certainly obscured a human disaster of unprecedented magnitude. Indeed, the total estimated affected population now stands at 3.3 million, and this is considered a conservative estimate.

The present state of the water and sanitation sector in Angola is extremely poor. A general survey carried out in 1991 showed that an estimated 75% of Angola's small town and rural water supply systems have been destroyed by the war. At the same time, only 30% of the population has access to safe water, and only 19% of households possess adequate sanitary facilities. As a result, the prevalence of diseases associated with inadequate water supplies and poor sanitation is high. Diarrhoeal diseases alone presently claim approximately 50,000 young lives per year and, together with other diseases attributable to poor water and sanitation, account for about a third of young child morbidity.

While the Government of Angola has often reiterated its priority for development within the WES sector, this commitment is considerably constrained by the absence of a national WES sector policy and action plan. As a result, national objectives related to service coverage are not defined, institutional responsibilities for the planning, coordination and implementation of WES projects are unclear, and the roles of communities lack definition. The results of all this, have been the mobilization of inadequate resources from both government and donors to rehabilitate and develop water sources laid waste by war, sabotage and maintenance neglect.

It is within this gloomy scenario that UNICEF is trying to address the needs of water and sanitation (among other essential necessities) to a distraught population, starved of many of the basic requirements for human existence.

2. UNICEF WES INTERVENTION DURING 1991-1992 (PEACE PERIOD)

In 1990, with the prospect of peace on the horizon, UNICEF and the Government of Angola developed an ambitious five year country programme (1991-1995) for a budget totalling USD 38.5 million. The programme was, however, tinged with uncertainty since the impact of the peace process could not be forecast. Thus a medium-term planning scenario with certain adjustment mechanisms during implementation, was elaborated.

The WES component within the 1991-1995 country programme had a specific mid-decade goal to reduce the incidence of under-five diarrhoea morbidity by 20%. Unfortunately, this goal could not be translated over the entire country because of inaccessibility to a large number of provinces. Only three provinces were targeted and these represented an estimated 1.3 million people, approximately 12% of the total population.

Nevertheless, the programme called for a budget of USD 12.8 million to provide access to safe water for an estimated 350,000 people in the war-affected rural and poor peri-urban areas. In total 623 boreholes, 300 hand-dug wells, and six small scale piped water supply schemes were planned for rehabilitation and development. In the area of sanitation, 3,500 pit latrines, together with an intensive hygiene communications campaign would benefit an additional 500,000 people.

At the end of May 1991, the ongoing peace negotiations between the warring factions resulted in the signing of an agreement to end the hostilities, and planned elections for October 1992. The Agreement was greeted with wide-scale hope within the WES sector. Bolstered by the first year budgetary requirements from Sweden, Luxembourg, United Kingdom and UNCDF, the interventions started as planned and continued on stream with high expectations of stability and progress. Unfortunately, this hope was transformed into an atmosphere of tragedy when the results of the October 1992 elections were contested by UNITA and the ensued deadlock degenerated into renewed hostilities. At the end of October 1992, as the armed conflict intensified, the WES programme came to a complete standstill. Up until then, only 125 of the planned water sources were completed and the latrine construction programme did not take off except on a small scale in Luanda. The interventions had only reached an estimated 60,000 vulnerable people.

During this brief period of peace, UNICEF maintained its visibility in the sector by establishing closer working relationships with its government counterparts through its institutional capacity building project. With UNICEF's assistance, the WES collaborating governmental agencies were provided with full-time technical assistance in planning, programming and project formulation, and on-the-job training in hydrogeology, well drilling activities, and mechanical maintenance work. These contributions have gone far in lessening the expected brain drain from the government sector.

The year 1992 ended with the evacuation of UNICEF's international staff from Angola, which rendered field work coordination impossible. The looting of nearly USD 500,000 of UNICEF-supplied water supply equipment and materials from warehouses during the escalation of the conflict, had introduced severe setbacks in future service deliveries to the vulnerable communities.

3. STRATEGY BEHIND THE ADAPTIVE UNICEF WES INTERVENTIONS FEBRUARY - JUNE 1993

As a result of the deteriorating political and military environment at the end of 1992, it became obvious that the UNICEF Angola Country Programme could no longer continue along its originally planned path. The prevailing rural and provincial urban insecurity created a lack of access to project areas, loss of contact with provincial governments, and increased movement of the displaced population from rural to peri-urban areas. It was, therefore, necessary to take steps to directly relate the Country Programme to the new emergency needs of Angola.

In February 1993, an Adaptive Programming Seminar for a Country in Difficult Circumstances, gave rise to actions of:

- immediate reorientation of the programmes to emphasize short-term emergency actions;
- creating an integrated programme with a set of overall and specific goals and objectives;
- seeking an appropriate balance between the emergency interventions and development activities.

Specifically, the WES sector was given the task of bringing diarrhoeal diseases and related conditions under control, with activities to provide sufficient quantities of water for personal use and household hygiene, and safe water for drinking. Sanitation interventions were to have basic solutions and linked together with increased hygiene education, especially to the displaced and war affected populations.

In order to implement UNICEF actions, however, four projected scenarios for UNICEF programming were developed:

- WORST CASE SCENARIO/FULL EVACUATION OF UN STAFF - prolonged and intensified armed confrontation resulting in extremely limited or no access to vulnerable populations - total evacuation of UN, diplomatic, donor, and NGO communities - virtual halt to programming capabilities;

- OPERATIONS LIMITED MAINLY TO LUANDA PROVINCE - lingering political stale mate and armed conflict, despite negotiations - limited access and curtailed programming/ service delivery capacity to Luanda and to a few provincial capitals and municipalities - outposted professional staff in provinces relocated to Luanda;

- ACCESS TO MORE PROVINCIAL CAPITALS AND MUNICIPALITIES -continued political negotiations leading to an agreement on humanitarian assistance to additional vulnerable populations and;

- NEGOTIATED CEASEFIRE AND POLITICAL ACCORD - gradual full access to vulnerable populations. UNICEF then decided to package into 90-Day Plans of Action, multi-sectoral interventions — including WES, Health, Education, Nutrition, Relief and Survival — geared at the rapid delivery of humanitarian assistance through specific geographically accessible and secure areas. In developing and implementing 90-Day Plans, UNICEF would have the flexibility to move in and out of scenarios arising out of the very fluid socio-political environment.

4. UNICEF GEOGRAPHICALLY SPECIFIC WES INTERVENTIONS, JUNE - SEPTEMBER 1993: LIMITED ACCESS

Because of the continued insecurity in a number of provincial locations, these interventions, at the time of the Adaptive Seminar, took place under Scenario 2: Operations Mainly Limited to Luanda Province. In some densely populated provinces such as Huambo, Bie (Kuito), Malange, Menongue, and parts of Benguela, fighting intensified from May to August 1993. In Kuito, alone, an estimated 25,000 people are said to have died in 1993.

WES interventions, consequently, were confined within accessible rural and peri-urban zones of provinces under the control of government forces, i.e. Luanda, Lubango in Huila Province, Cunene Province and Namibe Province. During this first 90-Day Plan of Action period, UNICEF was able to assist over 209,000 people gain access to water and sanitation facilities through:

- the construction of 13 new boreholes which benefitted 5,904 people;
- the construction of 64 new shallow wells which benefitted 32,500 persons;
- the construction of 4 small-scale piped water systems which benefitted 42,500 people;
- the rehabilitation of 66 diverse water systems which improved access for 128,721 persons;
- the production of 51 family-style latrines;
- the training of 196 persons in hand pump repair and maintenance and;
- numerous hygiene education and related sanitation activities.

5. UNICEF EMERGENCY WES ASSESSMENTS AND INTERVENTIONS INTO NEWLY ACCESSIBLE AREAS OCTOBER - DECEMBER 1993

In late September, UNITA declared a unilateral ceasefire and the overall security situation improved. In mid-October, the UN entered the war-divided city of Kuito with humanitarian assistance and shortly thereafter initiated a programme of humanitarian assistance to Huambo, Malange and Menongue.

UNICEF fielded numerous technical assessment and assistance missions into these areas, many of which had been completely closed off to humanitarian assistance for over 10 months. By December 1993, UNICEF interventions were reaching 17 of the country's 18 provinces.

During this Second 90-Day Plan of Action, UNICEF WES was thus able to achieve the following:

- the construction of 4 new boreholes which benefitted 5,300 people;
- the construction of 27 new shallow wells which benefitted 40,700 persons;
- the construction of 4 small-scale piped water systems which benefitted 20,000 people;
- the rehabilitation of 146 diverse water systems which improved access for 118,000 persons;
- the production of 123 family-style latrines;
- the promotion of 58 capacity building seminars for 400 local water sector personnel and;
- numerous hygiene education and related sanitation activities.

6. UNICEF WES INTERVENTIONS TODAY: JANUARY - JUNE 1994

The thrust of UNICEF's current WES six-month plan of action is to "blend" emergency and developmental activities in order to provide access to safe water supplies and adequate sanitation facilities in 16 provinces for a total of 976,000 vulnerable people in peri-urban and urban areas.

The approach will be three - pronged and largely dependent on access to the target provinces:

- In provinces which are accessible and secure, interventions will be geared towards rehabilitating rural and peri-urban systems - Luanda, Huila, Namibe, Cunene, Bengo.

- For provinces where access is limited to capitals and larger cities, the projects will centre on emergency rehabilitation of urban systems - Bie (Kuito), Uige (Uige/Negage), Moxico (Luena), Kwanza Norte (Dondo/N'Dalatando) and Zaire (N'Zeto/M'Banza Congo).

- For those provinces where access has recently opened to rural communities, work will concentrate on emergency repair of peri-urban and rural water points - Benguela, Cabinda, Kwanza Sul and Malange.

In the rural and peri-urban areas, priority activities include drilling 15 new boreholes, repair or replacement of 300 inoperative handpumps and repair of appropriately drained concrete platforms at 400 well sites. In provinces where the water table allows, 100 new hand-dug (shallow) wells will reinforce the peri-urban fringes, including 22 small-scale piped water supply schemes.

Training of personnel will remain an essential activity. For each completed well, at least two caretakers will be given basic training in fault-finding and maintenance of handpumps. The present number of 40 skilled handpumps mechanics will be increased to 100. In addition, through social mobilization, one water committee will be formed in each community to monitor usage and promote hygiene education around the water point. For the small-scale piped water systems and the urban systems in the provincial capitals, maintenance teams will be trained.

WHO, the Ministry of Health and concerned NGOs will be involved in a sanitation programme, including latrine construction for 1,300 families, 300 schools and 100 health posts. With the assistance of a health education consultant, UNICEF and National Water Directorate (DNA) will train approximately 250 community activists for a wider house-to-house health and hygiene education campaign. The sanitation (latrine) programme will directly benefit 56,000 people, and the health promotion campaign will touch 1 million household members.

The DNA and Hidromina, the two main water agencies working in the rural areas, and the water departments of the provincial governments will be given equipment, supplies, training and technical assistance in the capacity-building programme. UNICEF will continue its support to these bodies with the direct provision of a hydrogeologist/geophysicist, a master driller, a mechanic trainer, a water management engineer and a health education specialist, in addition to its overall managerial coordination of the sector. A number of NGOs have included a water and sanitation component as one of the sectors of the sectors of their integrated emergency programme at both the provincial and municipal level.

The output indicators being used include:

- boreholes constructed;
- shallow wells constructed;
- small-scaled piped water systems constructed;
- water systems rehabilitated;
- latrine units produced;
- training and capacity building seminars conducted;
- collapsible water tanks distributed;
- timely delivery of essential materials;
- motivation level of work brigades and;
- joint house-to-house hygiene promotion visits and number of trained activists.

All of these activites are sanctioned by the National Directorate for Water, and coordination of borehole drilling is carried out through the parastatal HIDROMINA, and its respective provincial delegations. Existing and new agreements of cooperation will continue with CARE International, Development Workshop, Development Aid People to People (DAPP), British Petroleum, Acacias Rubras, International Contra la Faim, Depuragua, Servequip, Oxfam-UK, MSF-France and MSF-Belgium.

7. UNICEF/DONOR COLLABORATION

For the implementation of its emergency plans, UNICEF contributed to the United Nations Consolidated Inter - Agency Appeal for Angola in May 1993, and the recently revised version (February - July 1994). For the former, the WES sector solicited assistance for USD 1,435,000, (May 1993 - April 1994) to initiate emergency projects aimed at 1.5 million affected persons in seven provinces. The response to WES the component was lukewarm with the receipt of only 25% from the traditional donors.

The updated version in February 1994 is aimed at the consolidation of the workable emergency activities, to complement the new medium - term planning which is possible trough the decrease in fighting and the increase in accessible areas. A total of $ 4,513,000 was requested. Although it is too early to comment, the response so far is not encouraging. The reason for this has been the apparent drawn - out attitude of the two warring factions to enter into a peaceful arena.

In this regard, it is necessary for UNICEF to be very forceful in its fundraising strategy, with specific sectoral projects geared at the most vulnerable people, within its complexed emergency programmes. The projects must be realistic, cost - effective, and must be seen to be attractive to the donors.

8. POSSIBLE UNICEF WES INTERVENTIONS DURING TRANSITION INTO PEACE - UNAVEM COOPERATION

Today, Angola is again on the verge of peace. A harsh lesson on the importance of disarmament, demobilization and reintegration of combatants into civilian life was hopefully learned during the 1991-1992 period of peace. Many blame the resumption of the war on the fact that these issues were not adequately addressed during that period. And while the Lusaka Peace Talks have yet to yield the exact terms for disarmament and demobilization, the UN and international community must be poised to respond to the demobilization and reintegration needs of combatants and their family members.

Three major stages have been outlined for demobilization and reintegration:

- cantonment at assembly sites where disarmament and registration take place;
- transportation to resettlement communities;
- demobilization, social and economic reintegration.

The access to water supply and sanitation is key to the success of all three of these stages. During the last demobilization process, cantonment areas were sited at distant areas from water supply sources. Consequently, many ex-combatants and their families (UNITA soldiers travel with their families) left their cantonment sites much earlier than planned in search of areas with greater water access. Therefore, the siting of these cantonment and resettlement areas is critical for the success of the transition period.

Once a peace agreement is reached, UNICEF must be ready to move in quickly and respond to the pressing emergency water supply and sanitation needs at the cantonment areas. To facilitate this process, UNICEF is currently serving on a Technical Water and Sanitation Advisory Committee at UNAVEM (UN Angolan Verification and Monitoring Mission) to help develop the appropriate and timely response.

9. OPPORTUNITIES FOR MID-DECADE GOALS

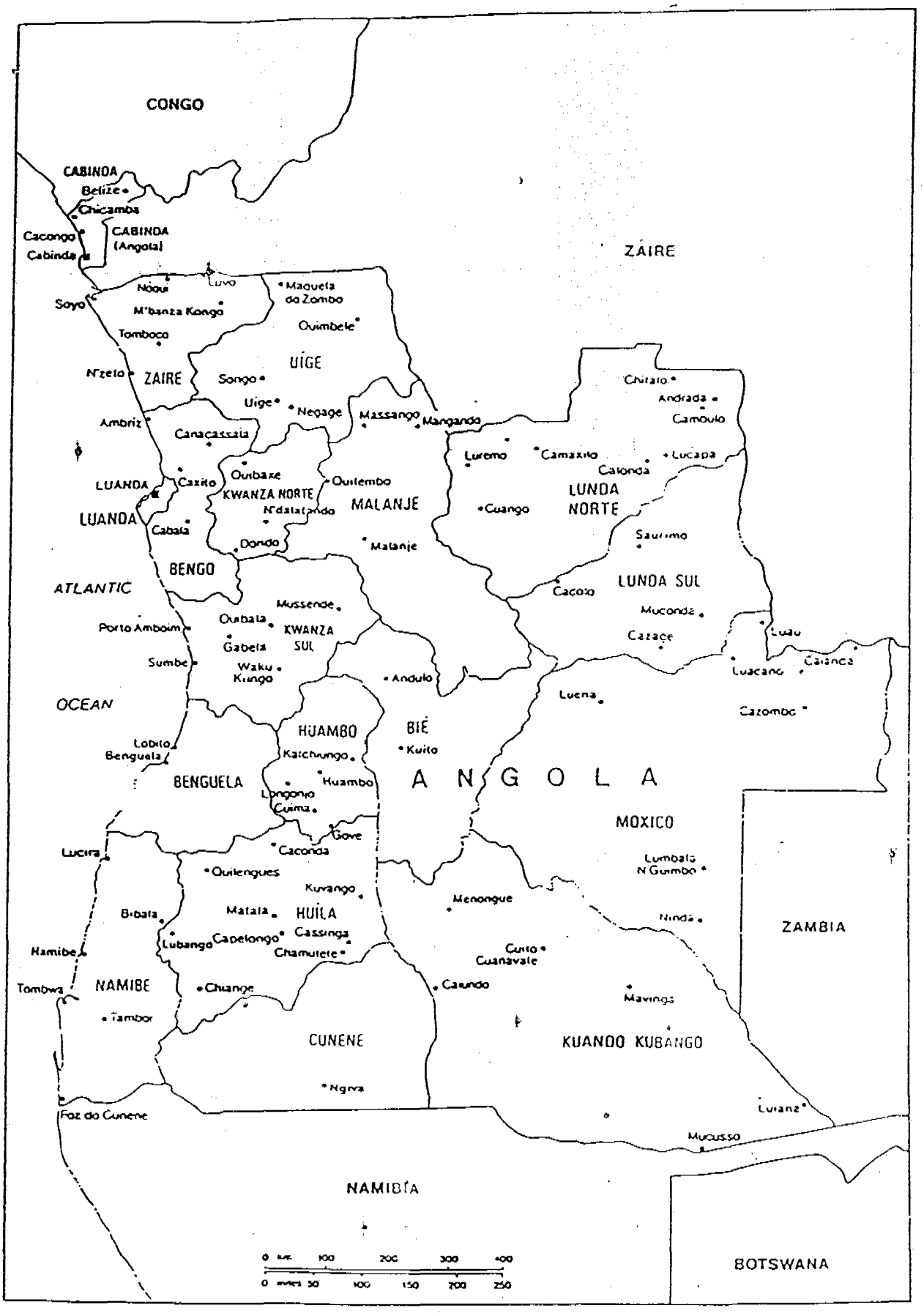
The prospects of Angola achieving the mid-decade goals in the WES sector are not favorable. While the hope of peace looms, it must be understood that:

- Peace does not mean an immediate cessation of rural insecurity. The poor economic prospects for a large and demobilized military can be expected to give to rural banditry.
- Peace does not mean immediate access to all areas. The problems of anti-personnel mines will have to be dealt with and will take time to clear.
- Peace does not mean an immediate restoration of the collapse social systems. The brain drain of the public sector will need to be filled.

In a climate of peace, the expected economic reforms and infrastructural development most likely will not be directed at the WES sector in the first phases, when the needs of the housing and agricultural sectors are so enormous. It is also foreseen, that Angola will require a great deal more of emergency interventions over a prolonged period, before any measure of developmental activities can be put into place.

With these facts in mind, it might be more advantageous for the WES sector to concentrate its efforts on building the institutional structures necessary to plan, programme and implement the sectoral activities, under the umbrella of a well defined government managerial framework.

The need for a clearly defined water policy will have to be addressed by the government. The characterization of technology types, and the geographic specificity of interventions will have to be well thought out to achieve the desired results. In other words, Angola needs to heal the wounds of war before being burdened by over-extending expectations.


CONGO
CABINDA
Belize
Chicamba
Cacongo
Cabinda
CABINDA
(Angola)
ZAIRE
Noqui
Luvo
Soyo
M'banza Kongo
Maquela do Zombo
Quimbele
Tomboco
N'zeto
ZAIRE
UIGE
Songo
Uige
Negage
Massango
Mangando
Ambriz
Canaçassala
Chitato
Andrada
Camoulo
Luremo
Camaxilo
Lucapa
Calonda
LUANDA
Cazito
Quibaxe
KWANZA NORTE
Quilembo
MALANJE
LUNDA
NORTE
Cuango
LUANDA
Cabala
N'dalatando
Dondo
Malanje
Saurimo
BENGO
ATLANTIC
Cacolo
LUNDA SUL
Mussende
Muconda
Porto Amboim
Quibala
KWANZA
SUL
Gabela
Cazaje
Luau
Sumbe
Waku
Kungo
Andulo
Luacano
Carinda
Luena
OCEAN
Cazombo
HUAMBO
BIÉ
Lobito
Benguela
Katchiungo
Kuito
BENGUELA
Huambo
A N G O L A
Longonjo
Cuima
MOXICO
Gove
Caconda
Lucira
Lumbala
N'Guimbo
Quilengues
Kuvango
Menongue
Bibala
Matala
HUÍLA
Cassinga
Ninda
ZAMBIA
Lubango
Capelongo
Chamutete
Namibe
Cuito
Cuanavale
Tombwa
NAMIBE
Change
Caundo
Mavinga
Tambor
CUNENE
KUANDO KUBANGO
Ngiva
Foz do Cunene
Luiana
Mucusso
NAMIBIA
BOTSWANA

ANGOLA

GLOBAL MEETING OF UNICEF WES PROFESSIONALS

Bangalore, India

25 - 30 March 1994

Subject: *Influencing National Policy through UNICEF WES Programmes*

Background:

During the 1970's, Nigeria was an oil rich country, oil accounting for 80 per cent of government revenue, and there seemed no limit to what the wealth from the oil reserves could achieve. The rural population could be well looked after, and provided with plentiful supplies of safe water. Government thinking at this time, was to install multiple piped water schemes throughout the land, thus providing all Nigerians with as much water as they needed, from taps.

Approximately 65 per cent of the population lived in the rural areas in 1981, the start of the International Drinking Water Decade, and it was estimated that only 20 per cent had access to safe water at that time, and only five per cent had access to safe sanitation. By 1983, the Federal Government had drawn up a master plan for water and sanitation, which for water planned for mechanised bores feeding into piped schemes, and for sanitation, envisaged elaborate sewer systems. The estimated cost was over US$ 25 billion.

While these ambitious plans were being developed, UNICEF Nigeria was initiating what was to become a well known and much talked about project. In 1981, the first UNICEF assisted "WATSAN" project was given the go ahead by the Federal Government, and Imo was chosen for the pilot project of what was to be a multidisciplined and low cost approach to rural water supply and sanitation. Imo had suffered from a severe cholera epidemic in one of its LGA's (Local Government areas) and in addition it had a high rural population density. There was also a problem of groundwater salinity.

WATSAN Project Strategy:

It was the success of this low cost project approach that had a major influence on national govt policy, and to fully explain this, it is necessary to describe how the project was implemented, which was as follows:

The objective of the project, was to use low cost technology for the provision of safe water and sanitation, and built into the project strategy were strong components of what has become known as "software" interventions, community participation and hygiene education. This was perhaps the first project to be planned as a fully integrated project, and not just a water supply project with the software components added in.

At the time that the Imo project was being set up, there was much scepticism about whether the low cost approach using handpump technology was the right choice for the rural communities in Nigeria. The Imo project was given the go ahead, but many did not take it seriously, and felt "let UNICEF play around, while we get on with the serious stuff".

The Imo project was certainly ambitious, but while many programmes discussed the need for an integrated approach, Imo intended to establish itself as a multidisciplined project. The Imo state govt supported the project's multidisciplined approach and a steering committee was established, having representation from six ministries, being the ministries of; 1) Health, 2) Economic Development, 3) Works, 4) Information, 5) Agriculture and 6) Local Government. The project was administered by the Ministry of Community Developments and Co-operatives.

While the Imo pilot project had government approval and support, it was in fact set up as an autonomous organisation, reporting to the Ministry of Community Development but operating independently. This was not normally how UNICEF operated, and in the early stages UNICEF was directly employing many of the project staff.

At the time it was felt necessary to operate in this way in order to have the freedom to experiment, and to tailor policies as dictated by project success or failure. The intention was to establish a project that could be replicated throughout Nigeria, once a successful model was developed.

At the start of the Imo project, the state govt contributed US$ 250,000.00, while UNICEFs input in equipment and technical support was approx US$ 3,000,000.00. The intention was that, as the project progressed, UNICEFs share would gradually decrease. Unfortunately, due to the changing economic fortunes of the country (and the fact that to an extent the UNICEF assisted "WATSAN" projects were always seen as a UNICEF project which the states supported, rather than a state project which UNICEF supported) UNICEFs share of the project costs remained the larger portion.

The method for project implementation was to first select the target villages, then carry out a baseline study, after which there was a programme of community mobilisation, which included sensitising village chiefs and religious leaders. At this stage, volunteers were selected to become village based workers (VBW), and were given comprehensive training to act as community health workers thereafter.

Health and hygiene education was taught to the village communities, and training was provided in handpump maintenance. Each community set up a steering committee which was to oversee and support the work of the VBW. Before safe water supply was provided in a village, the community was expected to construct a minimum of five VIP latrine compartments. Local artisans were trained in construction techniques, and were then expected to sell their skills directly to the rural communities.

Water supply itself was provided by hydraulically powered drilling rigs, and by low cost methods such as manually operated machines and dug wells. As the water tables were quite high in Imo, the hydraulically powered machines were seldom taxed, but the cost of bores/handpumps installed by use of these machines was quite high in the early years, averaging around US$ 17,000 each. Later on the project had good success with the very simple manually operated tripod rigs, which were developed in the Imo project workshop from a model originally made in Zimbabwe, the "Vonder" rig.

By using the lower cost options where possible, the average cost for a bore/handpump eventually reduced to below US$ 4000. Bore siting took into consideration the preferences and convenience of the community, especially the womenfolk, and geophysical surveys were usually carried out to determine the best location within these parameters. The project envisaged that eventually low cost/low technology methods for providing safe water could be decentralised and handled by each LGA on its own, with support from the state WATSAN unit.

Much of the groundwater in Nigeria is aggressive, (PH below 6.5) and so the project had to deal with the problem of handpump rising main which was manufactured from galvanised G.I. pipe which rotted away in a very short time. The problem was eventually solved by importing stainless steel rising main, which the project had a hand in designing. Some experimentation was carried out with the use of UPVC, but no conclusive results were obtained and so stainless steel became the only viable option.

Choice of handpump in the early days of the project was the India Mk 2, which was recognised for its durability, and it was also felt that Nigerian companies would best be able to manufacture this pump, in order to supply the project needs from local sources.

Thus, the Imo project developed a model of an integrated multidisciplined approach to rural water supply and sanitation, which became known as the "RUWATSAN" projects. Communities in the selected LGAs were mobilised, village based workers were trained and put to use in training the communities in hygiene and health care, and communities were supported to introduce safe sanitation into their lives via VIP latrines.

Influence on National Strategy:

Between 1981 and 1988, the Imo project had completed over 750 bores, had trained almost 2000 village based workers and had constructed nearly 1500 VIP latrines. The cost per head in the intervention LGAs was estimated to be US$ 35 per head. Between the years 1981 to 1988, five more of the UNICEF model WATSAN projects were established, in Niger, Anambra, Cross River, Gongola and Kwara, though with less staffing and management support from UNICEF directly, as had been the case with Imo.

These UNICEF assisted "RUWATSAN" projects had established a successful reputation, and by the mid eighties, the feasibility of a low cost handpump based rural water supply and sanitation programme had been successfully demonstrated (albeit at a high cost to UNICEF).

Advocacy for this low cost approach was carried out at federal and state govt. level. The advantages of the low cost strategy were accepted by the Ministry of Health, which jointly with UNICEF, established the "Funds In Trust" programme, which was a programme to provide all primary health care centres with bores/handpumps. UNICEF played a lead role in the implementation of this programme (the author of this report has recently inspected a handpump installation in Ondo state, completed under the FIT programme in 1987, still working perfectly).

By the mid eighties, national policy was being influenced by the success of the FIT and RUWATSAN projects.

By this time, it was also becoming clear that the Federal Govt's plan of serving the rural population by piped schemes and sewers was in difficulty, and little progress was being made. The oil boom of the 70s was at an end, and Nigeria's external debt was building up.

In an effort to address the needs of the rural population, the Federal Govt. set up a directorate in 1986 to handle rural development and infrastructure, including rural water supply. This directorate was called the "Directorate of Food, Roads and Rural Infrastructure" (DFRRI).

As co-ordinating agencies, in each state a directorate for rural development was established, and these directorates were to receive funds from the federal DFRRI, in order to implement the programme, and in particular rural water supply and sanitation. The state rural development directorates were placed under the supervision of the state Governors offices, and, encouraged by this development, UNICEF was successful in getting all the UNICEF assisted WATSAN projects placed under the governors control, which meant that funding and other support for the projects was more certain.

<u>Conclusion</u>:

With Nigeria's changing economic fortunes, and most state departments feeling the financial squeeze, the UNICEF low cost model became an acceptable Govt strategy, and in 1987, with inputs from UNICEF, the DFRRI drew up National Project Strategy Guidelines, which generally followed the UNICEF Imo model strategy.

In line with a national policy, however, the guidelines did not call for an LGA by LGA approach, as had been the Imo strategy, but rather set the agenda to provide for 250 communities in a phased manner, spread across all LGAs in each state. Once one "phase" was completed, the state could ask for funds to provide for another 250 communities, which would become a second "phase".

This deviation from the UNICEF demonstration model meant that it would be very difficult to replicate the efforts in community mobilisation, which had been possible in Imo. It was nevertheless a significant decision by govt, influenced by the UNICEF pilot projects, to shift preference from very expensive piped schemes to a handpump technology, low cost based approach.

In 1992, the UNDP/World Bank, with comments from UNICEF and various govt ministries which included DFRRI, assisted the Federal Ministry of Agriculture, Water Resources and Rural Development, to develop a "Rural Water Supply and Sanitation Sector Strategy and Action Plan", which envisages supplying the water supply needs of the rural population, by 88000 bores/handpumps and 8000 piped schemes, at a total cost of US$ 1.3 billion. A considerable amount, but far less, due to UNICEFs advocacy and successful demonstration, than the national master plan of the early eighties, which budgeted US$ 25 billion!!.

Prepared by: Colin Davis, Chief - WES, Nigeria

FIELD VISIT REPORT

21ST - 24TH MARCH, 1994

TAMIL NADU - PERIYAR DISTRICT

GROUP A:

MR.SHAMSUL HUDA, UNICEF INDIA

MS.S. MWENDAR, UNICEF KENYA

MR.K. McKENZIE, UNICEF MALAWI

MR.K. RAY, UNICEF MYANMAR

MR.Z. JURJI, UNICEF IRAQ

PERIYAR DISTRICT - TAMIL NADU STATE

I. BACKGROUND DESCRIPTION & STATISTICS:

- AREA: 8170 Sq. Kms.
- No. of Taluks: 7
- No. of Blocks: 20
- Population: 2,323,000 capita
- Town Panchayats: 61
- Revenue villages: 510
- Economics: Mainly agriculture, cotton textiles, and granite.
- Agriculture: Rice, sugarcane, ground nuts and turmeric.
- WATSAN funds (State Budget): Rs.12 Crores (US$ 4 Million)

Some demographic features in comparison to India.

	India	**Periyar**
Birth rate/1000	30.5	14.2
Death rate/1000	10.2	6.3
IMR/1000	91	40.1
Fertility rate	3	1
Population Growth	2.5	1
Water Coverage (40l/cap/day)	78%	96.3%
Sanitation Coverage (One family one latrine)	11%	19%
Average family size	5	3.8

N.B. Computed GNP amounts to about US$1500 compared to National figure at about US$300.

II. UNICEF ASSISTED PROJECTS:

1.	CDD/WATSAN	(8 Blocks)	1991
2.	VLOM	(1 Block)	1993
3.	CBCS	(3 Blocks)	1992
4.	DWCRA	(20 Blocks)	1983
5.	ISP	(20 Blocks)	1983
6.	UCI	(20 Blocks)	1985
7.	CSSM	(20 Blocks)	1994 April

CSSM: Child Survival and Safe Motherhood.

contd...p/ii

* **WATER SUPPLY**

Total coverage 96.3% of which:

- 70% boreholes with handpumps, 10% boreholes with powered pumps and 20% surface water.
- Villages apply for services
- Needs verification carried out by BDO (Block Development Officers) and passed on to TWAD (Tamil Nadu Water & Drainage Board)
- Implementation done by TWAD at government costs with negligible community participation (except for indication on site preference).
- Maintenance done by BDO's maintenance team and government funds.
- 93% of pumps are operational at any given time.
- Max. downtime at a pump is 2 days.

* **SANITATION (ISP)**

- Awareness campaign conducted
- Masons trained in all blocks
- Family applies to BDO's office and receives pan cost of which is retrieved at time of paying subsidy.
- Family hires mason, provides material and builds latrine.
- BDO's office certifies completion and pays subsidy of Rs.1,280 (UNICEF: Rs.400/State: Rs.440/Central: Rs.440).
- Village Contact Drives conducted covering water, environmental sanitation, hygiene practices and community participation by BDO's staff.
- School sanitation: 718 schools out of 1,200 were provided with subsidy and latrines installed (50% cost borne by Parent Teacher Association and Panchayat Unions).
- Hand washing campaign targeting mothers and children being conducted.

contd...p/iii

* **CDD**

- Implemented in 8 Blocks
- CDD Training units set up in District Hospital
- 18 ORT corners operational at PHC level.
- Awareness campaign conducted by BDO's staff.
- 50% population covered in 8 Blocks.
- Patients screened. Acute cases admitted - others treated for the day while mothers are trained on ORT and released with sufficient ORS for home treatment.
- In 1991 - 600 Cases.
- In last 12 months - 249 cases - less than 10% were admitted - no deaths recorded - includes statistics from private health facilities (Source: District Hospital)
- Information Education and Communication materials widely available and used (including wall paintings at health centers).
- No shortage of ORS.

* **VLOM**

- Being implemented in one CDD-WATSAN block (started 93)
- Plans strategies established - implementation commencing
- Involving the existing women's groups and interested villagers
- Training of 24 WATSAN committees
- Training of 48 village mechanics
- Training of 148 motivators on pump maintenance and related health and hygiene issues.

contd...p/iii

- Upon completion of training, Mark II pump will be replaced by Mark III models.

- Villagers will then be expected to carry out the maintenance themselves.

- Budget provided US$100,000 (50% from UNICEF; 50% to be borne by community and government).

IV. FINDINGS, LESSONS LEARNT AND RECOMMENDATIONS:

1. A dynamic and efficient collector heading a team of competent and hard working staff. Working at the level of beneficiaries has contributed to the success of these programmes.

2. The dedication, commitment and enthusiasm of the government in providing the services to the community has boosted the community to react in similar fashion of dedication and high sense of responsibility towards programmes.

3. Periyar is a high profile district, as it is represented by six state ministers (out of 23). This added political weight for development of the district.

4. District level monitoring for all development programmes is operational (NICNET) and can be used as a very efficient and effective tool for planning.

5. Periyar is a very wealthy district due to its agriculture and textile production and therefore should not be targeted for UNICEF's assistance which should be targeted to under-served areas.

6. Government seeing itself as a provider of all services rather than facilitator at community development is deep rooted.

7. Integration between water supply, sanitation and health/ hygiene education was not evident. Example, reasons given by community for latrine installation were -

   i) Privacy and convenience; and
   ii) Promotion by district representatives and subsidy.

contd...p/5

8. Community Based Convergent Services (CBCS). The team visited one of the 66 villages where this programme was taken up (started in 1991). UNICEF principles of community management, capacity building and empowerment of women are very well represented in this programme. This should be the lead programme for all development procedures as it is a perfect example of bottom-up planning.

9. In conclusion the team was extremely impressed by the efficacy in which all programmes are being implemented. Inspite of the minimum involvement of community, results are being achieved.

a:\JURGI:singh

COMMUNITY BASED CONVERGENT SERVICES

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PAKISTAN
UNICEF 3/94
(draft working paper)
GUHR / QUARRY

COMMUNITY BASED CONVERGENT SERVICES

1. SUSTAINABLE DEVELOPMENT

The global search for sustainability in development has led to the recognition that people (communities) must be brought in at all levels of the development process to ensure their desire and ability to take on responsibility for on-going activity.

This is based on the pragmatic findings of behavioral change/learning models which have long recognized that people must be involved in the decision making process if they are to make choices and "buy into" any process that requires a change in behavior or lifestyle.

In development terms, this translates into the need to make use of methodologies that will bring community (beneficiary) groups into the planning process at the outset of any development intervention.

It also requires a substantial change from the current centralized planning and implementation approach to a more decentralized system focussing on the need to facilitate local/community ability to organize and take overall responsibility for development initiatives.

2. THE NEW DEVELOPMENT MODEL

This approach is not new. In 1986, David Korten's book Community Management, articulated the search for a new development model that would make the community front and centre of development planning. In his forward to the book, Ponna Wignajara wrote:

> The contemporary development debate commonly centers attention on the contest between "delivered development," which is planned from the top, with people as the objects; and "participatory development," which is planned from the bottom, with people, particularly the poor, as the subjects of the development process. Community Management integrates these perspectives, viewing planning as both a "top down" and a "bottom up" process involving social mobilization and a great deal of devolution of power in a truly democratic context.[1]

Similarly Robert Chambers recognized the new approach in his writings around the Farmer First Workshop (1987) when

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[1]. Korten, David Community Management, Kumarian Press 1986

he commented on the growing strength of what he called a new world view in agriculture. Put farmers (community) needs first and the potential for growth and regeneration in complex, diverse and risk prone areas is far greater than previously supposed. This philosophy also builds on the same fundamental principal of learning - that for people to learn and adopt new practices (change behavior), they must share in the process. To achieve this, Chambers calls upon the need for reinforcement of participatory methods, new learning environments and institutional support from governments, NGOs, aid organizations and individuals.

3. COMMUNITY BASED CONVERGENT SERVICES

The strategy which UNICEF Pakistan is presently developing with COMMUNITY BASED CONVERGENT SERVICES recognizes this global call for a change in philosophy. The underlying principle is that programme planning must be fully based on what the community needs and is willing to invest. This is development on people's terms and not based on what aid organizations or the government think is best for the people.

The Balochistan non-formal primary education programme for girls already exemplifies this approach. In this programme the community forms an EDUCATION COMMITTEE which selects a girl from the village as prospective teacher of the new school. This girl first has to prove herself by visiting all families, finding out how many girl students will be sent to the future school, and only then she receives training by the mobile training unit. The education committee finds or puts up a village school room to start non-formal primary education for girls.

Such community defined programmes can be developed for all sectors. Community health workers can also be selected by the community and receive training to focus on the immediate needs of the community. Similarly water and sanitation inputs can respond to community demand with technical choice based on community needs and ability to pay rather than the needs of centrally driven delivery systems.

However, the real issue is not a better community driven programme, but the process of strengthening a community group who - if the support provided was adequate enough - can then apply the experience of the first programme also to the next village development initiative. Such a group may not any more accept development schemes handed down to them by politicians or the government, because those schemes seldom meet the community's priorities, are mostly designed with government standards and therefore are too costly to maintain.

4. COMMUNITY DRIVEN PROGRAMMING - THE ENABLING PROCESS

To develop such community driven programming, it is necessary to create an enabling environment that makes this approach possible. This means two things: a) a process must be found to strengthen community groups and their decision making capabilities and b) development institutions (government, NGOs, Donors) must change their behavior to be able to respond to, rather than drive, the development initiative.

Such changes do not come easily. Pakistan has a fairly long history of exploring various forms of a community approach to development programming (The Village Cooperative Movement; the Village Agricultural and Industrial Development Programme; the Basic Democracies System; the Integrated Rural Development Programme to name a few). Most have floundered on their ability to bring about the enabling environment. They failed at bringing about true participation at the community level (the village elite ultimately dominated the process) and government continued to control the process. The current revival of the need for community based approaches (the rural support programme approach) while drawing its inspiration from the success of the Agha Khan Rural Support Programme model, gets its strength from the open recognition of government's failure to provide adequate services and support to rural communities (the present difficulties for the National Rural Support Programme reflect political interference rather than disagreement with basic concept or approach).

During the last ten years, participatory approaches and methods have shown much better development results. Under different labels such as "FARMER PARTICIPATORY RESEARCH", "PARTICIPATORY RURAL APPRAISAL" or "RAPID RURAL APPRAISAL" the above change in thinking has shifted the initiative, responsibility and action downwards in hierarchies, and especially to the people themselves.

5. THE NEW PROFESSIONALISM

However difficulties still remain around the need to change attitudes and approach of government/aid agency delivery systems. Sheikh Maqsood Ali comments on this while writing about Bangladesh experiments with change:

> Moving from a centralized, rule-bound bureaucratic system known for its unresponsiveness to, and exploitation of, villagers to a decentralized system of locally accountable administration that stimulates local self-reliant development action takes a combination of patience and sustained commitment. It also requires difficult-to-achieve changes in value and skills backed

> by changes in formal authorities and structures and an investment in building the trust of village partners.[2]

We can recognize this need for change within Pakistan and within our own (UNICEF) bureaucratic approaches. In their paper calling for a "New Professionalism" written 5 years after the Farmer First Conference in 1986, Pretty and Chambers write of the need for development professionals to make fundamental changes which are personal, professional, institutional and policy related. The cost is the need to move away from comfortable practices and adopt a NEW PROFESSIONALISM. A professionalism that requires a move away from "telling others what to do" to "listening to how they feel" and working together to share new knowledge.

Our own professional changes then may replace "WE KNOW WHAT IS BEST FOR THEM" by "LET US LEARN TOGETHER."

Teaching and learning are not the same thing. Learning does not necessarily result from teaching. In this context, professionals who are to work with local complexity, diversity and uncertainty need to engage in sensitive and nimble learning about the particular conditions of rapid change and they need to trust that people know more about their own living conditions and restrictions than an outsider. Learning together is the basis for jointly developing solutions.

This necessarily implies new roles for aid workers,

> The new roles for outsider professionals include convener for groups; catalyst and consultant to stimulate, support and advise; facilitator of farmers' (people's) own analysis; searcher and supplier of materials, principles and practices for people to try; and travel agent and tour operator to enable people to learn laterally from each other."[3]

Institutions to support such changes need to be decentralized and adaptive, with open multi-disciplinary and flexible teams. Can UNICEF adapt to fit the new professionalism?

5. UNICEF HAS BECOME VERTICALLY ORIENTED

The multi-donor evaluation of UNICEF specifically points out that UNICEF is too sector specific and must change to reflect convergent thinking as it is happening globally.

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[2]. Sheikh Maqsood Ali: The Bangladesh Experience

[3]. Chambers and Pretty: Development Lessons....

Similarly, the WES sector report reflects the same concern:

> The objectives for WES as established at the World Summit for Children and by UNICEF are quite narrow, i.e. sector-specific and unrelated to the beneficiaries' use of WES facilities for general health and personal hygiene.

And further,

> At country level, UNICEF is predominantly operating through vertical programmes that, however, are well integrated into usually one partner institution at central government level. The national partner institution is often an engineering department, responsible for the nationwide implementation of rural water supply. This strategy choice has contributed to the recorded success in achievement of targets, but the partner institution has seldom the responsibility, the staffing and the motivation required to carry out social mobilization, hygiene education and overall sanitation.[4]

6. THE PROBLEM WITH COVERAGE

During the International Drinking Water Supply and Sanitation Decade, it was also recognized that:

> fulfilling coverage goals is often considered more important than sustainability or long-term social benefits. In fact, the focus on universal coverage requires installing facilities at a rapid pace, in which changes in behavior and institutional needs are neglected. Forty years experience, twenty years of evaluation, and three years of involvement with global sector monitoring show the need for a change of direction.[5]

Can UNICEF Pakistan manage this change in direction and put the need for coverage within sustainable terms? Can UNICEF Pakistan develop new indicators for success - indicators that measure behavioral change at all levels rather than unsustainable coverage as a measure of success?

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[4]. Evaluation of UNICEF Sector Report Water and Environmental Sanitation. Working Paper 12/92

[5]. Draft WES Sector Strategy Paper: Achieving Health and Socio-Economic Benefits from Universal Sustainable Coverage of Environmental Sanitation, Water Supplies and Hygiene. 2/94

7. UNICEF'S SPECIAL ROLE

In Pakistan, the need for convergence and community designed and community driven programmes has been recognized by a number of government officials and all major donors including the World Bank and SAP. Examples for the changing perception of the government are the NATIONAL CONSERVATION STRATEGY with its strong focus on intersectoral linkages and cross-cutting issues, and the new NGO Policy developed by a consultant firm for the Planning and Development Department of the North West Frontier Province.

UNICEF's convergent services approach in Pakistan is being designed to reflect, not only these changing development priorities for Pakistan to promote the community driven programme approach, but also focusses on the UNICEF priorities to promote the development of women and child rights.

8. And what now?

(a) ANALYSIS

In order to define which changes are required for implementation , one needs to look at the future approach of convergence and at what exists now. The gap between the two will lead to designing new activities and re-designing existing ones. This is to be done in a first provincial diagnostic survey to provide the necessary on the ground data seen through the lens of convergence thinking. It is not an evaluation nor is it a situation analysis in the full sense - it is merely a fresh look at what is now on the ground within UNICEF/GOP programming, rural support programmes, NGOs and other donors. The point of it is to bring field perspective and reality to further planning.

Steps proposed for the provincial diagnostic survey:

- mapping of on-going UNICEF assistance;
- identification of what other organizations do in the province;
- review of earlier programmes;
- identification of objectives, concepts and attitudes underlying present programme implementation (conceptual framework/views of communities/government/NGOs);
- identification of potential for convergence.

After the diagnostic survey in the first province we should look at the data and decide whether we do the same also in the next province or to continue with "assessment" and "action" in the first province.

(b) ASSESSMENT

The following questions need to be addressed:

- what can be done NOW to build a basis for future convergence in existing programmes;
- what can be done to bring about convergence in especially potential on-going programmes;
- design new schemes for convergence.

(c) ACTION

Strategies need to be developed:

- for dealing with government mind set;
- for integrating the new professionalism into UNICEF Pakistan;
- for changing Government and UNICEF procedures.

ANNEX

COMMUNITY BASED CONVERGENT SERVICES

The mission statement contains the main changes which are expected from applying the strategy of "Community Based Convergent Services".

The attached "requirements" define in more detail and will serve as guideline for developing the new strategy in the provincial offices. Especially the boxes will serve as a basis for discussing the question **HOW CAN THIS BE DONE?** At a later stage, those "requirements" will serve as check-list with which on-going programmes can be compared and new programmes be planned.

The present version is a draft to be finalised after the process of strategy development in the provinces.

UNICEF, Feb. 94
(draft working paper)

MISSION STATEMENT:

COMMUNITY BASED CONVERGENT SERVICES IS AN INNOVATIVE APPROACH WHERE [1]COMMUNITY PRIORITIES AND SERVICES ARE MATCHED, [2]THE ENVIRONMENT IS CARED FOR, [3]LINKAGES BETWEEN SECTORS ARE UTILIZED, [4]WOMEN'S EMPOWERMENT AND [5]CHILD RIGHTS ARE ENSURED AND, [6]THE RELATIONSHIP BETWEEN GOVERNMENT AND COMMUNITIES ARE TRANSFORMED TO BRING ABOUT SOCIAL CHANGE.

27/02/94

REQUIREMENTS FOR
COMMUNITY BASED CONVERGENT SERVICES

1. COMMUNITY PRIORITY AND SERVICES ARE MATCHED

1.1 Services to be fully reflecting the needs and priorities of communities. The community must be fully involved in planning, implementation and evaluation.

Requirements:

* Villagers need to be the partners for cooperation e.g. in form of a village organization, a sector committee (Thatta) or individuals (OPP: female teachers for PHC).

* Social mobilisers, health workers, teachers and livestock extension workers (BRSP) need to come from the village/area.

* Their tasks need to be defined by the villagers, so that only then the training reflect their needs.

1.2 Providing access to credit rather than doling out money. People want to solve their own problems. Credit for income generation combined with social and technical guidance enables them to improve their situation and be in the position to make community defined demands on the government.

Requirements:

* The community needs to be prepared for sustainable savings and credit schemes.

* Banking institutions need to be prepared for "banking with the poor", especially with women.

2. THE ENVIRONMENT IS CARED FOR

Capacity building within communities for environmental planning and management.

Requirements:

* Identification of environmental issues related to the services.

* Identification of community based and technically sound solutions.

3. LINKAGES BETWEEN SECTORS ARE UTILIZED

3.1 The first intervention as community priority to be designed in such a way that it is doable and affordable by the community e.g. non-formal schools for girls with the building provided by and the female teacher coming from the community . The patterns of understanding developed with the implementation of the first intervention will influence/change the design of subsequent services.

Requirements:

* Defining the basic infrastructure required as starting point for each sector programme.

* Willingness by all partners to review presently applied technical standards and government procedures for adjusting them to the needs of the community.

3.2 Linkages between sectors can and are often needed to strengthen sector performance. For example, the number of diarrhoea cases will be reduced not only by health sector inputs but also require clean water and proper sanitation.

Requirements:

* Identify key linkages and highlight through examples.

* Create awareness of key linkages among service providers and within communities.

4. WOMEN'S EMPOWERMENT IS ENSURED

This empowerment is to lead to a more equitable distribution of resources, especially financial. The needs for women's income must be addressed. Women need to become equal actors in UNICEF supported programmes, so that their involvement at every stage of the programme in planning, implementation and evaluation does not only ensure sustainability but empowers them to take decisions regarding their own development.

Requirements:

* Identification of potential and role of women in each sector.
* Development of mechanism within each sector to ensure their full participation.
* Development of a mechanism for income generation for women (savings + credit).

5. CHILD RIGHTS ARE ENSURED

Promotion of rights of women and children needs to become integral part of all programmes for ensuring their development and protection against exploitation and discrimination.

Requirements:

Identification of rights issues in each programme.

* Development of mechanism ensuring that rights are promoted.

6. TRANSFORM THE WAY COMMUNITIES ORGANISE AND INTERACT WITH GOVERNMENT TO BRING ABOUT SOCIAL CHANGE.

6.1 Government and communities to develop partnership approach

Requirements:

* The government must change from provider of services according to their own design respecting local knowledge and the ability of the community to make decisions about their own needs.

* The community has to change from depending on the government to provide for them towards taking charge of their own development.

* Local district government must become accountable to the community.

6.2 Sharing of costs and responsibilities between community and government.

Requirements:

* Identification of what the community will contribute (internal development) and what government has to provide (external development).

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Performance Evaluation of Handpumps used in UNICEF Projects in Burkina Faso, Mali, Nigeria and Benin

Erich Baumann, March 1994

UNICEF WES programmes in the 4 visited countries vary considerably. They have however one common denominator: They were (or are) not integrated in the overall policy of the respective country. (The reason why this integration was not done in the past might be that a national sector policy was not existent). In Burkina Faso, Mali and Benin the projects are not substantial enough to dominate the sector and to formulate the sector strategy. Nigeria is a special case and would need to be looked at separately.

UNICEF's approach to carry out the drilling operation for the governments and to provide materials (including handpumps) purchased through the supply department in Copenhagen has done little to enhance the capacity in the local private sector to maintain the constructed water points. It has however achieved one thing, it provided safe water to many beneficiaries. In Burkina, Mali and Benin UNICEF has built about 3,500 water points and fitted them with INDIA MKII pumps. If compared to other projects, UNICEF projects were more cost effective and had a quality standard that was above average. They also benefitted from the fact that with the India MKII a handpump was chosen that performs well.

Currently UNICEF is cutting back its involvement and has started to adopt the national sector policies. In the past very little self sustained structures to support the communities were established. New community managed projects concern themselves mostly with new water points. The introduction of this philosophy holds the danger that the old water points will be left without the necessary support. UNICEF's future projects should consider the past and have a strategy built in that allows to support these infrastructures. Further it would make sense to look back on the achievements of the last decade, to assess what had been working well and than base future projects on these perceptions.

Handpumps have been glorified and mystified in water supply projects. It is a fact that the choice of a bad handpump can make a badly designed and executed project a proper disaster. The choice of a good handpump would make the same project not much better. During the last 20 years handpump designs have been improved. Several sound handpump types are available that can provide a good service. Debacles that are still sometimes experienced. They happen because projects are jumping the gun and employ unproven technology in large scale.

The question whether a pump can be maintained by the communities does not depend on

one or two specific design features but on the willingness of the community to keep the pump operational. (After all, the reason that a bushtaxi is still operational after 25 years of use and abuse does not depend on the fact that a car can be repaired with a few simple tools but on the fact that is considered essential and on the availability of spare parts). Water from a handpump is not always conceived as a crucial need in the villages. Therefore handpumps are often not repaired. **The best way of convincing communities about the importance of their water point is to attach some economic activities around the water point** (sales of water for animals in Mali or gardening in Benin are examples). Such pumps provide an immediate economic return are therefore kept operational. Spare parts and back up services are available for this, the type of pump that is being used is of less relevance. Important elements for the acceptance of a pump are high yield, reliability and ease of operation.

The scope of the mission was to assess how pumps utilized in UNICEF projects perform under the given conditions. The types used are India MKII, India MKIII, Vergnet and UPM. Of these types the Vergnet, UPM and India MKIII are relatively new to UNICEF projects. The India MKII had been used for many years. The operating conditions determine to a large extent whether a pump is best suited. The conditions have been categorized as follows:

less than 45 m lift, non- aggressive water	less than 45 m lift, aggressive water	over 45 m lift
The India MKII or MKIII are by far the cheapest and the best suited choice. Of these the India MKIII is easier to maintain. Vergnet, UPM and Kardia do not offer any substantial advantages. They are more expensive and their yield is lower.	The cost advantage of the India MKII and especially of the India MKIII over the other types diminishes. The India MKII with the light SS rising main can be dismantled without any lifting tackle. The MKIII is much more expensive and offers very little advantage during maintenance. The PVC rising main for the MKIII have not yet been tested in large scale, this development should be followed carefully. The price difference between the India MKII and the Vergnet or UPM is minimal. The choice of pump might under this conditions best be governed by the availability of after sales services and the aspect of yield.	If water needs to be pumped from more than 45 m the operating conditions for handpumps are unfavourable. India MKII/MKIII and Vergnet are not really suited. The UPM can be utilized as it allows the sharing of the work by several people. The Volanta pump might be an other feasible option for high lifts. Both pumps are very expensive. Communities will need financial and technical support to maintain a handpump installed at this level. Alternative technology for pumping might be considered.

Taking these findings into account there is no need for UNICEF to change its choice of handpump types. UNICEF has been using India MKII pumps with good results for the last 12 years in West Africa. Other types (Vergnet, UPM) do not have any significant advantages. It can be recommended to carry on using India MKII and MKIII pumps in its

projects if the installations are not too deep. For installations of 45 m and more handpumps should only be used if other options (solar or animal driven) are not considered feasible. If a handpump is used in this conditions the UPM or the Volanta seem to be a feasible options.

The choice of handpump technology should however be governed by the situation in the country. If an other type of pump is prevalent and a functioning service network has been established it would make sense to purchase the same pump.

However it is strongly recommended to change the policy of procurement. If the pumps are purchased locally UNICEF can be instrumental in maintaining or setting up local capacity to produce and maintain the pumps. Local representatives of imported pumps or local manufacturers should sell the handpumps including delivery and installation, training of area mechanics and village pump care takers, guarantee, supply of spare parts and technical back up. The initial cost of the pumps will be higher than for pumps purchased in bulk from abroad. The benefits from such a procurement policy are that on local level private enterprises will provide services that are not dependent on one project only. The initially higher cost for the pumps will be by far outweighed by the savings gained through local capacity building.

In all African countries a vast amount of money lies idle. Hundreds of expensive boreholes are not utilized because the handpumps are broken down. A borehole should have a service life of 25 years and more. Handpumps need to be replaced after about 10-12 years. Many of these boreholes could be rehabilitated for relatively small sums. It is therefore highly recommended that UNICEF includes the refurbishing of old boreholes in their projects. Since most of the UNICEF boreholes were fitted with India MKII pumps it would make sense to salvage as much as possible from the old pumpheads and cylinders. Such an action would again make the involvement of local suppliers useful as it is difficult to plan the amount of material needed.

WHO'S WORK IN WATER AND SANITATION HYGIENE EDUCATION

Community Water Supply and Sanitation Unit (CWS)
Division of Environmental Health, World Health Organization, Geneva.
October 1993

The need for hygiene education

In many settings, the provision of clean accessible water and sanitary latrines is not economically possible. And even when new sanitary facilities can be acheived, they are not sufficient to realize health benefits: changes in hygiene behaviours are required if service provision is to lead to increases health status. *But improved hygiene behaviours can lead to better health even in the absence of improved water and sanitation facilities.*

Communities need information on the behavioural changes that bring the greatest health benefits. When economic, cultural or other constraints prevent consumers from adopting new behaviours, an effective hygiene education programme proposes gradual improvements in both practices and hygiene facilities. This is reached through a dialogue with consumers and a strong communications strategy.

Objectives

1. To advocate the implementation of hygiene education, both as an integral part of water and sanitation projects, and also as an important element in wider health promotion initiatives.

2. To advance the field through research, expanding current knowledge of the relation between hygiene behaviours and diseases, as well as developing better educational techniques for changing hygiene behaviours.

3. To develop capacity within countries to design and carry out hygiene education programmes. Such programmes should include the study of traditional hygiene practices and the development, adaptation and application of effective and innovative approaches to the promotion of improved hygiene behaviours and water and sanitation facilities.

Collaboration

Within WHO, CWS works on hygiene education issues with: the Division of Health Education (HED), the Control of Diarrhoeal Diseases Unit (CDD), and the Health Learning Materials Programme (HLM), the Food Safety Programme (FOS) and the Division of Control of Tropical Diseases (CTD).

In 1992 WHO and UNICEF agreed to work toward a Joint Strategy for Hygiene Education in the 1990's, involving collaboration on research projects, training, development of country strategies, capacity building, promotion activities, and development of materials. Other institutions with whom CWS works in hygiene education include: the International Centre for Water Supply and Sanitation (IRC); the Swedish Agency for International Development; the UNDP/ World Bank Water and Sanitation Programme; and USAID.

Hygiene education activities

Research

Since 1986 WHO's Diarrhoeal Disease Programme (CDD) has been supporting research into hygiene risk factors and motivational factors for the promotion of improved hygiene behaviours. CWS's research activities compliment those of CDD, and of WHO's Food Safety Unit.

CWS is supporting ongoing research in Burkina Faso into the interpretation, measurement and change of hygiene behaviours. In addition, WHO and UNICEF have agreed to collaborate on an investigative paper on motivational factors for hygiene behaviour change.

Another research focus is the feasibility and impact of innovative hygiene promotion techniques. For example, in order to study the effectiveness of children's cartoon magazines in hygiene education, CWS has supported the development and evaluation of a magazine in Nepal by the national HLM Programme which in April 1993 won a gold medal among Nepali publications.

Reviewing and disseminating information and messages

Consensus is needed on approaches to the study of hygiene behaviour and on desirable and feasible hygiene behaviours.

In May 1992 CWS and CDD held an international informal consultation to review knowledge about the impact of various water and sanitation related hygiene behaviours on diarrhoeal disease, to prioritize the behavioural areas where WHO will concentrate efforts and to review advances in methods to promote hygiene.

The consultation highlighted a small set of key hygiene behaviours which, if adopted, are most likely to lead to reduced diarrhoeal morbidity.

Key hygiene behaviours for the reduction of diarrhoeal disease

- Safer disposal of faeces, particularly faeces of young children and babies, and of people with diarrhoea
- Handwashing after defecation or handling babies faeces, and before preparing food, feeding or eating
- Maintaining drinking water free from faecal contamination in the home and at the source

A second Informal Regional Consultation on Hygiene and Sanitation Promotion at WHO's Regional Office for South East Asia (SEARO) in May 1993 addressed the problem of achieving latrine coverage in the face of rapid population growth. The consultation concluded that the most effective approach to sanitation and hygiene education would be: *Hygiene promotion for all - and full latrine coverage for high-risk populations.*

Building on the findings of these two consultations, CWS intends to work with other WHO programmes concerned with water and sanitation related diseases, in order to identify a minimum set of hygiene behaviours most likely to reduce the disease burden in poor communities.

Developing and sharing approaches and techniques

Recent reviews of sector approaches to hygiene and sanitation education indicate that the two main approaches used, demonstration and message-giving, do not result in much hygiene improvement.

More effective approaches and techniques are required. Three that CWS promotes are the following:

Public health communications

There is a great need to identify, test and share innovative and effective techniques based on concepts of social marketing

Based on research supported by WHO's CDD programme, a manual providing guidelines for the design of community interventions through public health communication techniques will be prepared.

Another technique being tested by CWS is the use of popular graphic materials including comics, puzzles and colouring books to spread messages to children and adults. As well as supporting and studying the comic magazine in Nepal, CWS plans to undertake similar research in francophone Africa.

Participatory approaches

In a joint project with the UNDP-World Bank Regional Water Supply and Sanitation Group in Nairobi, Kenya, participatory "Tools for Hygiene Education" will be developed through country activities in Botswana, Kenya, Uganda and Zimbabwe. This project is based upon UNDP/PROWESS's successful SARAR methodology for building community participation.

School hygiene education

School hygiene education is a high priority for CWS, particularly when it forms part of improved school water and sanitation facilities. Projects of this kind are currently being supported by WHO in Benin, Zimbabwe and Burkina Faso.

CWS is working closely with the French NGO "EAST" who have considerable experience in the planning of comprehensive school water, sanitation and hygiene projects, using simple, sustainable technologies.

This year, in Columbia, at the first of a series of regional seminars, Latin American countries presented the findings of studies into the state of national school sanitary facilities and hygiene education activities (Cali, March 1993).

From the findings of these seminars, (the next of which will be held in francophone Africa), guidelines on school sanitation and hygiene education will be produced in collaboration with the IRC Water Supply and Sanitation Centre.

Training

Water and sanitation professionals often receive little training in community-based methods to promote improved hygiene behaviours. Responding to this problem, WHO and UNICEF are collaborating to develop and test a package for the country level training of government staff in hygiene education. WHO is also working with UNICEF to train WHO and UNICEF staff in Asia and Africa, using a UNICEF-developed training package in hygiene education.

Supporting the development of country hygiene promotion strategies

Responding to country requests, CWS provides support and guidance in the preparation of country-level strategies for hygiene promotion .

Relevant WHO publications

Achieving Success in Community Water Supply and Sanitation Projects. WHO Regional Office for South East Asia, New Delhi, 1985.

Community Water Supply Activities in Hygiene Education, *WHO Newsletter of Environmental Health* **13**, January 1992.

Food, Environment and Health - A guide for Primary School Teachers WHO, 1990.

Food, Water and Family Health: A manual for community educators. WHO/UNDP. In preparation.

Guidelines for Planning Community Participation Activities in Water Supply and Sanitation Projects. Whyte A. WHO Offset Publication, No.96, 1986.

New Directions in Hygiene and Sanitation Promotion. Report of an Informal Consultation, SEARO and WHO/HQ. September 1993.

Improving Water Sanitation Hygiene Behaviours For the Reduction of Diarrhoeal Disease. Report of an Informal Consultation. WHO CWS/CDD June 1993.

Funding

CWS's hygiene education activities are currently supported by the Swedish International Development Authority (SIDA) and special funds from the Development Fund of the Director General of WHO.

A new impetus for hygiene education

In September 1993, at a meeting in Rabat, Morocco, the Water Supply and Sanitation Collaborative Council, recognizing the need for dialogue and innovation in the field, launched a new *Working Group on Hygiene and Sanitation Promotion*, to be coordinated by CWS.

The group will provide a forum for experts from around the world to stimulate and advocate activities for the promotion of gradual, community-directed improvements in sanitation, and hygiene education for all.

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Water Supply and Sanitation in Oman

Population:

Total:2,017,591 Rural: 64 36% Urban: 36 64%

Estimated Service Coverage at the end of 1992:

Water Supply:	Total 63%	Urban 97%	Rural 50%
Sanitation :	Total 76%	Urban 97%	Rural 68%

Sector Goals:

The sector goals under 1990-1995 Development Plan are

> "to provide potable water and water for industrial use through out the country and gradually reduce dependance on underground water in coastal regions replacing it with desalination plants to preserve the underground water reserves and not deplete them" and
>
> to "extend municipal services to all towns and villages , distributed evenly in quantity and quality".

The unpublished long term goal of the government is to provide piped water supply for all communities' by the year 2005. There is no declared policy on sanitation. However the government regards sanitation as the household responsibility.

Sector Opportunities and Constraints:

- **Base line data on the sector is not available and WS&S sector monitoring is rather weak.**
- **The total amount of available fresh water is very limited. 85% of that water is utilized by the agriculture sector. Development of alternative sources for municipal/community water supply is very difficult and costly.**

With mean annual rainfall ranging from 30 to 280 mm, surface water is only available during short spans of time. Available groundwater in "wadis" (river valleys) and plains has historically enabled agricultural production on a limited scale.

Groundwater availability in Oman has shown seasonal and cyclical fluctuations over the last two decades with a long term declining trend. The government has however constructed several recharge dams to avoid flood waters from being lost to the sea, and instead infiltrate in areas where groundwater abstraction is very high and unsustainable.

Additional sources of water include *desalinized water* accounting for almost 80 per cent of Muscat's water supply. A total of nine

desalinization plants exist in Oman and four additional are planned for the near future. *Water treated by reverse osmosis* is provided in isolated desert settlements where the only source of water is brackish groundwater.

- **The government policy of high subsidies for water supply services, and the public reluctance to pay higher tariffs for such services.**

Cost of desalinated water (at the plant) is in the order of US$ 2.6- 5.2/m3. The price of metered water in Muscat is US$ 1.1/m3. Water tank operators purchase water at US$ .57/m3 and sell it at some US$ 2.1/m3 in urban areas. This implies that government is heavily subsidizing water.

- **Divided institutional responsibilities and insufficient coordination between the five main ministries involved in the sector.**

There are five ministries involved in the sector. The Ministry of Electricity and Water (MEW) is mandated with the provision of water to all of the country. The Ministry of Regional Municipalities and Environment (MRME) is the agency in charge of sanitation in all of the country with the exception of the capital area. The capital area sanitation is managed by Muscat Municipality. The Ministry of Agriculture and Fisheries is the main water user in the country.

- **The involvement of the private sector is being encouraged by the government.**

The sector ministries rely heavily on the high quality technical support which is readily available in the country through local and international consulting firms. Construction of facilities, operation and maintenance of services, and meter reading and billing are successfully contracted out to the private sector. With more involvement of the private sector, the in-house technical and operational capacity is reduced.

The government is seeking the private sector financing of water supply projects by promoting the Build-Own-Operate-and Transfer (BOOT) schemes. Under the BOOT schemes concessions are given to the private sector companies to invest in the public service delivery in return for government guarantees, The companies own and operate the business for 22 years before transferring it to the government. Feasibility studies are near completion on four BOOT schemes for 4 coastal towns in Northern Oman.

Recently MEW commissioned a study on converting the Directorate General of Water Supply into a Semi-Autonomous body as the first step towards privatizing the water services in Oman.

- **Resources allocated to rural areas are very limited.**

For the 4th 5-year Development Plan approximately 8 percent (US$19.7M) of the US$247.3M, budget for new water supply projects has been allocated to the rural areas, US$7.9M of which are earmarked for the installation of small desalination plants.

BUDGET For NEW WATER SUPPLY PROJECTS

	1986-1990		1991-1995	
	Million US$	%	Million US$	%
The Capital Area	101.3	86.4	198.3	80.1
Large towns Water Supplies	10.4	8.9	29.3	11.9
Rural Water Supplies	5.52	4.7	19.7	8.0
Total Dev. Budget	116.92	100	247.3	100

The 1991-1995 Government budget for waste collection and disposal outside the capital area is only US$26.6M out of a total development budget of US$149.7M.

- **The government policy of using conventional high cost technologies (e.g. piped water supplies, septic tanks).**

Household connections supplied with piped systems are limited to 80% of the capital, Muscat and some parts of Salalah - the second city. *Household connections supplied with tankers* is the most common supply system in the country. The reliance on this technology is due to the unavailability of alternative sources nearby the settlements being served.

Unprotected shallow wells and aflaj (open canals with water being tapped from a spring, dug well, or a small temporary dam in a wadi, and flowing downstream by gravity) are very common water sources in rural areas. Quality-wise, 45 to 85 per cent of the shallow wells and falaj water was found to be bacteriologically contaminated.

A ministerial decree stipulates that household wishing to have a sanitation system must build a septic tank according to predefined specifications. The technology is widely used in urban areas and some rural areas. Between 19 and 50 percent of the rural households in four wilayats (districts) employ this technology. In most cases, however, either simple pit latrines are used or open defecation is practiced. The fact is that the cost of constructing a household septic tank system ranges between US$2000 and US$7000 depending on the size. This is quite high for average rural household incomes in the order of US$ 2,500/year, unless financing mechanisms are established. Operation and maintenance costs of such systems are also very high.

UNICEF WES Programme in Oman:

UNICEF is a newcomer to the water and sanitation sector and in the past 18 months has established dialogue and working relations with two of the main Ministries involved in the sector Ministry of Electricity and Water (MEW) and the Ministry of Regional Municipalities and Environment (MRME). The total programme expenditure in 1993 was US$ 182,000 and the 1994 budget is US$168,600 inclusive of the programme staff and support.

UNICEF activities in the first phase (1993-1995) of its cooperation with the Government of Oman concentrate on the rural water supply and sanitation. The implementation of the sector monitoring system is also a key component of the programme.

Strategies

UNICEF strategies encompass:

- Enhancing the sector monitoring to generate information for improved planning, management and advocacy.
- The development of cost effective and easily replicable models to facilitate the expansion of WS&S service coverage to the unserved in rural areas on an environmentally and financially sustainable basis.
- Human resource and institutional capacity building at wilayat and community levels for acceleration of service coverage, as well as to sustain services thereafter.
- Technical assistance and advocacy with the objective of mobilizing resources and adapting sector policies to facilitate the acceleration of service coverage to the unserved.
- Technology transfer for more effective irrigation practices, more effective water source detection, and the promotion of appropriate low-cost and water saving water and sanitation technologies.

Activities

- Initiating WS&S sector monitoring on a pilot phase in one region in cooperation with MEW and the MRME. Improved sector planning will be facilitated, as will the better targeting of resources, and the packaging of information for advocacy purposes. This activity involves the use of the WHO/UNICEF WASAMS monitoring system.
- Undertaking pilot project in 1 selected village to improve the quality of water from unprotected shallow well through participatory planning at community level with community funding input.

- Undertaking pilot experiments in the 1 selected village to improve sanitation from open defecation to pour flush latrines through participatory planning at community level with household funding input.

- Introducing the use of geophysical methods for borehole sitting, to improve the future effectiveness of exploring ground water resources for community and municipal water supplies. This technique is being applied by MEW on a pilot scale to prove its effectiveness to the GOO. It appears that the borehole failure rate of the MEW is in the order of 40 per cent, and that some 30 to 50 boreholes are drilled annually by MEW alone. With improved borehole sitting techniques this failure rate could probably be halved resulting in: the drilling of 6 to 10 less abortive boreholes annually by MEW alone; a substantial increase in the total water yield per meter drilled, and substantial savings in the drilling budget.

- Implementing experiments with the "permeable clay pot" irrigation technology through selected interventions in 5 sites. These interventions will include trials with clay pot production at several traditional manufacturing sites followed by their application in kitchen gardens and commercial plantations. The effective use of this technology on a large scale would bring about a greater productivity with reduced water use by the agricultural sector, and release of available low cost water for the domestic water supply.

- Effectively document and communicate successful pilot (and medium size) interventions with the objective of mobilizing resources and adapting sector policies to facilitate the acceleration of service coverage to the unserved population.

WATER AND SANITATION SECTOR

COUNTRY PROFILE

UNICEF LEBANON

MARCH 1994

Water and Sanitation Sector
Country Profile
Lebanon

Situation Analysis

The long years of war had a major negative impact on the situation of water in Lebanon, particularly with regard to the Government's infrastructure. Throughout the years of war, the Lebanese suffered from a decrease in the volume of water by almost 60 per cent from the average for 1975. The rehabilitation works undertaken by the Government immediately after the cessation of armed conflict served to alleviate relatively this problem, and it is estimated that, at present, around 95 per cent of the population has access to an adequate amount of safe drinking water located within a convenient distance from the user's dwelling. However, recent studies indicate that a number of villages in so-labelled underserved regions are totally deprived of any water source or network.

The main problems faced by the Water and Sanitation Sector in Lebanon are:

1- **Absence of a master plan for water at the national level**. The plans that are put forward by the Ministry of Hydraulic and Electrical Resources and the Council for Development and Reconstruction are mostly concerned with restoring the situation to the pre-war level without further development.

2- **Absence of a plan for increasing accessibility to safe drinking water, especially in underserved regions**. Studies done by UNICEF had identified the outlying rural regions of the North and the Beqaa to have unfavorable socio-economic and health conditions. It was found that 22 per cent of the villages in these regions lack sources of safe drinking water and 40 per cent of them do not have networks, but depend on local springs and rain water collection wells. In addition, the quality of water in these regions is far below the standards recommended by WHO, since most sources are left unprotected and lack any form of treatment. It is worth noting that these regions inhabit around per cent of Lebanon's population. The plans presently developed by the Government do not address the specific needs of these regions and do not envision any special plans for developing water sources in them.

3- **A serious problem related to safety of drinking water**. Studies conducted by UNICEF and the American University of Beirut in 1990-1991 found evidence of water contamination in about 70 per cent of water sources. Epidemics of water-borne diseases were reported over the last four years, with an outbreak of cholera cases in 1990 and 1993. A national survey conducted in 1990 revealed an average incidence of 3.6 episodes of diarrhea among children under five, which is above the average found in developing countries, namely 3 episodes/U5/ child/year.

Environmental sanitation, generally very poor, especially in underserved regions which dispose of waste water in open cesspools is partly responsible for this situation.

4- **Water authorities suffer from insufficient and outdated equipment and untrained personnel**. Technicians of water authorities, who represent the main water caretakers at the local level, lack the basic skills for repair of pipes, testing of leakages in the pipelines, and routine electrical and mechanical maintenance of water projects. This situation leads to an increase in the costs of maintenance and repair works and delay in the execution of urgent repairs that would affect water quality/water quantity.

5- **Absence of prototypes relative to the disposal of waste water at the small community level**. In Lebanon, the large cities that inhabit around per cent of the population dispose of their waste water through a sewage network. However, even when sewage networks exist waste water is channeled into the sea or rivers or used in agriculture without any previous treatment. The remaining rural regions do not have any system for disposing of their waste water except through open cesspools which represent an important source of pollutants for ground water.

Objectives of UNICEF-supported Water and Sanitation Programme

The objectives of the UNICEF supported Water and Sanitation Programme executed in coordination with the Government of Lebanon for 1992- 1996 are the following:

1) To help formulate a national policy and plan on drinking water and sanitation by 1993;

2) To increase community-level access to drinking water to an average of 60 liters per person per day by 1996;

3) To extend the existing system of water quality control to all districts by 1994;

4) To ensure that all rural and peri-urban communities receive information on safe water, low-cost disinfection techniques, personal hygiene and waste disposal practices by 1996.

Past Achievements

UNICEF's work in Water and Sanitation between 1980 and 1990 involved working with the Ministry of Hydraulic and Electrical Resources and the Council for Development and Reconstruction on projects to provide water sources and to increase the quantity of water drawn from existing sources. In addition, emergency repairs to the Greater Beirut area were carried out during the war years. The projects undertaken by UNICEF in that lapse of time have included execution of large-scale projects characterized by advanced technology through contracting of projects with advanced

technology in the framework of an emergency "top-down" approach to programming.

In 1990, new aspects were introduced into the programme through the adoption of a developmental, community-oriented type of programming, in which UNICEF became only one of the parties to the water projects. With this new change in approach, the Governmental and the local communities have now become active partners in the execution of water projects.

A new approach was also introduced into the programme through adoption of a water quality control. Thus, a system was developed to assess water quality (physicochemical and bacteriological) both at the source and throughout the distribution networks. By early 1993, twelve laboratories had been set up and equipped in the offices of water authorities and a number of water technicians had been trained to run them. Community participation in planning and implementation of water projects was secured either in the form of labor or in the form of cost-sharing.

Main Trends in UNICEF's Work

Although UNICEF's work in the Water and Sanitation Sector in Lebanon has not included by special success stories, in terms of localized projects in certain regions or addressing a special type of comprehensive project, and thereby different from the classical approach of UNICEF its activities were built around the main strategies put forward in UNICEF's policies in the field. Elements addressing advocacy, empowerment of groups, national capacity building, community participation, health education and research have been emphasized in the different activities implemented.

In extending support to the Government in its efforts to formulate a national policy for water and sanitation, a seminar on water supply in Lebanon was organized in November 1992. The recommendations of the seminar have formed a basis for strategies and plans of action, part of which were adopted by the Government.

Advocacy efforts on behalf of the underserved regions identified earlier have born fruit as politicians now begin for the first time to mention these areas in their various speeches. This has led to an increasing number of projects undertaken in these areas.

The commitment of the Government towards improving water quality was very substantial. It is in this context that a plan for a national system of water quality surveillance is being formulated at present with each of the Ministry of Hydraulic and Electrical Resources and the Ministry of Public Health whose work in this field is complementary.

Links of the Water and Sanitation Programme to other sectors has been strengthened by its integration as a component of the Health Programme. Close linkages have also been made with the Control of Diarrheal Diseases Project whereby joint health education and social mobilization activities have been undertaken including production of T.V. spots and distribution of pamphlets.

Developments along the strategy line calling for **national capacity building** have included at the national level intensive sensitization of government planners and decision makers on problem analysis and strategy development. At the local level training was organized for water technicians from the Ministry of Hydraulic and Electrical Resources and health supervisors from the Ministry of Public Health on water quality testing techniques.

In the area of research, the national survey conducted on the physico-chemical and bacteriological sources of water in 1990 and 1991 by UNICEF in coordination with the Ministry of Public Health and the American University of Beirut has been highly valuable in raising awareness about the problem of water quality in Lebanon and providing baseline data that would sever as a sound basis for monitoring and evaluation.

UNICEF's supported programme has not included work in sanitation This could be explained by the following: in urban centers, the systems used for waste water disposal are sewage networks that represent a costly enterprise, and UNICEF's priorities and limited funds did not enable it to act as an intervention agency. On the other hand, in rural areas, construction of sewage networks is a costly endeavour, that may raise questions of cost-effectiveness in some cases. Hence, special modes or schemes for disposing of waste water at the small community level need to be developed.

With respect to monitoring and evaluation, and since the problem in Lebanon is not that of water quantity as much as that of water quality, a system has been initiated for assessing and monitoring water quality. At the local level, water is administered by so-called "water authorities". With the support of UNICEF, twelve laboratories for water quality testing have been set up in these authorities. Their functions include performing test on water sources and along the networks according to a regular frequency.

Future Directions

1- **Increasing community-level access to drinking water**: this includes execution of projects that serve to increase the quantity of water available to citizens, with focus on underserved regions. The projects will be executed with active participation of the community in the planning, implementation and coordination. Close coordination will be made with the Government, which is represented by the Water Authority at the

district level and the local community, building on an already rich experience of agreement brokerage in this field.

2- **Consolidating the water quality surveillance system**: Efforts will be directed at establishing a national system for water quality surveillance by the Ministry of Hydraulic and Electrical Resources and the Ministry of Public Health. Work will be made in the direction of transferring this system from one of surveillance to one of action, thereby effecting actual changes in the quality of water.

3- **Capacity building of the Water Authorities**: realizing the importance of national capacity building, activities of the Water and Sanitation Programme shall include training water technicians on basic skills, e.g. repair of pipes, testing of leakages in the pipelines and electrical and mechanical maintenance of water projects. These are expected to curb the expense paid by the Water Authorities for contracting such job. The expected impact of such activities includes improved staff performance, development of human resources, reduction if costs of maintenance and repair works, and overall long-term protection of water headworks including distribution networks and pumping stations.

4- **Promotion of health education**: Intensive efforts will be made as part of the Primary Health Care Programme to promote public awareness of proper sanitation and hygiene. This includes dissemination of material, both written (pamphlets, leaflets) and audio-visual (T.V. and radio) on proper hygienic practices related to safety of excreta disposal and promotion of proper eating habits.

5- **Efforts will be directed at identifying methods for waste water management at small community level**. In fact, operational research in the American University of Beirut has already identified one such methods using hydrophyte treatment and UNICEF has expressed its willingness to use it in certain communities.

Key turn points challenging the Water and Sanitation Programme

1- Turning the water quality surveillance system into a plan of action for improving water quality: A draft plan of action has been prepared by UNICEF and presented to the Government. Further discussion are taking place to start implementing this plan, which is expected to alleviate the water quality problem and curb the number of water borne epidemics.

2- Limited funds: the funds received by UNICEF Lebanon over the last two years have been very limited and earmarked mostly for emergency assistance projects localized in certain regions of the country. Hence, no funds could be geared towards increasing accessibility to water in those underserved regions which UNICEF has among its priorities. In addition, no funds could be earmarked for building the technical capacity of the water authorities.

THE STATUS OF WATER AND SANITATION SECTOR IN IRAQ

OVERVIEW:

Water and sanitation facilities in Iraq were in complete disarray immediately after the 1991 Gulf War triggering off a wave of water-borne and diarrhoea related diseases which reached near epidemic proportions. Mortality and morbidity due to diarrhoeal diseases tripled on account of limited or non availability of safe drinking water. Children and women were first victims.

This situation has shown little if no improvement at all over the past three years as the water and sanitation sector has remained in shambles due to the fact that the full rehabilitation requires substantive investment which is beyond the current capacity of Iraq, still staggering under the adverse effects of more than three and a half years old sanctions.

Iraq, traditionally is a country where water resources are found in abundance and by the end of last decade had enjoyed a total production of potable water of 4 million m3/day. Water was produced and served to the population through advanced water systems covering 93% of the urban and 50% of the rural population. In addition, the government of Iraq had concluded contracts with foreign companies for the construction of new water treatment systems to boost production by 50% by 1993.

Long term plans had been set to reach a total production of 10 million m3/day by the year 2005. An average of US$ 30 million/annum were utilized by the water authorities to carry out maintenance of existing systems.

However, the Gulf War and it's aftermath violent events as well as the sustained sanctions have changed the picture drastically. Suddenly, all systems seized to function on account of lack of essential spare parts, either looted or heavily damaged. Subsequently, 70% of the population received less than 40 liters/cap/day of unsafe drinking water. The situation was further worsened by the total breakdown or intermittent electrical power supply which lasted for more than three months in some governorates. Even worse was the total breakdown in the local production of water purification chemicals (chlorine gas, powder and alum- sulphate). The immediate result was that water-borne diseases became rampant. Cholera reached almost epidemic proportions in 1991 registering 1,217 reported cases compared to zero cases in 1990. Typhoid leaped from 2,240 reported cases in 1990 to 17,524 cases in 1991.

The gravity of the situation has prompted UNICEF to immediately intervene to stop further deterioration and reduce mortality and morbidity among children and women due to water-borne diseases .

The magnitude of the problem has warranted UNICEF to undertake a relatively unconventional role, almost exclusively focused on hardware supply of equipment to assist in the rehabilitation and rebuilding of the existing systems. With this approach UNICEF succeeded in assisting the government to maintain the decline of the status line of the water and sanitation sector as flat as possible, thus preventing a public health castastrophe from taking place.

Todate UNICEF total assistance in financial terms amounted to more than US$ 40 million, a substantive amount from a UNICEF perspective. However, when compared to the magnitude of the problem, this amount seems modest.

ACHIEVEMENTS:

- UNICEF assisted in purifying drinking water by provision of water purification chemicals (chlorine gas and powder and alum-sulphate). Chlorinators, injection pumps and spares were provided too.

- UNICEF also assisted in the repair of water treatment plants by provision of pumps, motors, ball bearings and electrical equipment. Water distribution networks were upgraded by provision of pipes, fittings, collars and tapping machines.

- In collaboration with an NGO (OXFAM), UNICEF assisted in the rehabilitation of water and sanitation facilities in 1,050 schools by provision of supplies. This covered almost all schools in Basrah, Amara and Thiqar governorate.

- UNICEF distributed drinking water to the unserved population through rented water tankers. Sewage was also drained from residential areas by hired sewage tankers. With provided batteries, tyres and spares, some of the existing water and sewage tankers and garbage collection vehicles are back into operation UNICEF provision of sewage submersible and mobile pumps and sewers cleaning equipment assisted int he maintenance of sewage networks.

- UNICEF also paid particular attention to the capacity building component of it's cooperation with the Government of Iraq. This was reflected in supporting various training workshops of technicians and engineers on water and sanitation systems maintenance by provision of foodbaskets in lieu of DSA.

- UNICEF supported the water authorities to monitor it's programme at the peripheral level by enhancing it's mobility in the form of provision of vehicles.

- Hygiene education programme was also initiated with the production of messages related to environmental sanitation and personal hygiene derived from the Iraqi adapted version of Facts For Life boklet. These messages were presented to schools' pupils in the form of a weekly planner aided by four educational charts.

CURRENT STATUS:

Despite all interventions and inputs rendered over the past three years the situation of the WATSAN sector is still critical and needs further attention. Many plants need major overhauls to resume operation. Cannibalization of systems is reducing the life span and leading into fast deterioration. None of the existing sewerage plants is considered operational. Raw sewage is discharged without treatment into Tigris and Euphrates, the direct source of drinking water for large segments of the population particularly in the rural areas.

In the south, floating and stagnant sewage between residential areas is a common scene. Low pressure of water supply is forcing people to install their domestic pumps directly on the network. This is lowering the pressure of water in the pipe lines to a negative thus inducing the floating sewage to infiltrate into the systems and cause contamination and environmental hazards.

THE PARTIAL MDG OF WATER AND SANITATION: Increase water supply and sanitation so as to narrow the gap between 1992 levels and universal access by the year 2000 of water supply by one-fourth and of sanitation by one-tenth.

MODIFIED NATIONAL GOAL: Same

COVERAGE/INDICATOR	1992	1995 Target
1. Per cent population having access to adequate quantity of potable water within a convenient distance	Urban 60% Rural 40% Total 54%	70% 55% 65.5%
2. Per cent population having access to sanitary means of excreta disposal	Urban 95% Rural 70% Total 87.5%	96% 73% 89%

The above mentioned data should be guided by the following:

1. Adequate quantity of potable water equals 200 l/cap/day for urban areas and 120 l/cap/day for rural areas.

2. Convenient distance (applicable for rural areas) is within 150m of the dwelling (all urban population have access to water in the dwelling).

3. Urban/rural population split is 70:30

STRATEGIES:

1. Continue assistance to the sector for the duration of the emergency as per present with better targetting on problematic areas.

2. Assessing potential for more appropriate intervention (low cost appropriate technology) in rural unserved areas in the water and sanitation field.

3. Social mobilization on hygiene education topics through mass media.

4. Assist in local capacity building.

ACTIVITIES:

1. Provision of spares, equipment and water purification chemicals to assist maintaining the existing water and sewage systems in their present status.

2. Support for the development and implementation of low cost appropriate technology techniques that matches the country's situation and environment.

3. Assist in the implementation of the above mentioned techniques by provision of needed materails and equipment.

4. Assist dissemination of Hygiene Education messages and water and environment related issues through TV spots, printed material for pupils and students, etc..

5. Support training of operators and technicians mainly for compact units in rural areas.

6. Support training of technical staff responsible in the field of water quality control.

7. Support technical staff to participate in international relevant activities.

CONSTRAINTS:

1. Limited funding when compared to the huge needs of the country to operate the existing systems at their pre-war working levels.

2. The rural population lack of basic knowledge and awareness on issues related to health education and personal hygiene.

3. The decreasing number of engineers, technicians and workers because of low salaries and lack of incentives, may affect the process of implementation of activities.

RURAL SANITATION PROGRAM IN INDONESIA
GLOBAL MEETING OF WES PROFESSIONALS
BANGLORE 22-30 MARCH 1994

PRESENTED BY:
SHAMVANTH PRATAP MATHUR

I. BASIC DATA:

Population	:	186 million.
Religion	:	86% Islam.
Population growth	:	1.98% per annum.
Land area	:	1,919,317 km 13,000 islands seven are main islands, 80% of population is on Java Island.
Time zones	:	Three
Density of population	:	85/sq km; in Java 780/sq km.
Child (5 years) pop	:	21 million.
GNP/capita	:	US$ 645.
Official language	:	Bahasa Indonesia about 3000 local ethic and local languages used.
Education	:	Male 90%, Female 79%.
Primary School enrolment	:	92%.
Administration	:	27 provinces, 242 districts, 50 municipalities, 3600 sub districts, 57,000 villages.

(See Fig. 1 Map of Indonesia)

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II. SAFE EXCRETA DISPOSAL COVERAGE :

* 39 % households in rural areas have latrines of which 28% are private. (See Fig. 2)

* Private latrines increased from 22% in 1980 to 28% in 1993. (See Fig. 3)

* Shared latrines decreased from 24% in 1980 to 12%. Some households have lost access.

III. MID DECADE & UNIVERSAL GOAL ACHIEVEMENT IS DIFFICULT for the following:

* Mid decade target is 59%, rural 49% and urban 86%. (See Fig. 4)

* Negative coverage trend from 1980 (46% to 39%).
Latrine constructed each year less than increase in number of households.
Disparity between urban-rural. Gap is increasing, rural sanitation neglected.

* No political commitment, REPELITA VI (1993-1998) targets set is low, 40% rural, 80% urban with Private latrines.

VI. THE CONSTRAINTS AND CHALLENGES:

1. WES program delivery approach too sectoral with no inter-intra sectoral linkages. Planners do not understand health benefit from WES especially latrines.

2. Providers preoccupied with creating access. Neglecting effectiveness and objective behind providing the latrines.

3. Lack of efforts and commitments of providers at central & local level to phase out supply driven approach and providing free latrines.

4. Inadequate capacity and skills at local level to make components of latrine and build affordable sanitary latrines.

5. Lack of skills, capacity and experience within sectoral department to motivate and educate communities to change their traditional practices and behaviors and built & use latrines.

V. S T R A T E G Y:

1. Advocacy through Demonstration.

2. Sectoral linkages.

3. Capacity Building at local levels with focus on village.

4. Appropriate Technology.

5. Monitoring.

VI. SOLUTIONS AND ACTIONS INITIATED FOR ACCELERATION:

* Choose West Lombok district with lowest sanitation coverage of 8% to demonstrate acceleration. Transfer the experience gained to other districts in the province and to other provinces.

* The approach is consistent with new REPELITA V policy.

" Because of limited funds that can be mobilized there is no other way but to use state funds mainly for sectors which stimulate and encourage self help and public participation. The role of the government is to provide guidance, support, and encouragement for increased development potentials of the society and not as principle executor of development".
BAPAK SOEHARTO, PEOPLES REPRESENTATIVE ASSEMBLY SESSION, JANUARY 9, 1989.

1. **WES PROGRAM DELIVERY APPROACH TOO SECTORAL WITH NO INTER-INTRA SECTORAL LINKAGES. PLANNERS DO NOT UNDERSTAND HEALTH BENEFIT FROM WES.**

1.1. Promoted "total sanitation" for maximum health benefit. (See Fig. 5)

PREVENTION OF TRANSMISSION OF WATER AND SANITATION-RELATED DISEASES

Disease	*safe drinking water*	*safe excreta disposal*	*personal & domestic hygiene* *	*food hygiene* *	*waste-water disposal/ drainage*
Diarrhoeas	✦✦	✦✦✦	✦✦✦	✦✦✦	-
Poliomyelitis and hepatitis A	✦	✦✦	✦✦✦	✦✦	-
Worm infections:					
ascaris trichuris	✦	✦✦✦	✦✦✦	✦✦	✦
hookworm	-	✦✦✦	✦	-	-
pinworm, dwarf tapeworm	-	✦✦	✦✦✦	✦	-
other tapeworms	-	✦✦✦	✦	✦✦✦	-
schistosomiasis	-	✦✦✦	✦✦✦	-	✦
guinea worm	✦✦✦	-	-	-	-
Skin infections	-	-	✦✦✦	-	-
Eye infections	-	✦	✦✦✦	-	✦
Insect transmitted diseases:					
malaria	-	-	-	-	✦
urban yellow fever, dengue	-	-	✦ **	-	✦✦
bancroftian filariasis	-	✦✦✦	-	-	✦✦✦

- Importance of preventing diseases transmission:
  ✦✦✦ high, ☺☺ medium, ☺ low to negligible
- * Personal and domestic hygiene and food hygiene often require use of more water.
- ** Vectors breed in water storage containers.

1.2. Promoted WES services & improvement of personal hygiene behavior as a preventive measures to reduce IMR due to CDD and ARI. (See Fig. 6)

1.3 Expanded WES district planning and review meeting to Integrated MCSD. Selection of villages for WES based on incidence of diarrhroea.

1.4. Promoted WES through the basic information package on MCSD for the orientation to governors, member of parliament and district heads.

2. PROVIDERS PREOCCUPIED WITH CREATING ACCESS NEGLECTING EFFECTIVENESS AND OBJECTIVE BEHIND PROVIDING THE LATRINES. BEHAVIOR CHANGE IS AS IMPORTANT AS THE PROVISION OF SERVICE.

2.1. Construction and CIE activities integrated into a "basic village package". 35% of Govt. WES budget is spent on CIE.

2.2. Women groups (PKK) and trained women cadres in each village to promote.

2.3. Partnership built with departments like Information, Center of Education and Rural development to effectively implement "basic village package".

2.4. Simplified and changed focus of annual monitoring from construction to use. Triple "A" concept helped improve "village package" and its cost effectiveness.

3. LACK OF EFFORTS AND COMMITMENTS OF PROVIDERS AT LEVEL TO PHASE OUT SUPPLY DRIVEN APPROACH, PROVIDING FREE FACILITIES-RETARDING PROGRESS.

3.1. Revised implementation procedure to support increased community participation, bottom up planning process through village plans.

3.2. Demonstrated that families are more willing to unlock their potential to construct home improvement facilities to public. Payment of "subsidy" instead of "total cost" as a motivational tool is sufficient.

3.3. Through field visits and information sharing to senior government planners, administrators and implementors of projects changed unit cost of US$ 36 to subsidy of US$ 12.

3.4. Promoted redtion of "subsidy" with the increase in demand and eventually phase out. In some districts subsidy is reduced to US$ 10.

4. LACK OF CAPACITY AND SKILLS AT LOCAL LEVEL TO MAKE COMPONENTS OF LATRINE AND BUILT LATRINES THAT ARE AFFORDABLE BY COMMUNITIES.

4.1. Progreesively phased out purchase of water seal bowls from outside the island, and other components outside the village.

4.1.1. Standardized area specific designs and specification based on community choice and affordabilty.

4.1.2. Developed fiber glass molds to cast concrete components. Promoted its use to local artisans and improved their product quality and reduced cost.

4.1.3. Provided molds to each village. Trained 2-3 village masons/cadres to cast concrete components.

4.2. Mechanized construction process to one of assembling to reduce need for technical help & time to built latrine.

4.3. Stopped use of GOI funds to pay for skilled manpower and petty contractors to build toilets.

5. LACK OF SKILLS, CAPACITY AND EXPERIENCE IN SECTORAL DEPARTMENT TO MOTIVATE COMMUNITIES TO CHANGE THEIR TRADITIONAL PRACTICES & BEHAVIORS TO BUILT & USE LATRINES.

5.1. Trained district and sub-district sanitarians to improve their skills to implement ***"village package " effectively.***

5.2. Oriented muslem religious NGO (Majelis Ulama) on WES and distributed book prepared "Islam and water and sanitation" through their channels.

5.3. Started a "clean Friday" campaign to promote "total sanitation" with stress on latrines.

5.4. Oriented local leaders on WES to create demand for latrines and improved behaviors.

5.5. Used an NGO to Trained women groups at district, sub district and village level using their improved training manual "women, sanitation & water".

5.6. Promoted latrines through screening of films in each village and distribution of leaflets.

6. OUTCOME IN WEST LOMBOK AND OTHER PROVINCES WITH THE INITIAL EFFORTS TO "GO TO SCALE":

6.1. Latrines constructed increased (1990 to 1993) by 25 times in West Lombok and 7 times in all areas (30 UNICEF assisted districts). (See Fig. 7)

6.2. Latrines constructed each day in West Lombok increased by 30 times from 2 to 100 and 7 times (28 to 195) in other areas. (See Fig. 8)

6.3. Progressive increase in number of villages from 1990 to 1994. (See Fig. 9)

6.4. Latrine coverage in West Lombok increased three times the effort in last four REPELITA i.e. 20 years. From 8% in 1990 to 28% in 1993. From trend-Mid decade and UNIVERSAL GOAL can be achieved. (See Fig. 10)

6.5. Around 3 fold increase in funds. For latrine construction US$ 340 thousand in 1991 to US$ 1,1 Million in 1994. (See Fig. 11)

6.6. Local government has started to share cost, for 1994 is around 27%. 5 other Rural development Projects share funds for latrine construction. (See Fig. 12)

6.7. Progressive decreased UNICEF funds from 85% in 1992 to 21% in 1994.

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6. *Relation of WES with CDD and IMR.*
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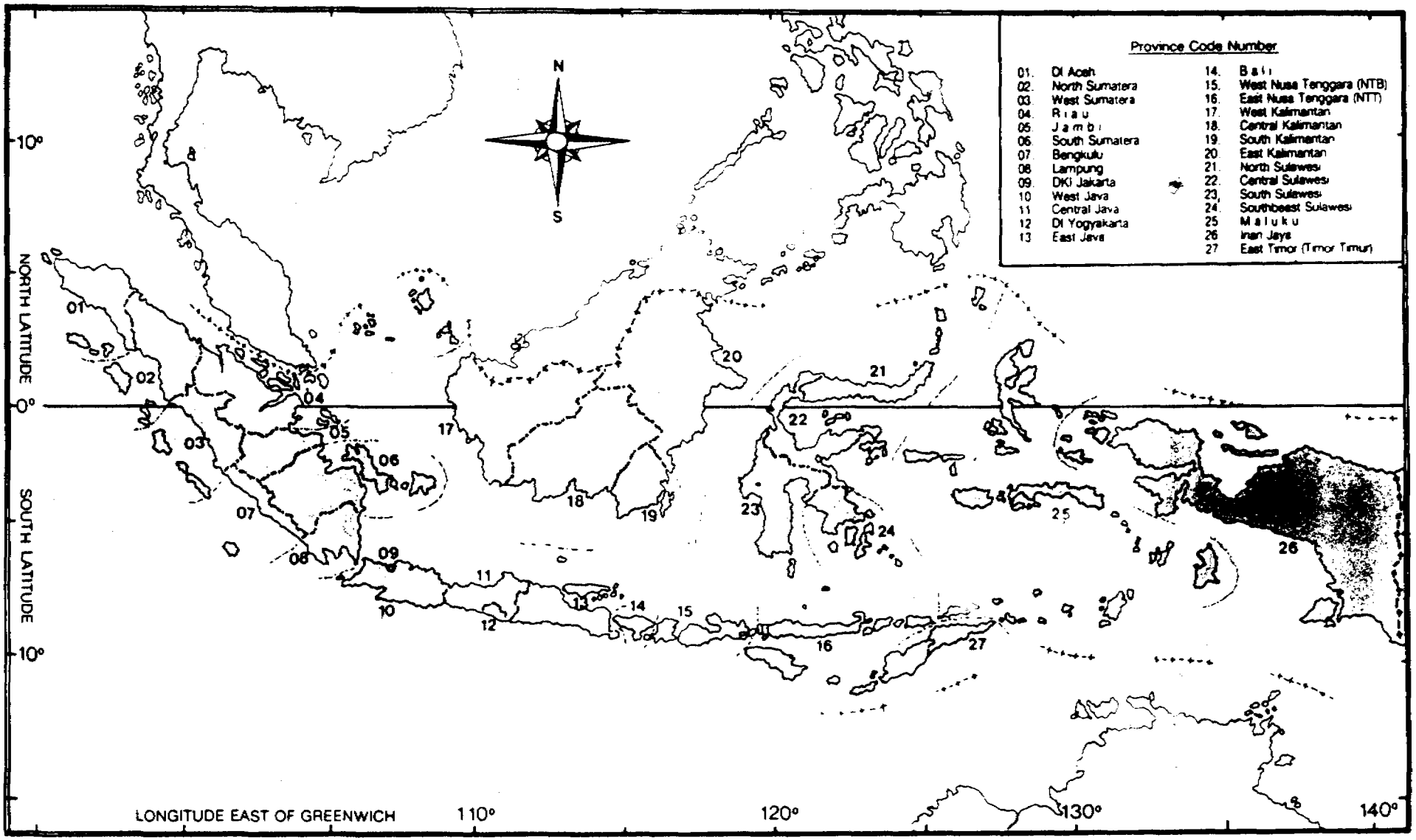
12. *Source of funds for the family latrine constuction in UNICEF assisted areas.*


Province Code Number
01. DI Aceh
02. North Sumatera
03. West Sumatera
04. Riau
05. Jambi
06. South Sumatera
07. Bengkulu
08. Lampung
09. DKI Jakarta
10 West Java
11 Central Java
12 DI Yogyakarta
13 East Java
14. Bali
15. West Nusa Tenggara (NTB)
16. East Nusa Tenggara (NTT)
17. West Kalimantan
18. Central Kalimantan
19. South Kalimantan
20. East Kalimantan
21. North Sulawesi
22. Central Sulawesi
23. South Sulawesi
24. Southbeast Sulawesi
25 Maluku
26 Irian Jaya
27 East Timor (Timor Timur)
N
S
10°
0°
10°
NORTH LATITUDE
SOUTH LATITUDE
LONGITUDE EAST OF GREENWICH
110°
120°
130°
140°

I N D O N E S I A

Figure 2

HOUSEHOLDS WITH PRIVATE LATRINES AND SHARED RURAL AREAS

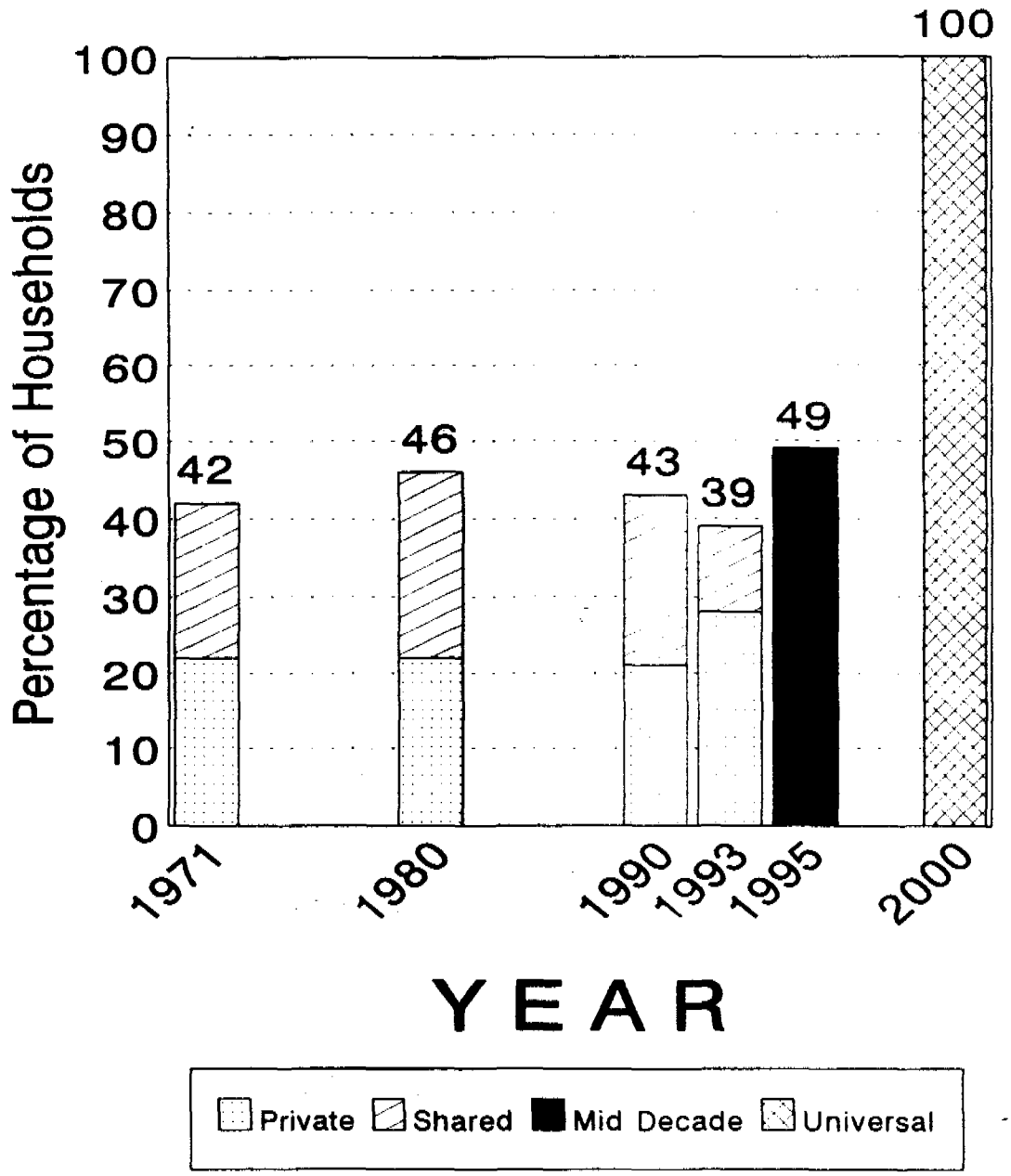
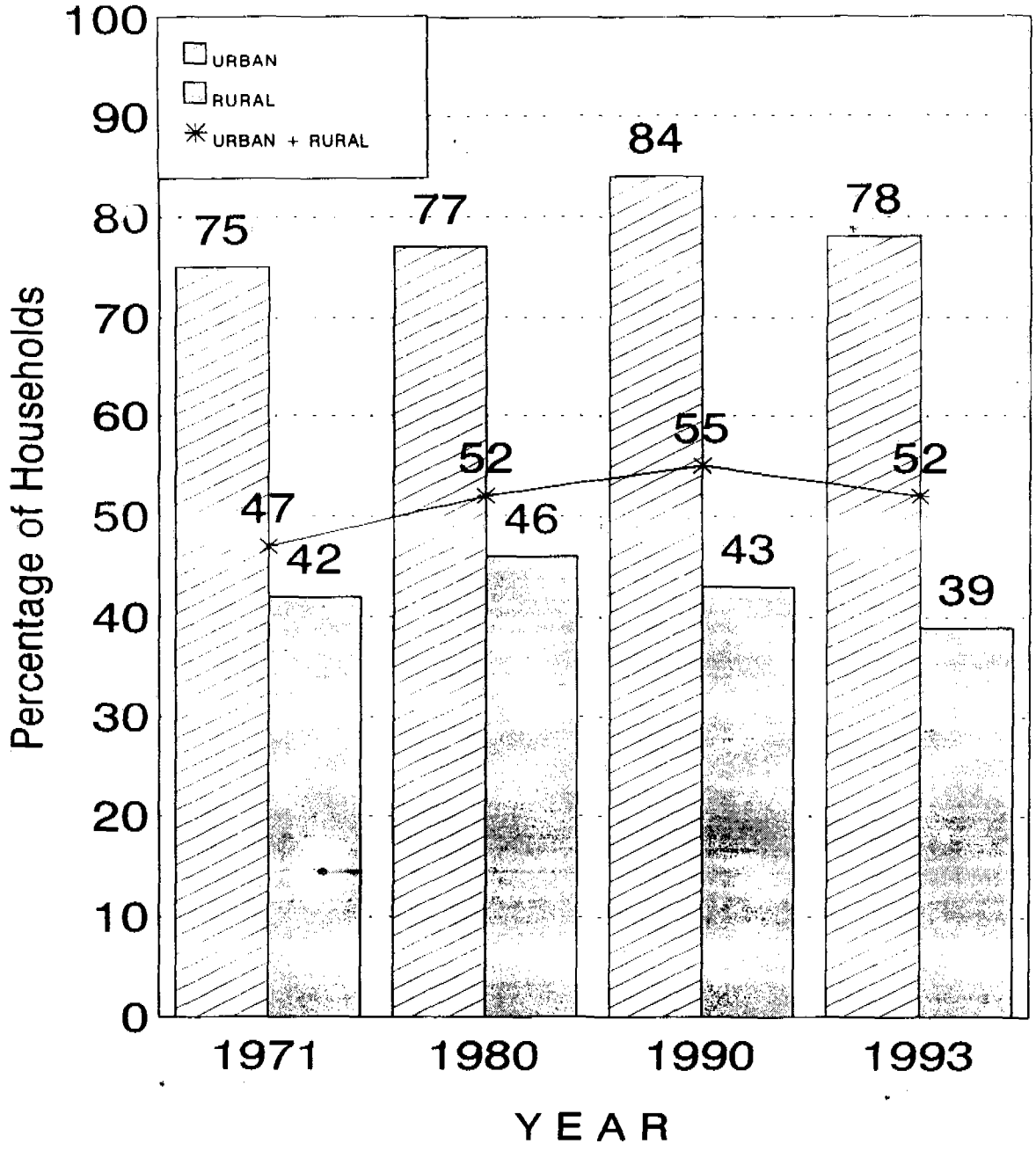


Figure 3

HOUSEHOLDS WITH LATRINES
In Urban and Rural Areas



SANITATION COVERAGE BY PROVINCE

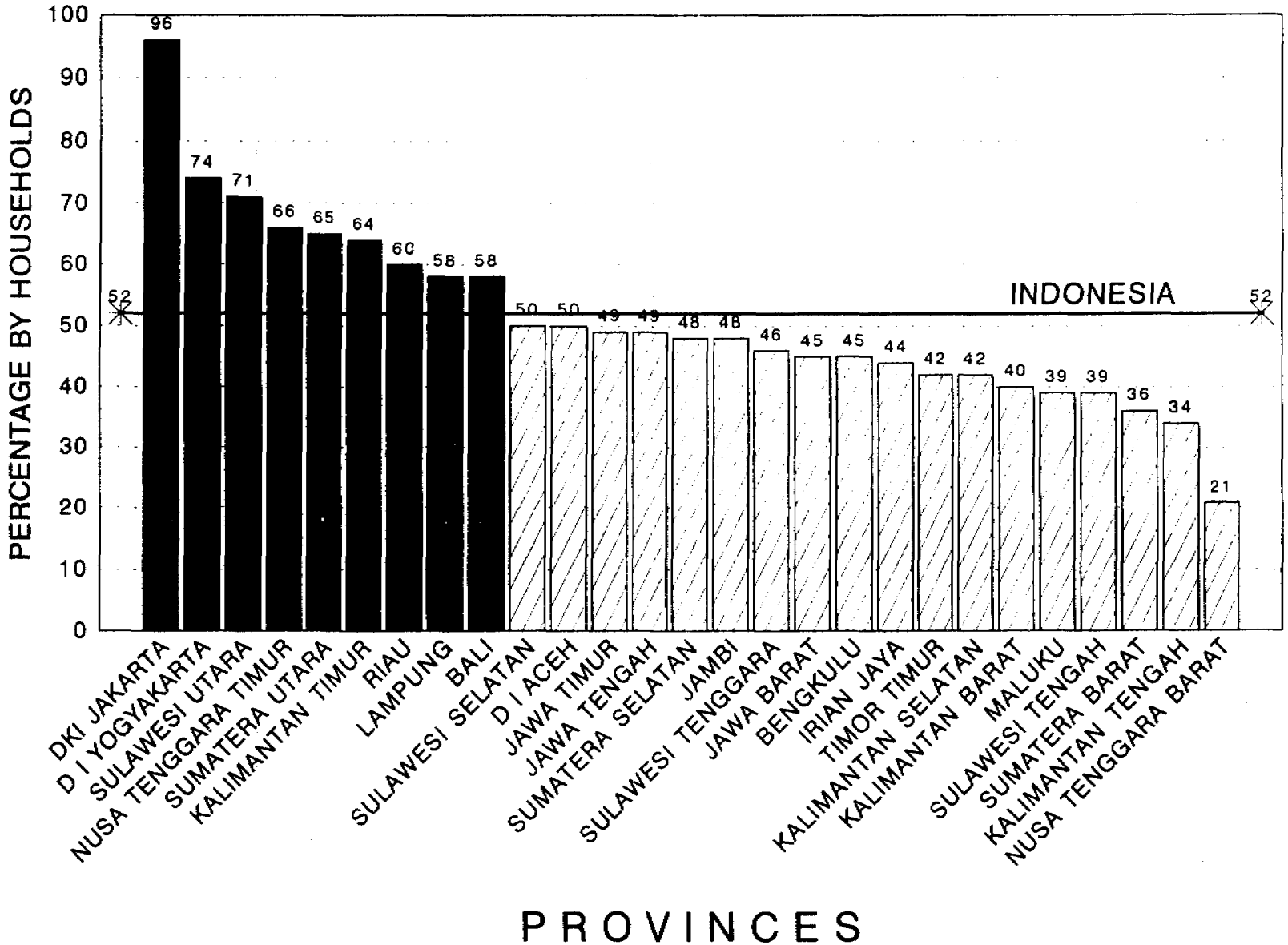


Figure 4

Figure 5

PREVENTION OF TRANSMISSION OF WES–RELATED DISEASES

Disease	*safe drinking water*	*safe excreta disposal*	*personal & domestic hygiene**	*food hygiene**	*waste–water disposal/ drainage*
Diarrhoeas	♦♦	♦♦♦	♦♦♦	♦♦♦	–
Poliomyelitis and Hepatitis A	♦	♦♦	♦♦♦	♦♦	–
Worm infections:					
ascaris trichuris	♦	♦♦♦	♦♦♦	♦♦	♦
hookworm	–	♦♦♦	♦	–	–
pinworm, dwarf tapeworm	–	♦♦	♦♦♦	♦	–
other tapeworms	–	♦♦♦	♦	♦♦♦	–
schistosomiasis	–	♦♦♦	♦♦♦	–	♦
guinea worm	♦♦♦	–	–	–	–
Skin infections	–	–	♦♦♦	–	–
Eye infections	–	♦	♦♦♦	–	♦
Insect transmitted diseases:					
malaria	–	–	–	–	♦
urban yellow fever, dengue	–	–	♦ **	–	♦♦
bancroftian filariasis	–	♦♦♦	–	–	♦♦♦

– Importance of Preventing Diseases transmission

♦♦♦ high ♦♦ medium ♦ low to negligible

*** Personal and domestic hygiene and food hygiene often require use of more water.**

**** Vectors breed in water storage containers.**

Figure 6 : Links between CDD, ARI and IMR

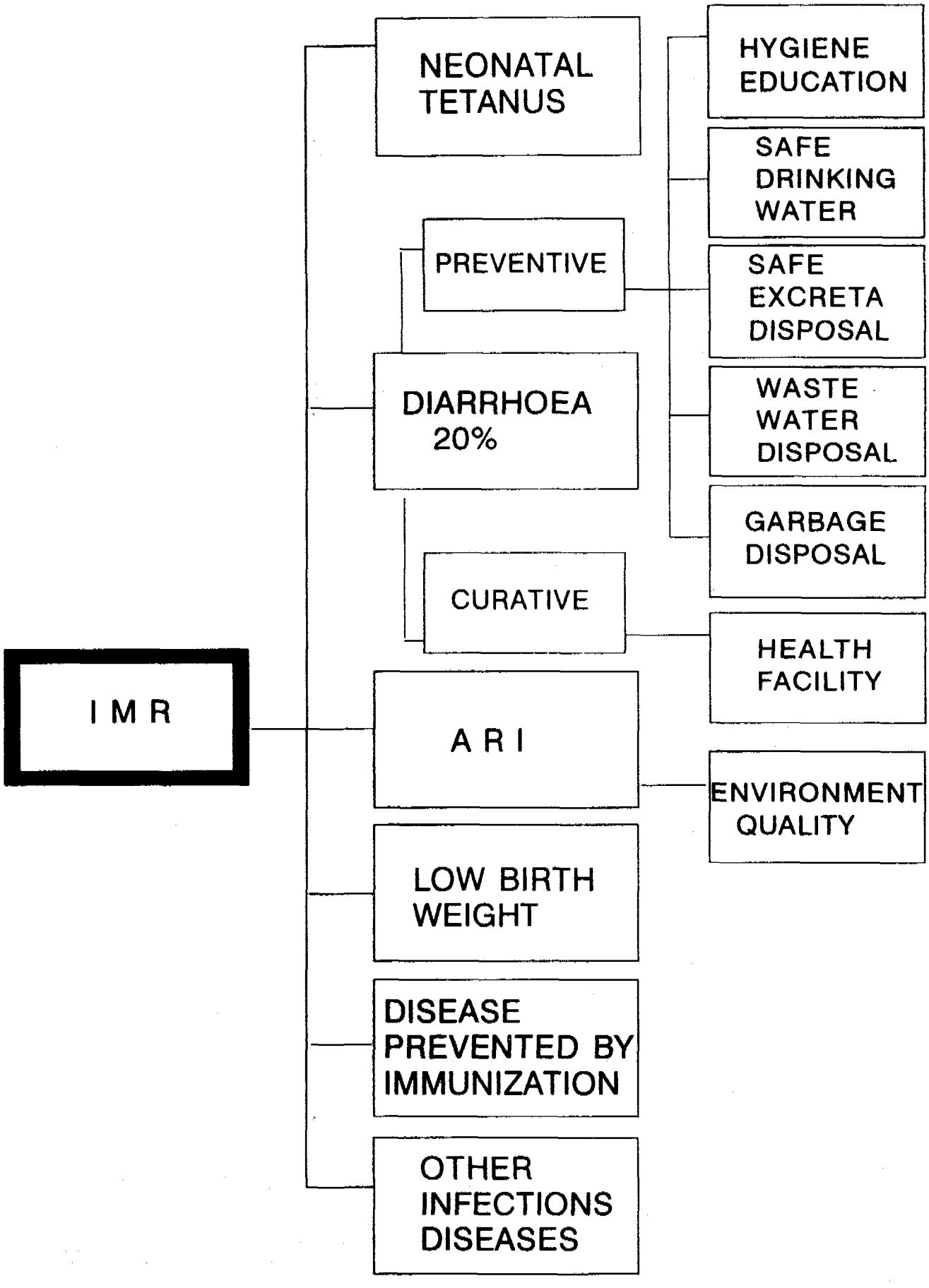


Figure 7

FAMILY LATRINES

WEST LOMBOK AND OTHER SELECTED AREAS

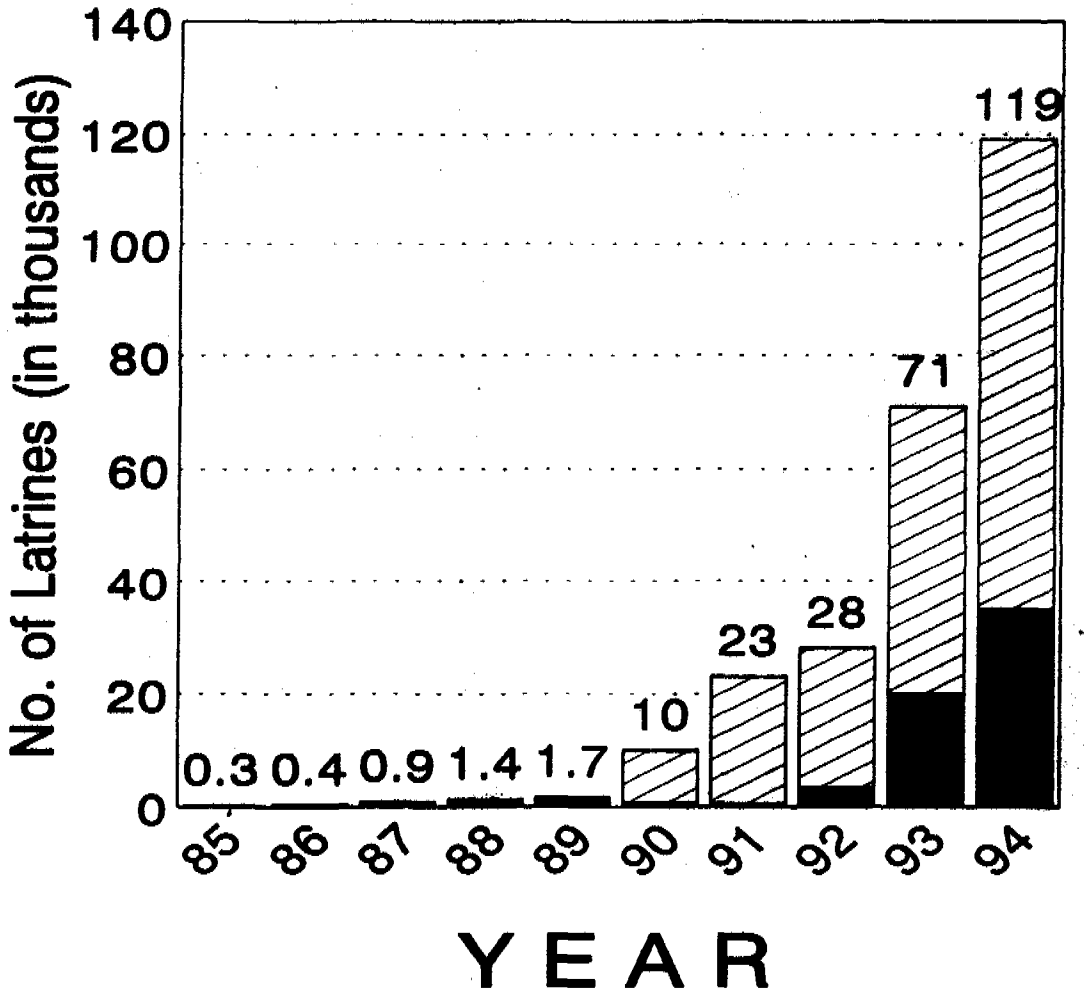


Figure 8

FAMILY LATRINES

WEST LOMBOK AND OTHER SELECTED AREAS

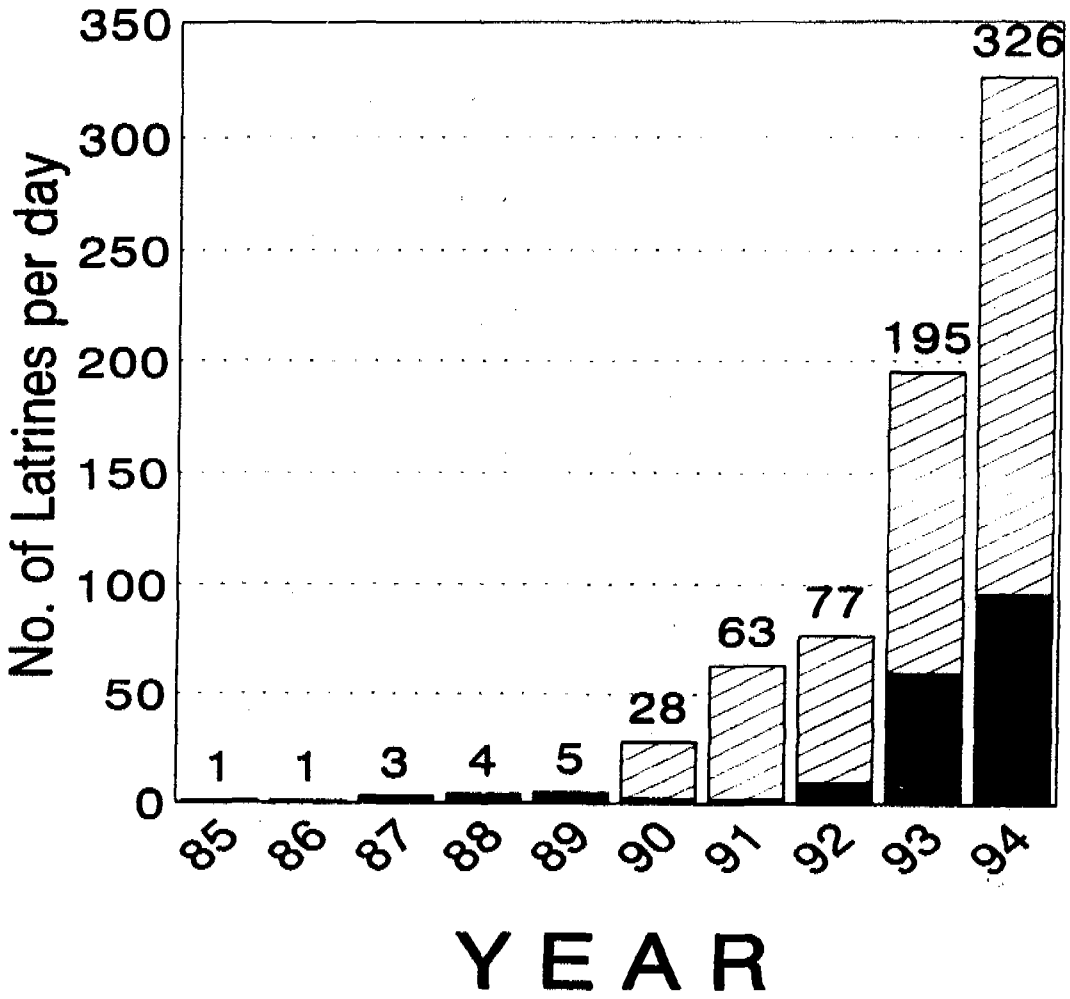


Figure 9

FAMILY LATRINES

(UNICEF ASSISTED RURAL AREAS)
Villages Covered Each Year

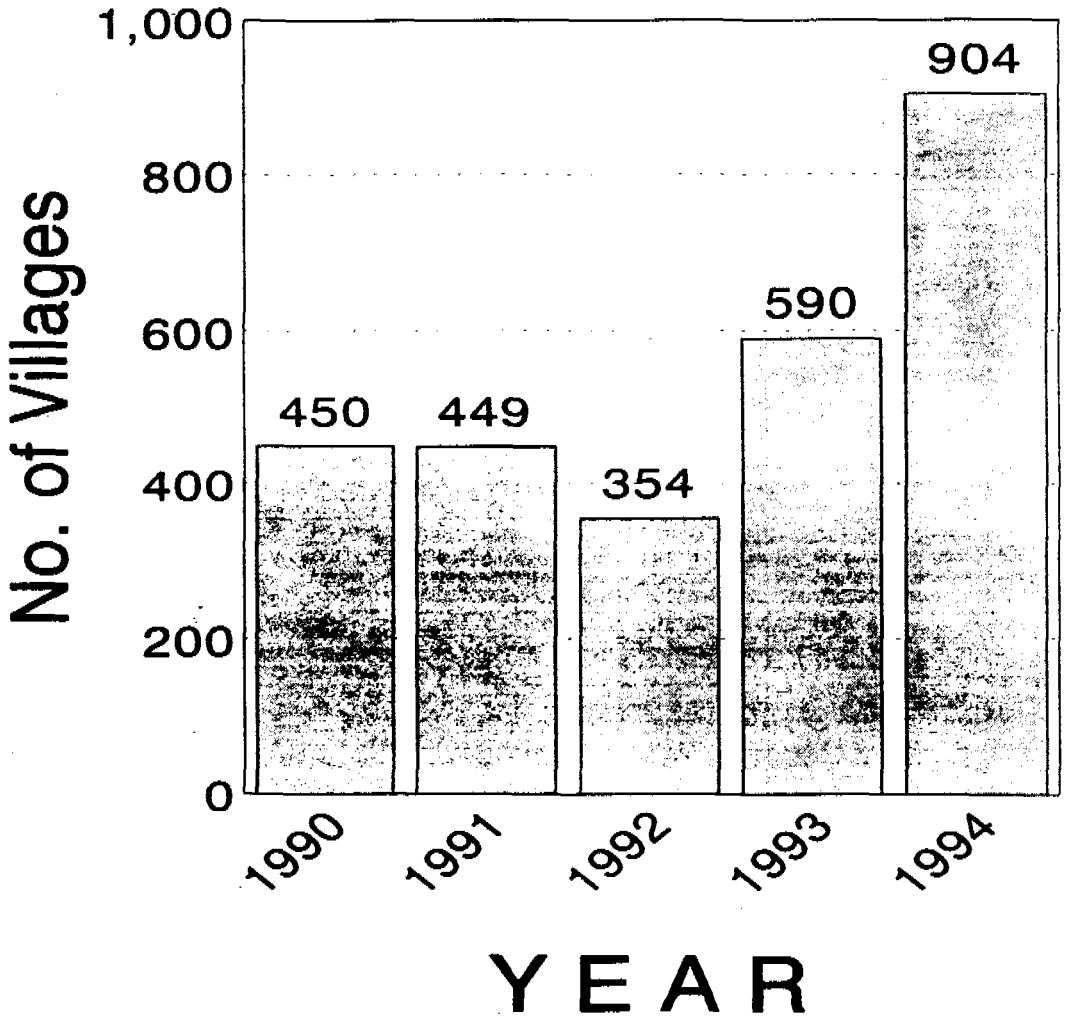


Figure 10

FAMILY LATRINES

(SELECTED RURAL AREAS)
BUDGET PER YEAR

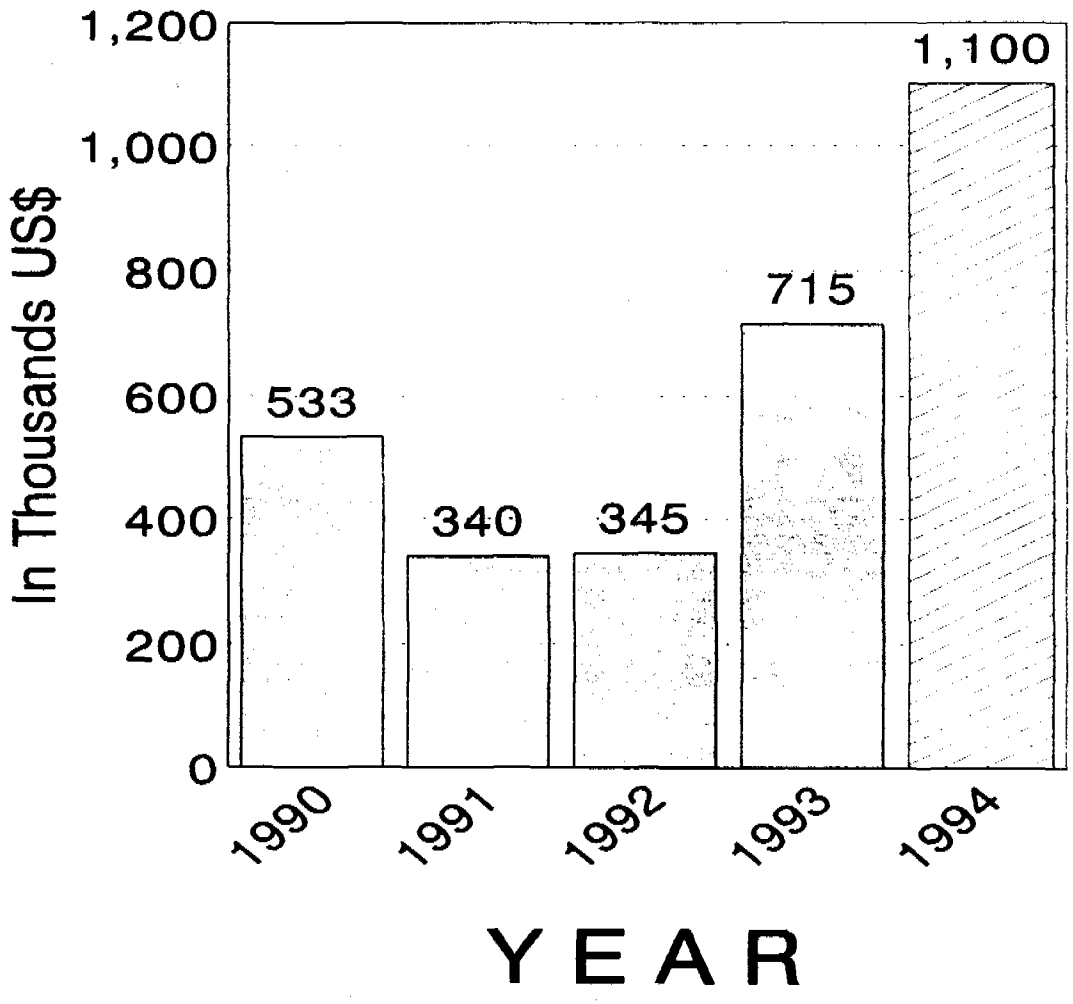


Figure 11

FAMILY LATRINES

Households With Latrines
West Lombok

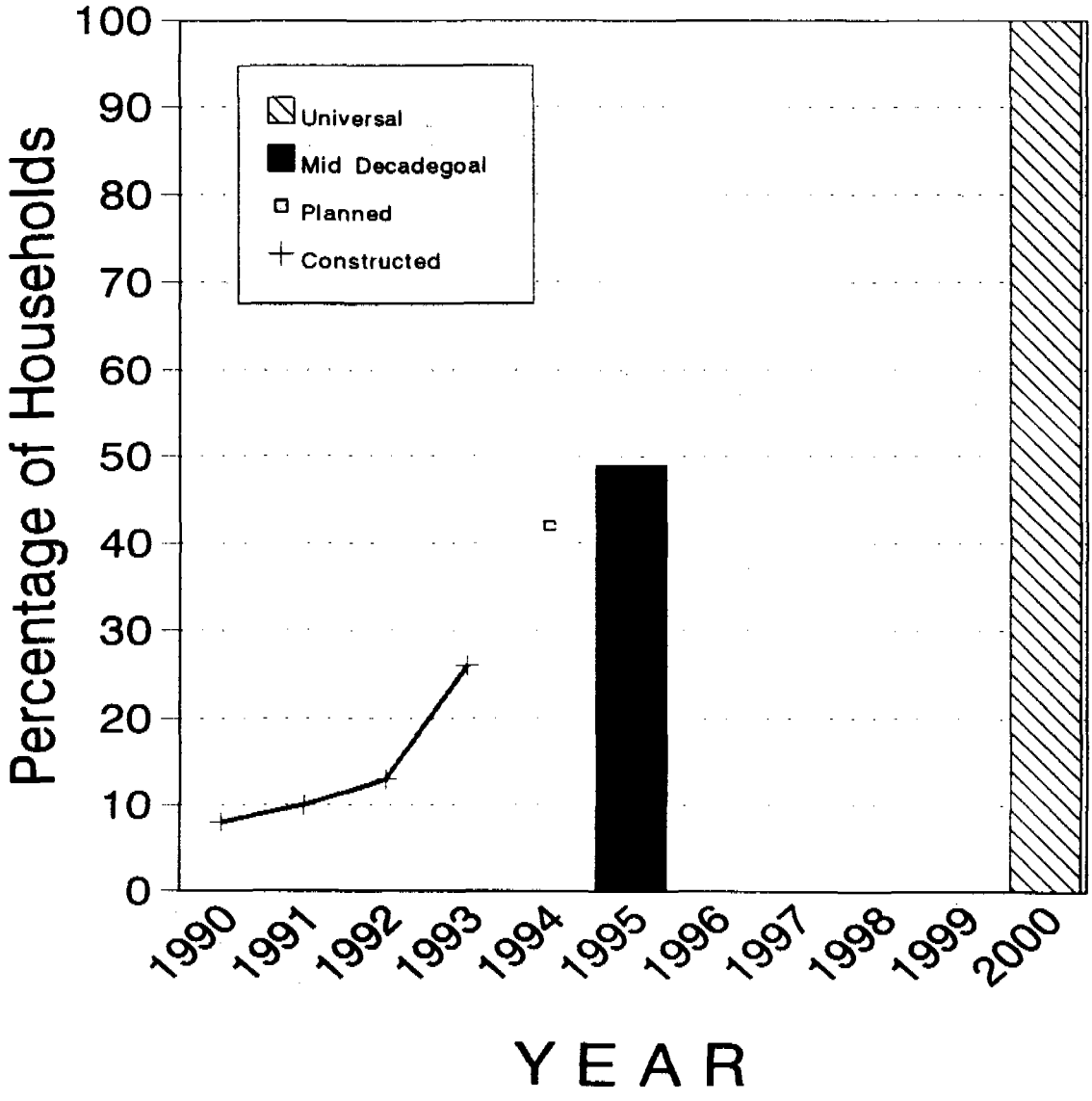
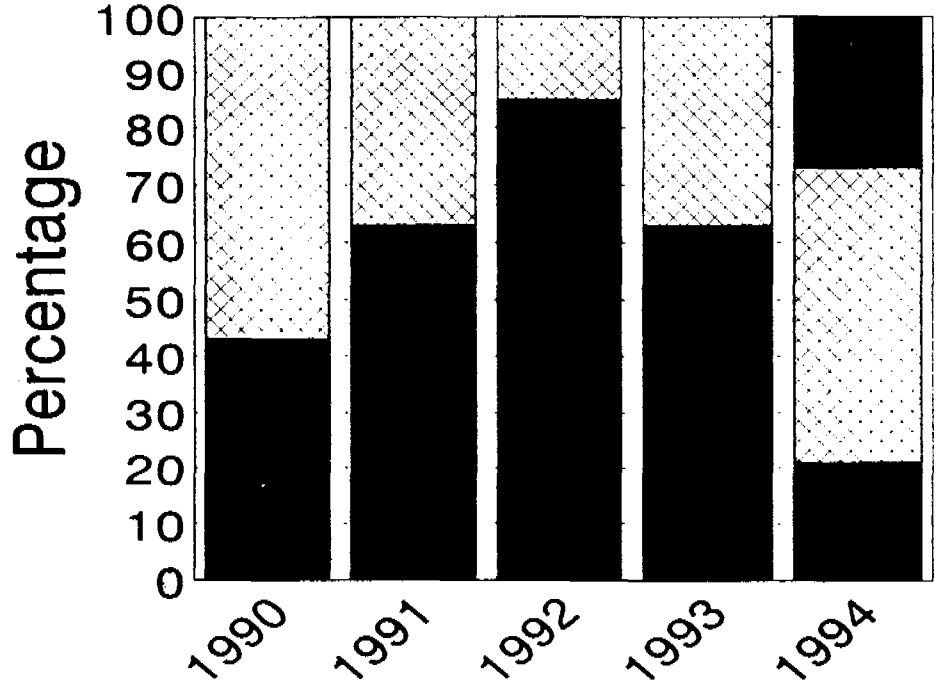


Figure 12

FAMILY LATRINES

SOURCE OF FUNDS
(UNICEF ASSISTED RURAL AREAS)



	1990	1991	1992	1993	1994
LOCAL GOVT.	0	0	0	0	27
GOI (INPRES)	57	37	15	37	52
UNICEF	43	63	85	63	21

YEAR

71 [illegible]

GLOBAL MEETING OF UNICEF WES PROFESSIONALS BANGALORE, INDIA

(25 - 30 March, 1994)

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GLOBAL MEETING OF UNICEF WES PROFESSIONALS

Bangalore, India

25 - 30 March, 1994

LEARNING FROM EXPERIENCE

WATER SUPPLY PROGRAMME FOR THE URBAN MARGINAL SLUMS OF TEGUCIGALPA, HONDURAS

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Preface

To be able to turn on a nearby water tap and have water is a like a dream that most of the people living in the urban marginal slums of Tegucigalpa, whishes to come true. In an effort to offer feasible alternatives in coping with limited supply of water in slums, the Government of Honduras promoted in 1987 the establishment of a unit which came to be known as "Unidad Ejecutora de Barrios Marginales (UEBM)" [Implementing Unit for Urban Marginal Slums] within the "Servicio Autónomo Nacional de Acueductos y Alcantarillados (SANAA)" [National Autonomous Service for Water and Sewage Systems]. It was an innovative project implemented under tripartite responsibility: UEBM/SANAA, the United Nations Children's Fund (UNICEF) and the peri-urban communities of Tegucigalpa.

Results have been highly motivating; around 63,000 persons are benefitting from water systems managed by water Committees; users contribute towards investment and operation/maintenance costs. This has facilitated the establishment of a Revolving Fund to finance the construction of new water supply systems in other peri-urban communities.

The Water Supply for the Marginal Slums of Tegucigalpa Programme UEBM/SANAA-UNICEF has developed gradually, consolidating working methodologies and raising a few questions.

The experience gained in six years, since the Programme was launched, was documented and analyzed by the same persons that work for, support, or benefit from, the programme. It has been a participatory process of "learning from the experience itself" and the IRC-International Water and Sanitation Centre was invited to join the programme as adviser and facilitator, in close coordination with UEBM/SANAA.

This document presents the institution and the revised strategy for implementation of water supply projects in urban marginal slums.

Children and women fetching drinking water

Water is expensive and difficult to obtain

In Honduras, 35% of the population lacks access to drinking water and 36% to sanitary facilities. These families are mostly concentrated in the rural area and peri-urban slums of Tegucigalpa and San Pedro Sula (Rojas 1992).

Increasing population growth in Tegucigalpa has fostered the development of urban-marginal slums or "colonias", where 60% of the central district population resides, in other words, approximately 480,000 inhabitants. Inappropriate or non-existent basic infrastructure that does not provide with water or sewage systems, nor adequate drainage for rain water or waste disposal, and where waste waters run freely in streets and through alleys, generates extremely dangerous sanitary conditions.

The illegal possession of land and the complex social poverty situation are two factors that constrain the implementation of traditional water supply systems, forcing community members to seek their own solutions in meeting their basic needs for water, sanitation and housing. Around 40% of people living in urban-marginal slums lack access to piped water, and so, buy it from "water vendors" or fetch it from rivers, ravines and wells.

Studies undertaken show that the average monthly expenditure per household to obtain water is approximately US$10 (52 Lempiras). For 80% of families, this represents 11.6% of their monthly income. The total cost of water obtained from private suppliers by families lacking access to piped systems is US$ 220,000/month, or US$ 2.7 millions per year (Rojas 1992).

In addition to the high cost of water for the underprivileged population living in urban slums other aspects must be considered, i.e. the quality of water and the effort and cost involved to obtain it in terms of time, energy and health.

Institution for urban-marginal slums

As a result of a political decision that recognized the need to supply water to the urban-marginal population, the Government of Honduras, with UNICEF support, established UEBM, an institution in charge of Tegucigalpa's urban marginal areas unserved by SANAA's central network. The present City Master Plan with goals for the year 2,005 does not include communities over an altitude of 1,150 ms., leaving thus unattended the bulk of peri-urban communities located beyond.

To introduce the UEBM/SANAA Programme was no easy task. At the start-up, the sector had no specific strategies for water supply to urban-marginal zones and a limited budget. Besides, the working programme labeled "experimental". Time proved these difficulties instrumental in seeking, and capitalizing on, local resources, allowing for flexibility towards consolidation as the Programme advanced, met constraints and fulfilled achievements.

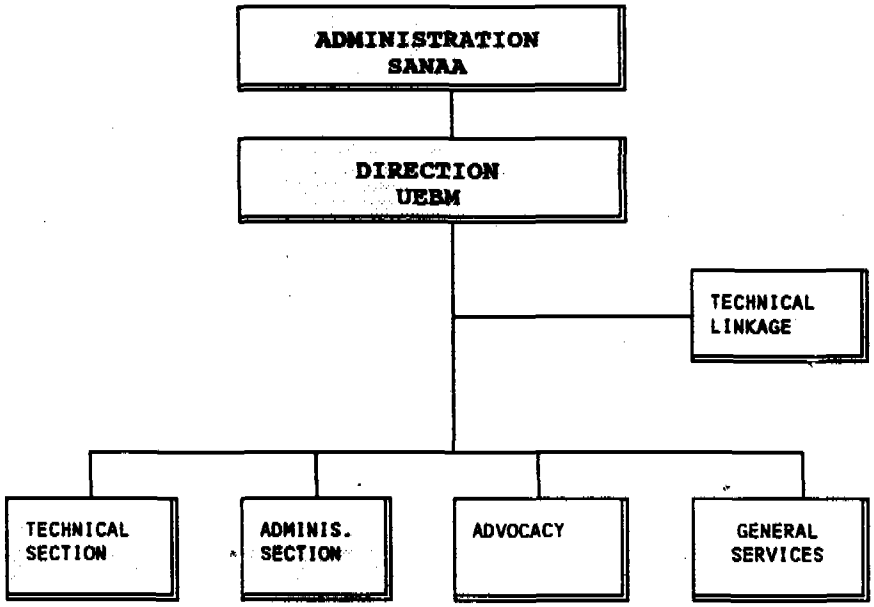
Resources

UEBM/SANAA is integrated by the Departments of Engineering, Social Promotion and Administration (Graphic 1). Activities are implemented in coordination with SANAA's directors, thus maintaining a healthy autonomy as regards working plans and funds administration.

UEBM/SANAA's human resources have grown rapidly. The Programme was initiated with four persons in 1987, and in 1988 and 1989 the number increased to 11 and 21 persons respectively. At present, it has 28 to 30 permanent staff members.

Its technical and social teams are well balanced as to gender and professional background (social and technical). UEBM/SANAA was managed by a woman engineer during the period 1990-1993.

Graphic 1. Organigram - Implementing Unit for Marginal Slums



With a practical perspective and to capitalize on local resources, UEBM/SANAA coordinates since 1991 with Social Work students of the National University of Honduras (UNAH). As a result, each year 25 students give assistance to community education in water and sanitation. The Unit has a computerized institutional accounting system for the financial control of activities related to water supply systems.

Participatory programme non traditional supply systems

Objectives

The Programme pursues the following objectives:

- Promote active community and family participation towards finding integrated solutions.
- Introduce non traditional systems as alternatives to provide immediate access to the service, without affecting the existing network.
- Supply better quality water at lowest cost.

Approach

The UEBM/SANAA Programme is oriented to the provision of potable water supply through the following non-traditional systems:

- Direct sale of water from SANAA's main network to the communities through a macro-meter.
- Drilling of boreholes equipped with electric handpumps to carry water to a communal tank, wherefrom it is distributed by gravity through a network connected to public taps or household yard connections.
- Transportation of water in tank trucks from SANAA's distribution centers to communal tanks and, from then on, by gravity to the network connected to public taps.

All these systems have been designed with a view to their future incorporation into the main potable water network when SANAA's central system has develops sufficient capacity to meet the demand.

Achieved Coverage

UEBM/SANNA was established six years ago and has overcome constraints peculiar to all pioneer organizations with innovative approaches. UEBM/SANAA has worked in 33 communities where 63,288 persons have access now to water supply systems.

Beneficiaries

The Programme works with Tegucigalpa's peri-urban settlements. It is implemented on community demand. Community members must comply with the following requirements in order to become beneficiaries:

- Request the water project.
- Prove that land property is legalized.
- Be prepared to contribute with hand labour and local materials.
- Commit themselves to form a water board.
- Be prepared to pay a water tariff.

Community participation

Community participation is a Programme's essential component that has opened important spaces for UEBM/SANAA and community members to discuss and negotiate their interests and needs.

It is understood by community participation in the Programme:

- Participation in the construction, contributing with non-qualified hand labor and construction material.
- Participation in administration, operation and maintenance through an administrative board, initiates activities as from project construction.
- Community participation in investment and maintenance project costs.

UEBM/SANAA's current efforts aim at increasing community participation to empower communities for solid democratic self management.

Education in water and sanitation

An important community participation component are educational activities developed with the community to promote the optimal use of water and sanitation. This component implies participatory planning of the promoters, water boards, support groups and Social Work students, for the implementation of activities such as: educational workshop, cleaning campaigns and informative bulletins.

Shared Costs

Implementation of the water systems in communities is based upon a tripartite agreement among UNICEF, UEBM/SANAA and the community.

To date, share cost distribution is: UEBM/SANAA's contribution in 28 beneficiary slums represent approximately 25%, UNICEF's 40%, and the communities' 24 to 50%.

Revolving Fund with social perspective

The Revolving Fund consists of the total or partial recuperation of the investment made in each project with the purpose of utilizing these funds in new water projects to serve a greater number of "colonias". It has been planned not to charge any interest for recuperation of the initial investment. Nevertheless, towards minimizing the effect of inflation due to investment recuperation, the debet is closely related with minimum wages, a variable that is gradually adjusted and reflects the buying power of beneficiary families.

Strategy of programme implementation

Throughout the existance of six years of UEBM/ SANAA's, the working strategy applied in the communities has developed and adjusted to project/communities' needs and demands.

In 1993, as part of the documentation and analysis process and with IRC's assistance, UEBM/SANAA revised and proposed once more the working strategy based on experiences gained to date. The strategy is described below, as also ensuing activities and responsibilities.

1. Initial Phase

Beneficiary's Identification

The Programme operates on community demand. Most of the time, it is women who mobilize neighbors and the community leaders to request water before the institution. Institutional staff pay "inspection visits" to the supply source and the community to check accuracy of corresponding documentation; a quick study on technical feasibility is made to assess source capacity. Based on this information, UEBM/SANAA approves/does not approve the request.

Support to community organization

Subsequent to approval of the community as beneficiary, the institution will assist in the promotion of the project and the integration of a water board with representation from all the community's economic sectors and main groups of interest. Briefing meetings will be held, followed by discussions on working methodology to be adopted and community participation in the project.

Studies and diagnoses

Topographic survey, preparation of a socio-economic diagnosis and technical design are tasks involving the participation of the promoters, the technical personnel, the engineers and the water board.

Support groups mainly integrated by women are trained to carry out a socio-economic census. Information is collected through a survey questionary that gathers data related to the community's socio-economic aspects, as well as to the interests, beliefs or prejudices of men and women. Elaboration of a report and dissemination of its findings in community assemblies is also jointly coordinated with the institution.
The type of system and service level is identified based on gathered topographical data. These aspects, as well as the working methodology to be adopted are discussed, negotiated and agreed upon with the community.

Formalization of Construction Commitments

After type of systems has been identified, UEBM/SANAA prepared the budget showing the contributions from the parties: UNICEF, SANAA and the community. UEBM/SANAA determines the minimum contribution by the community, who then indicate the forms and mechanisms of community contribution. This commitments are formalized through a Letter of Acceptance of Commitments.

Participatory planning for a community programme

Based on the above studies/diagnoses and the selection of the supply system to be constructed, the community and institution will jointly proceed to identify the needs for training and to elaborate a training plan.

Aspects that promote sustainability in the initial phase.

1. ***The institution applies a strategy of information susceptible to gender, handling and integrating at the same time social, cultural and technical data.***
2. ***Water boards are established with men and women from different sectors, settlements or community groups, capable of negotiating various interests.***

Table 1. Strategy for the Project's Initial Implementation Stage of the Project

PROJECT ACTIVITIES	INSTITUTIONAL RESPONSIBILITY	COMMUNITY RESPONSIBILITY
IDENTIFICATION OF BENEFICIARY		
1. Project request	• Receive and make preliminary analysis UEBM (land possession, population, marginal condition plans, etc.)	• The league/ water committee/ housewives' club submit written document
2. Inspection visits	• Verify supplied information • Identify possible information source • Request approval or non-approval	• Accompany institutional personnel on inspection visits
3. Technical feasibility study	• Submit request to the Commission on urbanization • Verify supply capacity of identified sources (wells, superficial, SANAA's network) • Conduct study and decide whether community can be benefitted.	
SUPPORT TO COMMUNITY ORGANIZATION		
4. Meeting with directors for information and discussion of working methodology	• Convene organization directors • Encourage and inform community leaders/ members on men and women's participation • Household visits/informative Assemblies	• Attend meetings • Analyze, discuss and approve women's integration • Set date for election of Board members
5. Promotion of women's representation in water boards	• Promoters to present Internal Regulations for Board structure and operation	• Meetings with community leaders and women groups
6. Integration of water board	• Conduct and assist the election process • Swear in elected water board • Issue identification card to board directors • Offer information on board legalization	• Attend general assembly • Propose and elect board members • Make arrangements for board legalization
STUDIES AND DIAGNOSES		
7. Undertake topographic survey	• Engineer in design to supervise topographic team	• Provide hand labour and materials • Identify land plots for tank installation
8. Integrate support groups		• Convene Community Assembly • Elect and swear in members of support groups
9. Elaborate socio-economic diagnosis, with gender focus	• Organize and train one group of women to support the investigation process • Conduct investigation process • Elaborate final document • Organize and coordinate feedback process	• Organize data collection • Collect data • Analyze information • Elaborate self-diagnosis • Disseminate information through sector visits and meetings
10. Elaborate technical design	• Elaborate system's technical design and construction budget	• Provide information on, and negotiate, siting of system structures • Disseminate findings of Technical solution
COMPLETION OF CONSTRUCTION COMMITMENTS		
11. Define financial and hand-labour contributions	• Define contributions in cash and hand-labour • Set up administrative controls • Train on use and handling of forms • Follow up or administrative advice	• Water Board convenes Assemblies • Attends meetings • Participates in training meetings • Informs at community assembly
12. Sign letter of acceptance and commitments	• Prepare document	• Signing of document by Water Board in acceptance of agreed upon arrangements
PARTICIPATORY PLANNING OF TRAINING		
13. Programme training to board and community	• Have training material • Identify training needs of boards and community members	• Collaborates in programming and elaboration of modules/necessary educational material • Attends training activities
14. Submit supply plan and give talks on plumbing	• Give talks about plumbing, the design engineer, the supervisor and the promoter	• Board and plumber attend activities

2. CONSTRUCTION PHASE

The following paragraphs summarize the activities and responsibilities shown in detail in Table 2.

Participatory programming

Promoters from UEBM/SANNA and board members jointly plan and take responsibility for all construction arrangements. In particular, the board: promotes the participation of community members to become users of the system; seeks financial sources in case the community members cannot afford to contribute; obtains required legal documents; and organizes contributions, whether in hand labour, resources or materials.

Technical training

Before construction starts and in order to guarantee the quality of facilities to be built, practical training is giving to male/female candidates to the post of plumber. This activity, conducted by the promoters and the chief mason, aims at acquainting participants with basic construction notions and developing their abilities to solve probable conflicts with users, give information in meetings, prepare reports and control and supervise work progress. The didactic material and methodology's approach is "learning while doing" and both respond to the characteristics and interests of community members of both sex.

After completion, meetings are held with users to reach agreements for adequate use and management of facilities.

Construction work and control of community contribution

Men, women, youngsters and children organized in groups and tasks participate in construction. Control and monitoring of hand labor contributions and funds collection are organizational activities undertaken by the water board.

Commitments, agreement and delivery of system

After completion of facilities, the community pays to SANAA a "supply rate" in order to have access to the water source. On its part, the institution audits the funds managed by the board during the construction period and a final memoir is prepared. It includes information on costs and technical characteristics of the constructed systems, which serve as basis to determine the amount to be payed to the Revolving Fund. As a corollary, the community elaborates a historical memoir to describe and register community participation since the beginning of the project.

Finally, an agreement is signed for formal delivery of the system to the community for its administration, operation and maintenance (O&M), on the day of its inauguration and with the participation of local and national authorities.

Aspects that promote sustainability in construction

1. **Participatory planning between the institution and the water boards using the approach "learning while doing".**
2. **Technical training to the chief mason, users and plumbers, to ensure construction quality and future O&M.**
3. **Preparation by the community of the Memoir of community participation to reinforce the water project's communal nature.**

Table 2. Construction Stage

PROJECT ACTIVITIES	INSTITUTIONAL RESPONSIBILITY	COMMUNITY RESPONSIBILITY
PARTICIPATORY PROGRAMMING		
1. Work planning	• Organize and coordinate with water board, step by step, activities to be undertaken	• Attend Water Board meetings and General Assemblies • Provide warehouse space and person responsible for its management • Contract plumber • Identify number of users • Integrate working group • Open bank account
2. Household visits	• Promoter estimulates participation of persons adverse to project	• Water Board members promote project
3. Procedures for document legalization	• Inform on legal requirements	
4. Seeking alternate financial assistance sources Collect first payment		• The community seeks other financial sources • Collect 80% of first payment
5. Organization and provision of equipment and materials	• UEBM and UNICEF provide piping, handpumps, tools	• The board purchases local materials
TECHNICAL TRAINING		
6. Training in planning, construction, operation and maintenance	• The chief mason is provided with adequate control/quality control systems • Supervisor engineer and chief mason give training to users and plumbers	• Train boards in planning • Select a group of persons to be trained, besides the plumber
SYSTEM CONSTRUCTION & CONTROL OF CONTRIBUTIONS		
7. Construction work	• SANAA offers technical assistance, supervision and follow-up	• Construction of systems
8. Control of community contributions		
COMMITMENTS, AGREEMENTS AND DELIVERY OF SYSTEM		
9. Inform about supply rate and its collection Funds collection	• SANAA determines supply tariff	• Community is informed and negotiates supply rate • Water Board collects supply tariff
10. Issue letter of participation		• Users have certificates and are aware of responsibilities
11. Elaboration of final design and a summary of community experience	• Preparation of memoir at institutional level by UEBM supervising engineer • Preparation of document and its discussion with boards	• Water Board elaborates historical memoir on community participation in construction • Board and Community discuss and approve document President of Water board signs agreement
12. Discussion and approval of agreements	• UEBM undertakes audit and submits financial statements	
13. Financial audit of water board		• Water Board facilitates necessary documentation • Submit Audit Report to the General Assembly

3. SYSTEM ADMINISTRATION, OPERATION & MAINTENANCE STAGE

The activities and responsibilities undertaken under this phase are shown in detail in Table 3.

Provision of equipment and training in funds' administration

After delivery of facilities, the institution and the board jointly prepare the implementation of an accounting-administrative system. The Board engages the services of one secretary and one plumber, and UEBM/SANAA holds a training session on funds' administration themes, which includes development of skills oriented to provide information, monitor meetings, planning, and finding democratic solutions to problems and negotiations.

Administration, Accounting and Payment to the Revolving Fund

UEBM/SANAA and the Board jointly define tariff and investment recovery mechanisms, the implementation of which are the board's total responsibility. In most cases, payment of water tariffs is made through the bank against receipts distributed beforehand.

Operation and maintenance by the community

The systems' O&M is ruled by regulations proposed by UEBM/SANAA. These regulations are discussed and then disseminated among the persons involved in the system's operation: SANAA's personnel at tge collection centers, water distributors, users, the board members and the plumbers. Daily operation of the water system is one of the plumber's obligations.

UEBM/SANAA supports and monitors the proper application of O&M regulations in each community and assumes responsibility for water quality control in the source as well as for water transportation in tank trucks to community water deposits.

Education in Water and Sanitation

Assisted by Social Work students, the water board develops educational activities in communities served with water facilities. Cleaning campaigns and educational workshops in which women make up the mayority of participants.

Local coordination for integrated sanitation

Water and sanitation actions are complemented with activities related to latrines, garbage, residual water sewage. For this purpose, coordination with other organizations and groups active in these issues within the community.

Institutional supervision and assistance

UEBM/SANAA provides the boards with periodic assistance in bookkeeping. These, in turn, must keep their books updated.

Table 3. Strategy for the Administration, Operation and Maintenance Stage

PROJECT ACTIVITIES	INSTITUTIONAL RESPONSIBILITY	COMMUNITY RESPONSIBILITY
PROVISION OF EQUIPMENT AND ACCOUNTS MANAGEMENT TRAINING		
1. Definition of Project costs	• Audit community contributions • Consolidate requisitions • Define total cost • Notify on investment	• Offer information • Discuss and approve expenditures
2. Staff recruitment	• Suggest salary levels and job requirements of personnel to be recruited	• Select staff • Establish working schedules
3. Practical training to Boards: Administrative/Accounting problem solving decision making and reporting	• Set up administrative controls • Develop participatory courses supported with didactical material on mentioned themes	• The Board participates in training • Analyze, discuss and apply controls • Printing of control forms
ADMINISTRATION, ACCOUNTING AND PAYMENT TO ROTATORY FUND		
4. Implement payment of supply rate and Rotatory Fund, and manage accounts	• Define parameters for setting up tariff and payment to Rotatory Fund • Information/training on Rotatory Fund to UEBM personnel and the Community	• Analyze and discuss tariff • Analyze and discuss payment procedures of Rotatory Fund • Printing of receipts for tariff payment • Operate accounting books
5. General Assemblies of information and approval (continuous activity)	• Give support in assemblies • Monitor assembly development	• Convene, organize and conduct Assemblies
OPERATION AND MAINTENANCE BY THE COMMUNITY		
6. System operation	• Training on system's maintenance • Technical advice • Information on use of source and adequate periods for exploitation	• Operate system on daily basis • Repair system • Setting-up/complying with working schedule/distribution sectors
7. Negotiation and application of O&M manual	• Propose model for O&M regulations • Support development of Board's skills for negotiation • Support and monitor the application of regulations	• Board and users to participate in training • Analyze, discuss, reformulate, and apply regulations
EDUCATION FOR WATER AND SANITATION		
8. Water and Hygiene Education	• Community training • Production of educational material • Coordination of mobilizations	• Integrate in educational process • Disseminate acquired knowledge • Organize campaigns and mobilization
SUPERVISION AND INSTITUTIONAL ADVISORY		
9. Supervision of the board's funds	• Quarterly revision of funds utilization • Follow-up implementation of recommendations • Provide administrative/ accounting assistance	• Keep accounting books updated • Facilitate information • Use funds appropriately
LOCAL COORDINATION		
11. Coordinate with basic sanitary infrastructure projects (sewers, incinerators, reforestation, Lorena stoves)	• Coordinate project implementation with other institutions, formulating joint proposals	• Participate in plan formulation and project implementation

Aspects that promote sustainability in the administration, operation and maintenance phase

1. *Training for democratic performance of water boards, reinforcing the following aspects: keeping users informed and applying solutions that include negotiations and mutual agreement with users.*

2. *The institution imparts a practical administrative-accounting course, periodically developed with water boards.*

3. *Training activities and, in general, community meetings involve men and women, utilizing appropriate participatory/information methodologies.*

4. *Implementing O&M execution with an approach to "service", keeping control of distribution schedules, water quality, water access and facilities.*

5. *Plumber and users are well informed and work in coordination in the operation and maintenance of the system.*

6. *The nature of health education activities, equally oriented to men and women, is towards learning and behavioral change. In this respect, the differences and interests of both groups as regards change are duly considered.*

7. *Sanitation activities are implemented in coordination with other groups and organizations, and include: water, latrines, garbage and drainage of waste waters.*

8. *Availability of resources, knowledge and systems to reach pursued*

Reflecting on the institutional development of UEBM/SANAA

The following reflections ensued from the revision and analysis undertaken by UEBM/SANAA's team in July 1993 with regard to the future of the institution and its development.

1. The institution's role within the water and sanitation sector

Desirable achievements in a three-year period

Table 4 presents a three-year projection of desirable goals to be reached by UEBM/SANAA within the sector and as an institution, and also by the boards and the community. For the sector it intends to continue implementing non-traditional systems projects to attend 90,000 persons; working in greater coordination with institutions; furthering, consolidating and validating its working methodology in urban-marginal communities, and improving the sanitation area.

UEBM/SANAA, an institution with expertise within the sector

UEBM/SANAA has acquired considerable experience in six years and is now an institution with expertise in the implementation of community projects utilizing non-traditional water supply systems in urban marginal slums. For this reason, it deserves continuous support and recognizance from SANAA.

UEBM/SANAA must develop its institutional capacity and take the initiative for coordinating water and sanitation projects with other sector organizations; local resources will be optimized in this way, and the institution will provide more sustainable and integrated services to urban-marginal populations.

UEBM/SANAA's social-technological proposal is feasible.

The plan for implementation of non traditional systems, whereby responsibilities are shared by SANAA, UNICEF and the COMMUNITY has proved feasible and has attained sound levels of water supply coverage.
At the same time, it has opened spaces for community management and participation.
Support to this social-technological proposal for urban-marginal zones must be continued.

Integration of water supply with environmental sanitation

The UEMB/SANAA Programme must focus on the integration of water supply with environmental sanitation services, latrines, drainage and sewage systems, to respond to health objectives.

2. Internal aspects of the institution

Consolidation of administrative capacity

UEBM/SANAA, in its organizational development, is moving from a pioneer stage towards one of consolidation. This demands greater formalizing and adjusting of its methodologies and administrative systems, such as, planning, organization, evaluation, decision taking and staff development. These systems should serve more to support than to criticize, seeking staff involvement and adequate training.

Table 4 - Achievements of the UEBM/SANAA Programme in Three Years

WITHIN THE SECTOR:	WITHIN UEBM/SANAA:	WITH THE BOARDS:	IN THE COMMUNITY:
1. Adequate working methodology validated for projects in urban marginal zones.	1. The most consolidated and accepted executing unit within SANAA's various administrative levels, as the leading water institution in slum areas (UEBM/SANAA) participates in updating of the master plan; greater financial support.	1. Board efficiently administrating its systems	1. 70% users with adequate hygiene practices on: * water use * waste water tanks * latrine use * personal hygiene * environment
2. Methodology accepted and used in other sector projects.	2. Consolidate internal controls on administrative and financial level (finacial situation of water boards; Rotatory Fund).	2. Legal trained boards.	2. Trained women to work in water and sanitation projects.
3. Coverage expansion. Provision to 90,000 persons with non-traditional water systems.	3. Staff is informed of activities carried out in all UEBM/ SANAA areas. (Meetings, reports, internal evaluations, exercises on integration, knowledge, achievements and products).	3. Boards and committees with consolidated support, promoting and supporting sanitation improvement.	3. The population actively participates in the solution of water and sanitation related problems.
4. UEBM/SANNA coordinates with government organizations for strategy formulation to increase coverage.	4. Sufficient trained staff for strategy implementation.	4. Well balanced boards integrated by men and women.	4. 100% users use water and the water system appropriately.
5. UEBM/SANAA is capable of promoting improvement of sanitation area.	5. Mechanisms and incentives to counteract rotation of UEBM/SANAA staff.		

Balanced composition of gender and professional background

An important aspect in community project implementation has been the configuration of UEBM/SANAA's professional team in terms of gender and technical social origin. Mixed groups carry out field visits and community interventions, allowing for mutual learning among professionals, sensitizing technicians towards participatory working and facilitating contact with community men and women.

Growth and strengthening of human resources

Technical and social groups are sensitized towards participatory action, an important element in project implementation. To strengthen these groups, it is necessary to systematize their approaches and perspectives so that they may be reflected in working methodologies and instruments, such as formats, training material for communities, guidelines, etc.

Work and supervision based on objectives

The promotion team plays a most important role in the communities. For a more efficient organization of the workload and progress, it is necessary to implement the role of "group coordinator", currently in charge of the Direction. This function must be oriented to support and supervise promotion through objectives, rather than just play the formal role of authority and control.

3. Institutional aspects of community participation

Positive attitude and conviction towards community participation

In working with peri-urban communities, UEBM/SANAA has strengthened its conviction that the best way to work with the communities is through their participation. Their members are in no way "passive beneficiaries". On the other hand, they are trustworthy partners in the implementation of water projects.

Trust in community participation is necessary and an import requisite if sustainable results are expected in water project implementation.

Reinforcement of the approach "Participation for Execution"

Community participation within the programme has brought about large community donations in material, hand labour and financial contributions. In order to achieve greater sustainability of the systems, community participation must be oriented to implementing actions that support and develop community skills in system operation, according to the following parameters:

* to seek users' commitment;
* besides teaching, to seek that all learn;
* besides informing, to generate information with participants;
* to develop community organizational skills, such as: planning communal actions, negotiating proposals, making joint decisions and pursuing joint sustainable solutions to communal problems.

Elaboration of the working tools to promote community participation

A community participation methodology requires tools to facilitate working in communities. Guidelines for meetings; training material for the boards; and simple informative material for the community; are some examples of material and experience that would require development.

This material can be developed with the participation of UEBM/SANAA promoters, the board and support community groups.

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Global Meeting of UNICEF WES Professionals

Bangalore, India

(25 - 30 march, 1994)

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J.M.G Van Damme

1. The meeting itself

The list of participants and the agenda of the meeting are in annexes 1 and 2. The final report of the meeting is forthcoming shortly; a tentative Synthesis of Working Group Papers is appended as annex 3.
The meeting was rich in substance and frank in opinion. An extensive collection of documents is available through the Documentation Unit.
I was involved in a working group on Conceptual Framework for UNICEF. The tentative outcome is in annex 4.

2. Meeting on Communication for Behaviour Change

- The report of the Communication meeting/brainstorming is in annex 5

3. Presentation by IRC

The IRC presentation is reflected in the overhead copies in annex 6.

4. Further operational information

- Mr. Luyendijk (JPO) may visit IRC in June. He announced publicly to find IRC's publications of great use.

- Lizette Burgers informed me about the address of a health education material database: CEE South - Bangalore
  Tel: 579094/55668209
  (Mr. Nandane)

- Carol de Rooy requested IRC to compile an inventory of donor information

- Addresses of some people met are in annex 7

- A quick survey in the meeting shared that 90% of the participants received the Newsletter.

ANNEX 1

Global Meeting of UNICEF WES Professionals
Bangalore, India – 25–30 March 1994

List of Participants, Pg. 1

Last Name	First Name	Organisation	Country
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Ali	Mr. Mansoor	UNICEF	INDIA
Alkari	Mr. Vinod	UNICEF	INDIA
Andersson	Mr. Ingvar	SIDA	SWEDEN
Arole	Ms. Mabelle	UNICEF/ROSA	NEPAL
Awal	Mr. Abdul	UNICEF	MALDIVES
Azlouk	Ms. Zohra	UNICEF	DJIBOUTI
Bajracharya	D.	UNICEF	NEW YORK
Bakir	Dr. Hamed	UNICEF	OMAN
Balde	Mr.Julio	UNICEF	GUINEA–BISSAU
Baumann	Mr. Erich	SKAT	SWITZERLAND
Bawa	Dr. Emmanuel	UNICEF	GHANA
Bergers	Lizette	UNICEF	BURKINA FASO
Berhe	Mr. Berhane	UNICEF	ERITREA
Bhargava	Mr. S.C.	UNICEF	INDIA
Blaxall	J.	WORLD BANK	WASHINGTON
Brandberg	Mr. B.	SBI CONSLUTANTS	SWEDEN
Burgers	Ms. Lizette	UNICEF	BURKINA FASO
Chakravarty	S.S.	R.K. MISSION	INDIA
Chatterjee	A.	NID	INDIA
Chein	Mr. Aung	UNICEF	INDIA
Chetty	Dr. G. Thimmi	UNICEF	NEPAL
Davis	Mr. Colin	UNICEF	NIGERIA
De Rooy	Mr. Carel	UNICEF	ABIDJAN(WCARO)
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Devereux	Mr. Scott	CRL	UK
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Dillo	Ms. Siham	UNICEF	SYRIA
Dixit	Ms. Anu	UNICEF	INDIA
Dohvoma	Mr. Vincent	UNICEF	RWANDA
Donaldson	Mr. Lloyd	UNICEF	UGANDA
Dooley	Ms. T.	UNICEF	ZIMBABWE
Doyle	Brendan	UNICEF	NEW YORK
Dutch Rep			
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Egidio	Mr. Nuno	UNICEF	CAPE VERDE
Esrey	Steven	UNICEF	NEW YORK
Faki	Dr. Mhd. El.	UNICEF	SUDAN
Finney Hayward	Ms. Ruth	UNICEF	NEPAL(ROSA)
Gabru	Dr. Takka	UNICEF	ETHIOPIA
Ghosh	Gourisankar	UNICEF	NEW YORK
Glennie	Mr. Colin	UNICEF	UGANDA
Gonzalez	Mr. O.	UNICEF	LAO
Gough	Ms Jean	UNICEF	EL SALVADOR
Grey	Mr. Ken	CONSULTANT	CALIFORNIA
Guerre	Mr. Christian	UNICEF	BENIN
Guhr	Mr. Ingo	UNICEF	PAKISTAN
Gyorgy	Dr. Stefan	UNICEF	BURUNDI
Haggag	Dr. M.R.	UNICEF	EGYPT
Hall	Mr. Stanley	UNICEF	ANGOLA
Henderson	Dr. Mark W.	UNICEF	ZAMBIA
Hossaini	Mr. Hamid	UNICEF	PAPUA NEW GUINEA
Hubert	Dr. Christian	UNICEF	KENYA
Izaguirre	Mr. Jorge	UNICEF	PERU
Jensen	Erik Sjorslev	DANIDA	DENMARK
Jolly	Richard	UNICEF	NEW YORK
Jonnson	Urban	UNICEF	NEPAL(ROSA)
Jurji	Dr. Zaid	UNICEF	IRAQ

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Last Name	First Name	Organisation	Country
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Konate	Mr. Idrissa	UNICEF	CEN. AFR. REP.
Kumar	Dr. Pradeep	UNICEF	BANGLADESH
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Saibou	Mr. Aboubacar	UNICEF	HAITI
Saigol	Mr. Khalid	UNICEF	PAKISTAN
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Samanta	Mr. B.B.	UNICEF	INDIA
Saquee	Mr. George	UNICEF	SIERRA LEONE
Sarabhai	K.	CEE	INDIA
Schjerven	Mr. Haavald	UNICEF	DENMARK
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Turner	J. Ellis	WASH	WASHINGTON
van Damme	H.	IRC	HOLLAND
van Norden	Dr. Henk	UNICEF	BHUTAN
Villanueva	Ms. Yvonne	UNICEF	CHAD
Weerasinghe	Mr. N.	UNICEF	SRI LANKA
Williams	Mr. David	UNICEF	ETHIOPIA
Wirasinha	R.	COLL. COUN.	SWITZERLAND
Woodhouse	Mr S.	UNICEF	VIETNAM
Wurie	Dr. Dauda B.	UNICEF	TANZANIA
Wurzel	Mr. Peter	UNICEF	MOZAMBIQUE
Zuleta	Mr. Jose Antonio	UNICEF	BOLIVIA

ANNEX 2

GLOBAL CONFERENCE OF UNICEF WES PROFESSIONALS
BANGALORE, INDIA
25-30 MARCH 1994

ACHIEVEMENT OF THE MID- AND END-DECADE GOALS FOR WATER SUPPLY AND SANITATION

AGENDA FOR ACTION

VENUE: **WEST END HOTEL, BANGALORE**

TEL: (91-812) 26-92-81 **FAX: (91-812) 20-00-10**

Friday, 25 March 1994

INTRODUCTORY SESSION: STRATEGIES FOR THE MID- AND END-DECADE GOALS

Chairperson: **Dr. Jon Rohde, UNICEF Representative, India**

16:00 - 16:30	The Importance of Water and Environmental Sanitation in Achievement of the Mid-Decade and End-Decade Goals	R. Jolly
16:30 - 17:00	The Importance of WES in UNICEF Country Programmes	J. Rohde
17:00 - 17:40	Presentation of Draft Sector Strategy	
	Implementation of Improved Sector Programmes	S. Esrey/G. Ghosh
17:40 - 19:00	Open Discussion on Draft Strategy Paper and Aspects that Need to be Strengthened	Panel Discussion with J. Rohde/R. Jolly/M. Ahmed/ U. Jonsson/G. Ghosh/S. Esrey

Saturday, 26 March 1994

THEME I: CAPACITY BUILDING

Chairperson: **Mr. Urban Jonsson, Regional Director, ROSA**

Subject: **Institutional and Economic Reform**

8:00 - 8:30	Macro-Economic Issues	J. Majumdar
8:30 - 8:50	NPA: WES Strategies and Resources	A. Nigam
8:50 - 9:10	Support from UNICEF for Preparation and Implementation of the NPAs	S. Woodhouse
9:10 - 9:40	Plenary Discussion	
9:40 - 10:15	Sector Policy Formulation; Examples from the field:	
	Dominican Republic	A. Oliver
	Indonesia	S. Mathur
	Nigeria	C. Davis
10:15 - 10:30	Tea/Coffee Break	
10:30 - 12:00	Group Work on Institutional/Economic Reforms Incorporating Field Trip Feedback	
12:00 - 13:00	Presentation of Group Work	
13:00 - 14:30	Lunch	

Subject: **Enhanced Sector Monitoring**

14:30 - 15:00	Monitoring of the Mid-Decade Goals	G. Jones
15:00 - 15:30	Coverage and Management: Indicators Necessary to include	B. Doyle
15:30 - 16:00	Group Work on Improved Sector Monitoring (Three/four Regional Groups) (Country Feedback)	
16:00 - 17:00	Group Work (Cont'd)	
17:00 - 18:00	Presentation of Group Work based on Discussion and Country Case Studies	