

**SOCIAL MOBILIZATION TO ACCELERATE CDD PROGRAMME
IN THE TIHAMA REGION, REPUBLIC OF YEMEN**

**project proposal
(draft)**

Tulane University School of Public Health and Tropical Medicine
Social Mobilization End-of-Course Submission
prepared by
Robert V. Tyabji, Runhua Shi and Mohammed A. Khan

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Project Proposal (draft)

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EXECUTIVE SUMMARY

Yemen, a least developed country that is undergoing rapid and painful political, economic and social changes, is on the verge of achieving major public health breakthroughs. While the country achieved Universal Child Immunization in 1990, and a sustainable diarrhoeal disease control (CDD) programme is being established, large pockets such as the Tihama region of the country exist where major hurdles of ignorance and service delivery must be overcome if the country's human development goals are to be achieved. Diarrhoeal dehydration is one of the major causes of the region's high infant and child mortality rates. This proposal outlines how social mobilization can strengthen and accelerate CDD in the Tihama to protect the healthy growth of the region's 350,000 children and save an estimated 3,000 young lives a year.

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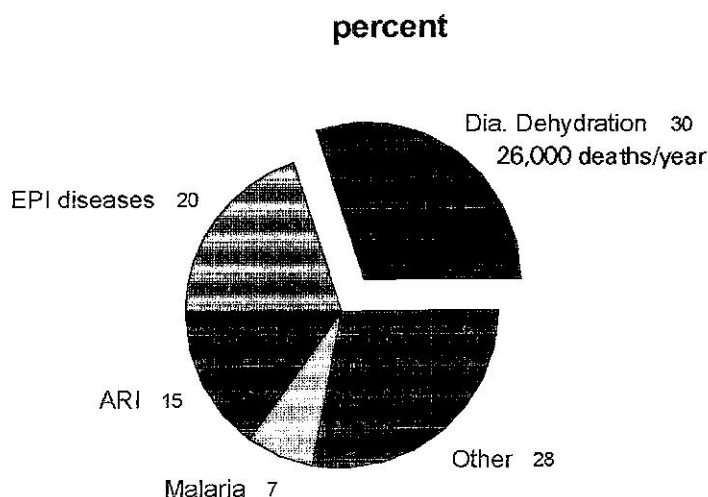
SOCIAL MOBILIZATION TO ACCELERATE CDD PROGRAMME IN THE TIHAMA REGION, REPUBLIC OF YEMEN

1. The health situation of children in Yemen

As one of the world's poorest Arab countries, Yemen has one of the highest infant and child mortality rates (126 and 187 per 1000 l.b.respectively), highest fertility and population growth (7.3, 3.3%) rates, lowest primary health care coverage rate (40%), and among the lowest life expectancy (52 yrs) and literacy rates (54% male, 15% female) in the region. If the current demographic, economic and social service delivery trends continue, approximately one million Yemeni infants and young children will die from largely preventable causes during the 1990s. Almost two-thirds of all child deaths occur due to a combination of malnutrition and infections in the first 12 months of life. The causes of mortality in the under-five age group are summarized in Figure 1.

Figure 1

CAUSES OF UNDER FIVE MORTALITY IN YEMEN 1989



Source: Ministry of Public Health, Sana'a, and UNICEF reports, 1989-91

Dehydration as a result of diarrhoea is recognized as the leading cause of infant and child mortality in Yemen. Estimates suggest that more than 26,000 children die each year from diarrhoeal dehydration, constituting over 30 percent of child deaths. Local studies carried out over the past ten years indicate the following pattern:

- * morbidity is highest among the 7-24 month age group;
- * rural children, comprising nearly 80 percent of the total child population, have an average of 4 episodes of diarrhoea each year;
- * Each episode of diarrhoea lasts 3 to 6 days.
- * Incidence of diarrhoea is highest in the hot, rainy season, May-October

2 Diarrhoeal dehydration in the Tihama: extent, severity and causes

The effects of diarrhoeal dehydration are most severe in the Tihama, the flat and arid coastal and foothill region which rises from sea level to a height of 1,000 metres and stretches for 2,000 kilometers in a 10 to 50 km. wide belt along the western and southern coasts of the Red Sea and Gulf of Aden. It is estimated that there are more than 10,000 villages, of which about 2,000 are remote hamlets without road access and mostly without stores or any of the other services which are normally available in the larger Yemeni villages. Many of these hamlets have no drinking water supply and obtain domestic water from agricultural borewells, *berkets* (rainwater tanks), or in the case of coastal villages, shallow dug wells. In the two years following the Gulf Crisis the inhabitants of hundreds of small villages suffered cyclical bouts of cholera and shigellosis which had been brought in by nearly a million returnees fleeing the Gulf countries, some 270,000 of who settled in the Tihama region. Unsafe water supply and lack of timely health services contributed to hundreds of deaths amongst them and the host population.

As the Tihama is part of nine separate governorates but no administrative boundaries exist to separate it, the population of the region cannot be readily ascertained from available data. For purposes of this document, therefore, estimates have been prepared by applying a constant (k) to the child population (0-4 years) of each governorate (Table1).

TABLE 1: TIHAMA REGION, 1991: GOVERNORATES, DISTRICTS, HEALTH FACILITIES, POPULATION

GOVERN-ORATE	TOTAL POP.	# DIST-RICTS	# VILL-AGES	# HLTH. FAC.	CHILD POP 0-4 YEARS	K	TIHAMA EST. POP. 0-4 YRS.
Saada	372000	14	1080	46	67917	0.5	33959
Hajja	849600	33	3335	65	159141	0.3	47742
Hodeidah	1233000	22	1949	161	55514	0.7	38860
Aden	426800	4	?	30	44887	0.8	35910
Abyan	332400	4	?	79	48624	0.8	38900
Taiz	1724000	20	2511	167	304398	0.3	91319
Hadramout	690800	8	?	146	86142	0.5	43071
Al-Mahra	103200	4	?	21	7631	1.0	7631
Shabwa	233000	5	?	71	37460	0.5	18730
9	6964800	114	~10000	786	969229	0.37	356122

Tihama children under 4 years of age suffer an estimated 1.4 million diarrhoea episodes every year lasting upto 6 days each. The problem of dehydration is particularly acute due to the following factors:

1. Irregular ORS supply, particularly at periphery
2. Wrong attitudes and lack of ORS/ORT knowledge among health personnel and retail trade
3. Lack of parental ORS/ORT knowledge and skills
4. Reduced feeding during diarrhoea
5. Inadequate knowledge and skills among health providers and ORS distributors
6. Over-prescription of antibiotics and other marginally useful/ineffective drugs
7. Lack of political, multi-sectoral and NGO support to CDD
8. Poor personal hygiene practices
9. Relatively low access to safe water (~ 30%)
10. Low access to adequate sanitation (~ 30%)
11. Relatively low coverage of health services (<35%)
12. Relatively low socio-economic status (per capita income ~\$ 216 , <half national average)
13. Introduction of cholera by Gulf crisis returnees
14. Inaccessibility, especially in rainy season
15. Hot and humid climate (seasonality)

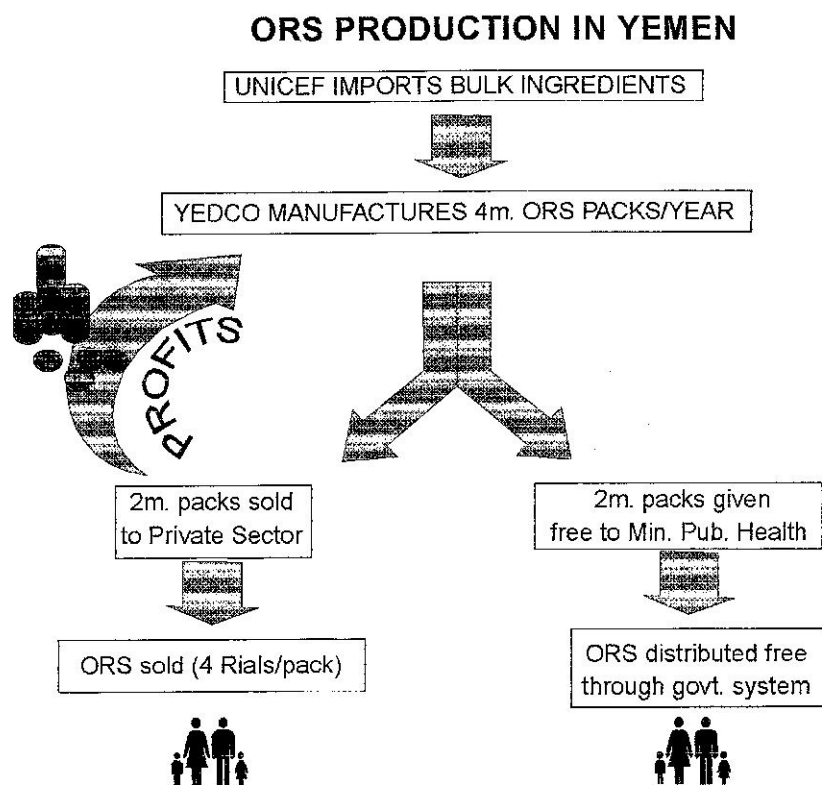
While oral rehydration salts (ORS) have been produced in Yemen since 1990, in the Tihama the product is not regularly available at local pharmacies, general stores or even at government health centres. Government health care coverage is estimated to be less than 35 percent, significantly lower than the national average. The inhabitants of the estimated 2,000 remote villages and hamlets may for these reasons have no access to ORS. In addition, there is a general lack of knowledge of oral rehydration therapy among pharmacists and shopkeepers. Seasonality of supply is an important factor as large areas of the Tihama are rendered inaccessible during the rainy season when the *wadis* are full of water. The situation is made more acute by the fact that the incidence of diarrhoeal infections increases significantly during the hot, rainy season, when access to health services is lowest.

3. Summary of national Control of Diarrhoeal Diseases (CDD) programme

Prior to 1987 UNICEF and other agencies imported large quantities of ORS into the country for free distribution through the government health services; however, it was evident that the programme lacked impact. To correct this situation, a four-point strategy was introduced in 1989, the elements of which were: (1) Adoption of ORS-based intervention (2) Local production of ORS with self-financing; (3) Improved case management; (4) Communication.

Local production of Oral Rehydration Salts (ORS) commenced in 1990 and a fairly extensive ORS distribution network of health facilities, retail pharmacies and small grocery stores has developed. With the success of EPI in 1990, ORS distribution has been linked to the vaccine distribution system (cold chain). Currently four million packets of ORS are produced annually of which half are sold through private sector outlets and half are distributed free through the government health system (Figure 2).

Figure 2



The programme is partially self-sustaining since the cost of ORS production and distribution is shared by the public who buy it and UNICEF which provides the unprocessed ingredients to the manufacturer as part of its programme of assistance. The ORS manufacturer (a joint sector organization) sells 2 million packets annually through the private sector and uses the profits to pay the cost of providing free of charge another 2 million packets to the Ministry of Public Health (MOPH) which distributes ORS free through the government health system. The retail price per packet is fixed at Y.R. 4.00 (US\$ 0.18). Packets distributed through the Ministry of Public Health (MOPH) are clearly marked 'FREE OF CHARGE'. This arrangement provides not only built-in sustainability, but helps ensure that those who can afford to pay, purchase ORS, and in doing so, underwrite the cost of providing free ORS to the poor. However, production will have to be increased three-fold to 12 million packets if the full demand is to be met, since there is no mechanism in place to train and monitor mothers to prepare appropriate ORS substitutes or home food fluids at the household level.

A social marketing approach was taken in developing the programme. ORS was conceived as a package consisting of a product, which is the ORS sachet itself, and an educational entity comprising instructions in the use of ORS and advice about danger signs, continued feeding, water, hygiene and sanitation. The educational component, disseminated through printed materials, the electronic media and by face-to-face methods, is provided under the overall direction of the General Directorate of Health Education.

The appropriateness of ORS in Yemen hinges on an innovation: the adoption of a 750-ml packet size instead of the international 1000-ml standard. The 750ml size is based on the universal availability of drinking water packaged in 750ml plastic bottles. Thus an appropriate measure and mixing container is readily available even in the smaller villages. This eliminates the measure problem which has plagued ORS programmes in other parts of the world.

National population goals were enunciated at the National Population Policy Conference which was held in Sana'a in November 1991. The goals relevant to CDD, to be achieved by 2,000 AD, are:

- To reduce the under-five mortality rate by 50 percent by the year 2,000, and
- To reduce the infant mortality rate from 126/1,000 in 1992 to 60/1,000 live births
- To reduce child deaths due to diarrhoea to 50 percent of the 1990 levels.
- To reduce by 50 percent severe and moderate malnutrition in under-five children.
- To raise PHC coverage to 90 percent as compared to 40 percent in 1990.

The CDD goals of the Government/UNICEF programme, 1994-1998, are:

- To reduce the number of under-five deaths from diarrhoeal diseases by 30 percent, and
- To reduce the estimated number of cases of diarrhoeal diseases by 10 percent.

ORS has been vigorously promoted by the General Directorate of Health Education (GDHE) on television, radio and the press, and many face-to-face communication activities have been started. Legislation prohibiting the importation of foreign ORS and anti-diarrhoeal drugs was enacted in 1990. A number of community-based projects to promote Facts for Life, with emphasis on ORS, have been launched under the supervision of the health education directors in four governorates. A 1990 assessment carried out by HEALTHCOM (a USAID funded project) in 20 (non-Tihama) villages indicated that more than half the women used ORS correctly and that their initial source of information about ORS had been television or radio. These observations were supported by a 1992 DHS/Papchild survey which reported an ORS use rate of 67.5 percent. However, no communication efforts have been targeted specifically at the Tihama.

Media coverage in Yemen is extensive: over 90 percent of the population is said to have access to television and the proportion for radio is substantially higher. There are two TV channels (Aden and Sana'a) and two national radio stations with 7 regional stations. Broadcasting is controlled by the Ministry of Information but a recently formulated national information policy encourages increasing community access and control. There are about 40

newspapers and journals, but with the exception of a few leading publications penetration beyond the larger towns is negligible. The GDHE has quality TV, radio and print production capability with research and training resources and produces weekly programmes in various formats and a variety of print materials for training and face-to-face communication. With the exception of Al-Mahra, there is a director of health education in each governorate of which Tihama is a part. In addition, 12 of an estimated 40 channels for communication, including *imams*, NGOs, associations, community organizations, and youth and women's groups, are actively associated in health communication and community mobilization activities throughout the country.

4. Tihama CDD Acceleration Project (proposed)

Based on the (estimated) under-4 child population of 350,000 (Table 1), about 18,000 child deaths occur annually in the Tihama, of which nearly 6,000 are due to diarrhoeal dehydration, about 20 percent of the national total (ca. 26,000).

Thus it is essential that special efforts be made in this region to mobilize programme delivery on a most urgent basis. This proposal outlines a strategy and plan of action which we believe will demonstrate a high degree of cost-effectiveness.

4.1 Time frame

The project will commence in January 1994 and will be completed by December 1998. This cycle will ensure synchronicity with the Government of Yemen/UNICEF programme cycle.

5 Goal, Outcome and Objectives

The project will focus on **reduction and prevention of dehydration** through timely treatment of diarrhoea by oral rehydration therapy using ORS. An underlying assumption, based on research and experience in many countries, is that diarrhoea itself cannot be prevented as long as the causal factors of poverty, undernutrition, and low access to water and sanitation remain prevalent. Nevertheless, ethically and because the incremental cost of doing so is low, the project aims also to change personal hygiene and sanitation behaviors to the extent possible in the prevailing environment.

A key determinant of success is that **ORS packets should be readily available to all**, along with appropriate instructions and advice, in the required quantity, at an affordable price, and within a reasonable distance from the home.

The **attitudes, knowledge and skills needed for parents to correctly prepare and administer ORS** and to continue feeding a child throughout a diarrhoea episode should be imparted through every channel. Sustained community support is essential to ensure that the ORS supply, along with an educational component, is maintained.

The lack of an information base hampers project preparation, hence a key objective is to develop the appropriate **management information system** for planning and monitoring and evaluation purposes. Using local resources will ensure continuity and sustainability. Finally, on reaching maturity, the project will be fully integrated in the national CDD programme structure of the Ministry of Public Health.

GOAL

To strengthen, reinforce and accelerate the CDD programme in the Tihama.

OUTCOME

By end 1998, to reduce the annual number of under-five deaths due to diarrhoeal dehydration in the Tihama from 6,000 to 3,000 (50 percent).

OBJECTIVES

1. By end 1998, ORS use will be increased to 80 percent.
2. By end 1994, introduce a health data base and information system for CDD programme in Tihama.
3. The national CDD programme will take over the project at the end of 1998.
4. By end 1998, government health facilities (90%), private pharmacies and clinics (80%) and grocery stores (70%) in the Tihama region will maintain the standard minimum stock of ORS packets (according to recommended standards, Table 3).
5. By end 1998, trained Women Village Distributors will be established in 500 villages.
6. By 1995, form a coalition of influential participants representing the communities and key organizations which meets twice a year and prepares an annual plan of action.
7. Beginning in 1995, TV Channels 1 and 2 will broadcast at least 2 minutes of spots daily for 10 months of each year.
8. Beginning in 1995, local radio stations will each broadcast at least one hour of relevant program material per week.
9. By end 1998, 80 percent of ORS distribution points will display/have available printed communication materials (posters, handouts, booklets)
10. By end 1998, 70 percent of *imams* will speak in the mosques about ORS/ORT once a week and will display ORS promotional materials.
11. By end 1998, 90 percent of health workers will be able to correctly state diarrhoea case management methods.
12. By end 1998, pharmacists (80%), grocery store owners (70%) and Women Village Distributors (90%) will be able to correctly demonstrate ORS preparation and administration.
13. By end 1998, at least 80 percent of parents will be able to:
 - 13.1 List the causes and symptoms of diarrhoea and two danger signs of severe dehydration;
 - 13.2 Name one source of supply of ORS near the home;
 - 13.3 Name one example of positive environmental sanitation and personal hygiene behaviors.
 - 13.4 Cite ORS as the immediate response treatment to diarrhoea.
 - 13.5 Correctly demonstrate the preparation and administration of ORS.
 - 13.6 State that they continue breastfeeding and/or feeding their children throughout an episode of diarrhoea.
 - 13.7 Demonstrate solar disinfection of water if they live in areas without reasonable access to potable water.

6. Key strategies and major activities

The project will focus on reduction and prevention of dehydration through timely treatment of diarrhoea by oral rehydration therapy using ORS. The key strategies and major activities are summarized below.

- Health Information System
- Universal availability of ORS package (Product + Information)
- Advocacy and IEC (social marketing approach)
- Capacity development of local community structures and NGOs
- Long-term sustainability

6.1 Health Information System

Data Base

Capacity will be established within the project to manage research and carry out analyses. Resources for data collection will include health workers, teachers, agricultural extension workers, community leaders, and local NGOs. The initial data base will be compiled by reviewing records existing in Ministry of Public Health (MOPH) offices, hospitals, health centres and health units. In combination with direct observation and interviews, focus group discussions (FGD), a cluster sample survey, and sentinel site surveillance using selected hospitals and health centers, a comprehensive picture of the situation will be obtained. 3 to 5 sentinel sites will be selected from health centres and hospitals in each governorate and the appropriate training imparted.

Monitoring

The above techniques will also help provide the data needed for regular programme monitoring. The quantity of ORS sold through the private sector will be ascertained monthly by consolidating YEDCO production and sales reports with data sampled from wholesalers, retailers and grocery stores. Reports from MOPH stores, hospitals, health centres, sub-centres and Women Village Distributors will indicate the quantities distributed through the government system. This information will be compiled and analysed by the Research Officer in close consultation with YEDCO, CDD Programme staff, MOPH stores in the nine governorates, wholesalers and pharmacies. When compiled over a period of two years, the information can be used as the data file in neural network analysis and for predicting diarrhoeal dehydration (see Annex A).

A major activity will be to carry out sample surveys in years 1, 3 and 5 (with smaller surveys in years 2 and 4) to measure the important variables (see Annex B for sample questionnaire).

TABLE 2: MONITORING SYSTEM

	Variable	Source	Frequency	Carried out by
1.	ORS production	YEDCO records	Monthly	YEDCO staff
2.	Distribution to wholesalers	YEDCO records	Monthly	YEDCO staff
3.	Distribution to MOPH	YEDCO & MOPH records	Monthly	YEDCO, MOPH
4.	Retail outlets ORS stock	Distributor records	Quarterly	Governor. Health Offices
		Pharmacy & Store records (randomly selected)	Weekly	Health workers
5.	Hospital & HC/SC stock	Hospital & HC records	Monthly	Governor. Health Offices
6.	ORS packets distributed	Hospitals, HCs, SCs	Monthly	Governor. Health Offices
7.	WVD ORS stock	Hospitals, HCs, SCs	Monthly	Governor. Health Offices
		Community leaders	Quarterly	Health workers
		WVDs	Quarterly	Health workers
8.	ORS KAPS	Parents (10 HHs/WVD village)	Quarterly	Health workers
9.	# diarrhoea episodes	Parents (10 HHs/WVD village)	Quarterly	Health workers
10.	% severe dehydration	Parents (10 HHs/WVD village)	Quarterly	Health workers
		Sentinel sites	Monthly	SS staff
11.	ORS price	Retail outlets	Random	Research Officer
12.	IEC materials production	IEC records	Quarterly	IEC Officer
13.	IEC materials distribution & display	IEC records & Governorate Health Ed. office records	Quarterly	IEC officer
		Pharmacies, stores, WVDs, community	Quarterly	Health workers, leaders
14.	TV & radio broadcasts	Imams		IEC Officer
15.	Coalition meetings	TV & radio station records	Quarterly	IEC Officer
16.	Participation in training events:	IEC records	Quarterly	IEC Officer
16.1	Workshops for physicians	IEC office records	Annual	IEC Officer
16.2	Health Worker courses	Hlth. Manpower Insts.	Annual	IEC Officer
16.3	Workshops for pharmacists & shopkeepers	IEC office records	Annual	IEC Officer
16.4	Workshops for WVDs	IEC office records	Annual	IEC Officer
16.5	Workshops for community leaders, Imams, NGOs, teachers	IEC office records	Annual	IEC Officer

6.2 Universal Availability of ORS

A key determinant of success is that ORS packets should be readily available to all, along with appropriate instructions and advice, in the required quantity, at an affordable price, and at a reasonable distance from the home. To encourage availability in remote communities, local women will be encouraged to sell ORS in their communities.

It is assumed that (under the national CDD programme) YEDCO will increase ORS production from the present level to the projected national requirement over 5-7 years and that ORS production will become self financing in that period, there will be sufficient ORS available in the country to meet the increased demand of the Tihama region.

The distribution of ORS through the health system is closely coordinated with the distribution of vaccines through the EPI cold chain, which is well-managed and efficient. This strategy has greatly improved ORS availability at hospitals, health centers and sub-centers. However, since PHC coverage is as low as 35 percent in the Tihama, many communities remain underserved and an estimated 2,000 villages are not reached and have no store or shop. To make ORS available in at least 500 of these villages (25%), local women will be encouraged to sell ORS within their communities and will be trained to provide the necessary information and advice. Training workshops will be held each year for WVDs in each governorate. By selling ORS, these Women Village Distributors (WVDs) will earn income and many may take up other opportunities to serve their communities. Since the initial investment for stocking 150 ORS packets per WVD is low, financial arrangements with lending institutions can be made without difficulty.

In the private sector, ORS is already available in pharmacies, private clinics and general stores. The project will help improve market penetration by promoting ORS among shopkeepers and providing training to improve service delivery.

Table 2 shows the recommended minimum inventory of ORS to be maintained at various levels of the distribution system.

TABLE 3: ORS MINIMUM INVENTORY BY TYPE OF DISTRIBUTOR

Hospital	> 50,000 packets
Health Centre	> 10,000 packets
Sub Centre	> 5,000 packets
Pharmacy	> 1,000 packets (YEDCO recommendation)
Grocery	> 500 packets (YEDCO recommendation)
Village Distributor	> 100 packets

6.3 Advocacy and IEC

6.3.1 Force Field Analysis

Advocacy and IEC strategy must recognize that the introduction of project interventions will impinge on the dynamic equilibrium of psychological, social, economic and residual forces prevalent in the Tihama region. Hence it is important to identify the various forces that may reinforce and oppose the changes being promoted, and to assess the relative strengths and weaknesses of each. By suggesting which driving forces to increase and which restraining forces to decrease, the analysis can improve the probability of success by facilitating strategic planning taking into account political and human factors.

While the analysis presented in Table 4 suggests a predominance of driving forces, it also forewarns us of the possible sources and relative strengths of opposition. Table 5 summarizes some reasons for opposition.

TABLE 4: DRIVING, RESTRAINING AND NET FORCES
Value represents theoretical strength of each force (from 0 to 40)

FORCES	VALUE (0-40)		NET
	DRIVING	RESTRAINING	
1. UNICEF, international agencies	40	0	40 +
2. CDD Programme	40	0	40 +
3. Yemen Drug Co. Ltd.	25	0	25 +
4. Pharmacies	30	20	10 +
5. Shops, markets	20	0	20 +
6. Women Village Distributors (WVD)	30	0	30 +
7. Health Workers	30	10	20 +
8. Medical Practitioners	30	20	10 +
9. Media	40	0	40 +
10. Health Education Directors	40	0	40 +
11. NGOs, Channels	30	10	20 +
12. Universities	30	5	25 +
13. Water & Sanitation Programmes	20	0	20 +
14. Bottled water producers	30	10	20 +
15. Religious Leaders, Imams	30	5	25 +
16. Community leaders, Sheikhs	25	10	15 +
17. Parents	40	20	20 +
18. Women opposing WVDs	0	35	35 -
19. Traditional Healers	20	40	20 -
20. Lack of political & multisectoral support	0	30	30 -
21. Poor physical infrastructure	0	30	30 -
22. Irregular ORS supply	0	20	20 -
23. Lack of knowledge or ORS/ORT	0	30	30 -
24. Wrong medical practices	0	30	30 -
25. Poor personal hygiene practices	0	20	20 -
26. Low access to safe water	0	20	20 -
27. Low access to adequate sanitation	0	20	20 -
28. Low coverage of health services	0	40	40 -
29. Low socio-economic status	0	40	40 -
30. Intro. of cholera following Gulf Crisis	30	40	10 -
31. Hot & humid climate	0	20	20 -
TOTAL	580 (+)	525 (-)	55 +

TABLE 5: REASONS FOR OPPOSITION

RESTRAINING FORCES	REASON
1. Pharmacies	Unwillingness to switch from imported to local ORS; fear of loss of antibiotics and anti-diarrhoeal drugs sales
2. Health Workers	Resistance to change; wrong attitudes
3. Medical Practitioners	Resistance to change; unwillingness to prescribe low-cost ORS
4. NGOs, Channels	Resistance to change; wrong information
5. Universities	Residual resistance in some departments
6. Bottled Water Producers	Fear of product association with diarrhoea
7. Religious leaders, Imams	Wrong information
8. Community leaders	Wrong information
9. Parents	Wrong information, beliefs
10. Women opposing WVDs	Jealousy
11. Traditional healers	Fear of losing income, power
12. Lack of political & multisectoral support	Poor understanding of benefits of CDD programme
13. Poor physical infrastructure	Roads, bridges, transport system
14. Irregular ORS supply	Inadequate distribution system
15. Lack of ORS/ORT knowledge	Insufficient programme focus
16. Wrong medical practices	Habit, insufficient programme focus
17. Poor pers. hyg. practices	Tradition, lack of health education
18. Low access to safe water	High cost of Watsan programmes
19. Low access to adequate sanitation	High cost of Watsan programmes
20. Low coverage of health services	Socio-economic status, inadequate PHC programme
21. Low socio-economic status	Geopolitical & historical
22. Intro. of cholera following Gulf Crisis	Political
23. Hot & humid climate	Geographical

Advocacy and IEC can be strategic elements in increasing the driving forces to a theoretical maximum value of 1240 while reducing the restraining forces as much as possible towards zero, fully recognizing that certain factors (e.g. climate, socio-economic status) cannot be impacted by the project. Using the tables as a guideline, one may further analyse reasons for opposition using rapid appraisal techniques such as key informant interviews and/or focus group discussions. It then becomes possible to develop behavioral objectives for certain force factors, design educational messages targeted at each, and select the appropriate media mix and communication methods.

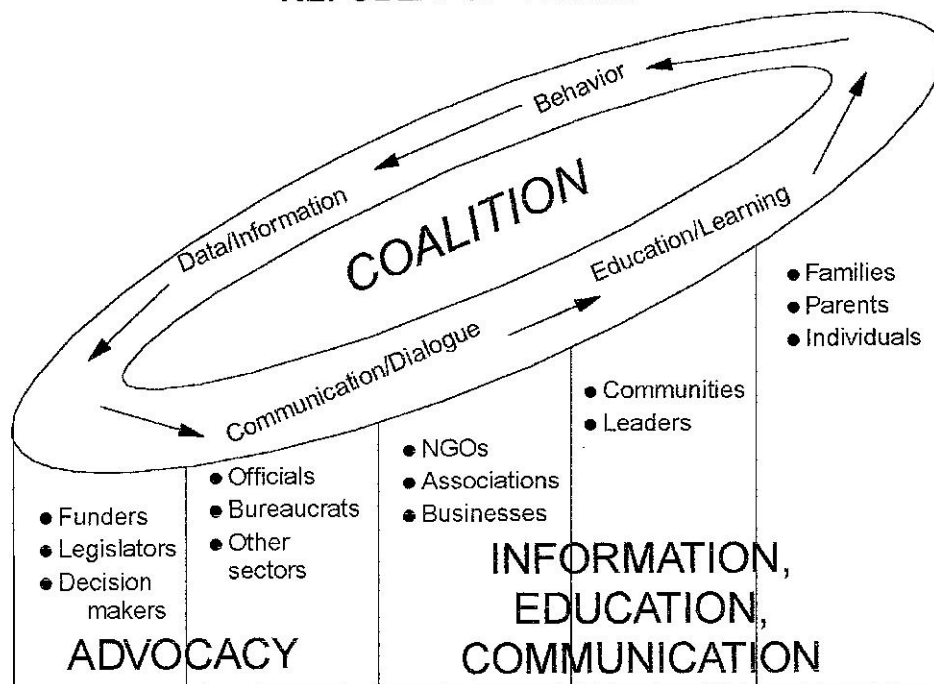
Advocacy

A key strategy for mobilizing broad based support and ensuring intersectoral coordination and cooperation is the formation of a coalition of local and regional stake holders, influentials and organizations. Local media professionals, teachers, youth groups, union and association leaders, parliamentarians and other opinion leaders can play a pivotal role in the coalition. Workshops for community leaders and NGO groups will be held twice a year in each governorate under the stewardship of the directors of health education and their teams.

Figure 3 illustrates how advocacy and IEC strategies can reinforce the social mobilization continuum in the Tihama.

Figure 3: Conceptual framework for ORS promotion in the Tihama

THE SOCIAL MOBILIZATION CONTINUUM IN THE TIHAMA, REPUBLIC OF YEMEN



Information, Education & Communication

The General Directorate of Health Education in coordination with the project IEC Officer will produce **information material** (leaflets, posters, videos) on the proper preparation and administration of ORS, how to use the sun to purify water, how to recognize the danger signs of dehydration, and advise on what action to take. **TV and radio programmes** will be produced to improve general knowledge of diarrhoeal diseases and dehydration, the benefits of exclusive breastfeeding, and about nutrition, hygiene, safe water, and sanitation. A key strategy will be to facilitate conceptualization of materials at community level, using local resources. **Small media** and local forms of communication - e.g. poetry, music, drama, qat sessions - will play important roles.

The 9 governorate directors of health education in coordination with the project IEC Officer will assist the GDHE in **message design**, stratification, continuity and reinforcement; **audience segmentation** into organizations, groups, communities and individuals; and **media selection and mix**. The GDHE will produce the materials using **participatory techniques** developed during the past three years.

Training

Training is a key activity in enhancing knowledge, attitudes, practices and skills of all participants in the project. A summary of the proposed training plan is given in Table 6.

Table 6. SUMMARY OF TRAINING PLAN

Trainees/no.	Content	Type & no. of events	Frequency	Duration	Training Org.
Physicians/60	ORT	Seminarsx2	Bi-annual	3 days	MOPH/Gov.
Health Workers/ 300	ORT, solar disinfection, interpersonal skills. Data collection	Classroom Demonstration, OJT	Every 3 years (pre & in-service) As needed	5 days As needed	HMI/sx3 * Gov. Hlth.
Offices					
Sentinel site staff/ Offices 54-90	Monitoring	OJT	As needed	As needed	Gov. Hlth.
Pharmacists/270, Shopkeepers/450	ORS inventory control, ORS prep. & admin., use of IEC materials	Workshopsx9 Workshopsx18	Annual Bi-annual	1 day 1 day	Gov. DHE Gov. DHE
WVDs/100	ORS prep. & admin., use of IEC materials	Workshopsx9	Annual	3 days	Gov. DHE/HWs
Community Leaders, Imams, School teachers, trad. healers, NGOs	ORS KAPS, solar disinfection, hygiene, watsan, feeding practice	Workshopsx18	Bi-annual	3 days	Training Asst.

* Health Manpower Institutes at Hajja, Hodeidah and Aden

6.4 Capacity development

The project will provide opportunities for improving the technical capacity of local MOPH offices, local government agencies, community organizations and NGO groups to support the project by contributing resources for communication, community participation, and monitoring and evaluation. The project will provide training (see Summary Training Plan) and essential equipment and materials on a selective basis.

6.5 Sustainability

By strengthening local capacities the project ensures long term sustainability. At the end of the fifth year the project will be taken over by the national CDD programme.

7 Major Activities and Time Line

The major activities and time line of the project for the preparatory year (1993) and the five-year operational period 1994-1998 are summarized in Table 7.

Table 7. Project Workplan, 1993-1998

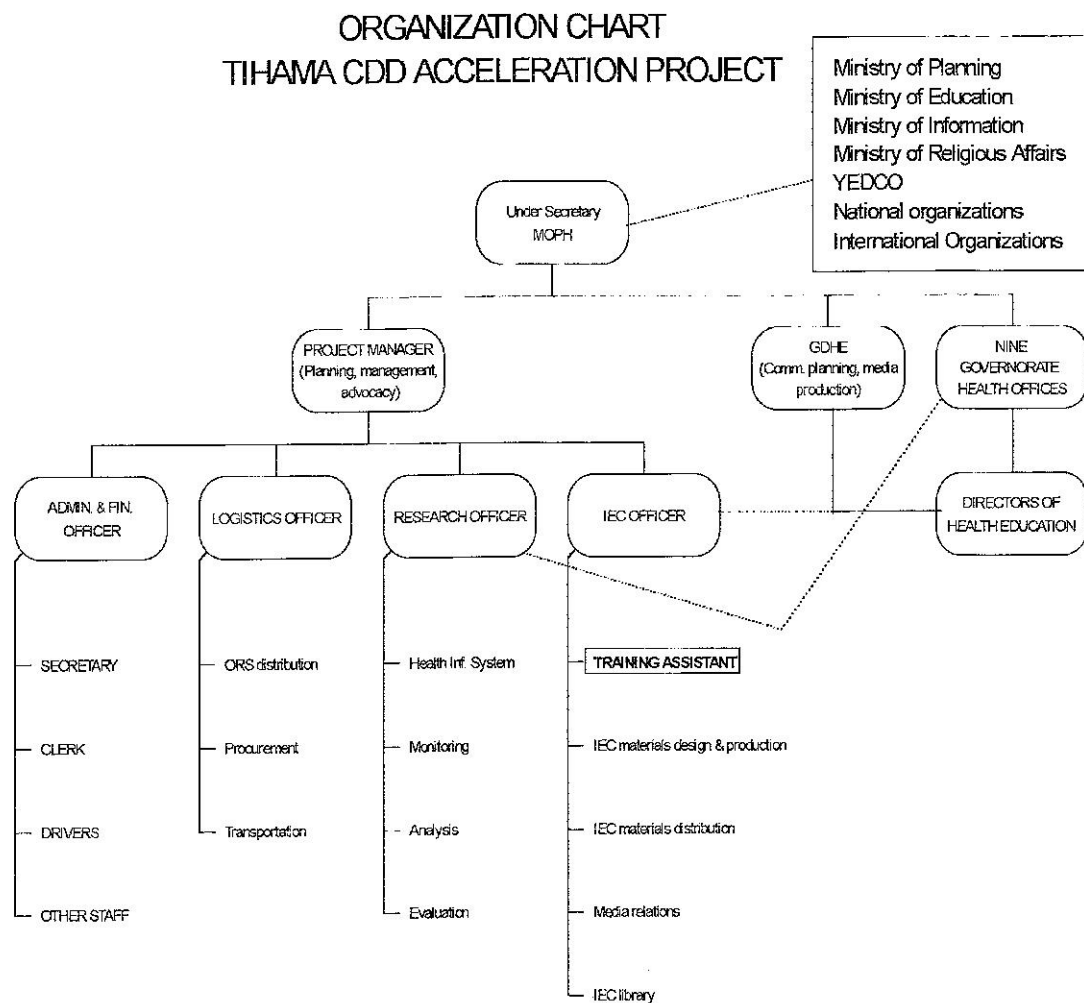
ACTIVITY	1993	1994	1995	1996	1997	1998
<u>Health Information System</u>						
Situation analysis	xxxxxxx					
<u>Management</u>						
Project proposal & funding	xxxxxxx					
Recruitment of staff (Project Manager, Analyst, Administration, driver)		x				
Management training		xxx	x	x	x	x
Procurement supplies & equip.	xxx	xx	xx	xx	xx	xx
Intersectoral meetings	x	x	x	x	x	x
<u>Logistics</u>						
Training of hws, pharmacists, storekeepers		xx	xx	xx	xx	xx
Training of WVDs		xx	xx	xx	xx	xx
<u>Advocacy and IEC</u>						
Coalition building		xxxxxxxxxxx				
Coalition meetings		xxxx	xxxx	xxxx	xxxx	xxxx
Production & dist. communication matls. (incremental costs)	xx	xx	xx	xx	xx	xx
Radio & TV broadcasts (incremental costs)		xxxx	xxxx	xxxx	xxxx	xxxx
Training of Imams, NGOs etc.		xx	xx	xx	xx	xx
<u>Research, Monitoring & Evaluation</u>						
Record reviews	xxx	xxx		x		x
Interviews, FGDs, observation		xx	xx	xx	xx	xx
SS surveillance monitoring		xx	xx	xx	xx	xx
Sample survey	xx	x	x	xx	x	xx
Mid term review & report				xx		
Evaluation & report		x	x		x	xx

8 Management

The project will be under the overall charge of an Undersecretary in the Ministry of Public Health. The project will be managed by a team headed by a Project Manager, who should be a senior MOPH official. His team will include an administrative and accounts officer, a logistics officer, a research officer, an IEC officer and training assistant, and general service staff (secretaries, clerk, drivers, guard, etc.). An office will be established in one of the large towns of the Tihama (Aden, Hodeidah or Mukalla). The work will be closely coordinated with the nine governorate health offices and directors of health education, Ministries Planning, Education, Information, Religious Affairs, YEDCO, and national and international organizations.

A crucial factor is the integration of work in the monitoring, research, evaluation and IEC fields between the project staff and the relevant staff in the governorate health offices. A **Research Team** comprising the Research Officer and selected MOPH staff will carry out/coordinate the work. An **IEC Team** comprising the IEC Officer and the governorate Directors of Health Education with appropriate staff members from the GDHE and representatives from the Ministry of Information/Radio & TV broadcasters will coordinate/carry out all IEC related activities, including training.

Figure 4



9 Budget**Table 8. PROJECT BUDGET, 1993-1998**

	1993	1994	1995	1996	1997	1998	TOTAL
(in US\$ 000)							
<u>Capital costs</u> ¹							
Vehicles, equipment	22	50	30	20	20	20	162
<u>Fixed costs</u>							
Salaries	0	35	35	35	35	35	175
Office rent	0	3	3	3	3	3	15
<u>Operating costs</u>							
Data collection & analysis ²	7	11	9	17	9	22	75
Production comm. materials ³	0	15	15	15	15	15	75
Workshops & meetings ⁴	6	48	43	43	43	43	226
Training (study tours etc)	8	1	1	1	1	0	12
Utilities	0	3	3	3	3	3	15
Maintenance, POL	0	3	3	5	5	5	21
	43	169	142	142	134	146	776

1. Capital costs include two 4WD vehicles, computers and office equipment and furniture.

2. Travel, DSA, survey costs

3 Represents incremental costs. Costs of regular production of communication materials and TV and radio broadcasts covered under national CDD budget.

4. Travel, DSA etc.

10 Evaluation

Evaluation is seen as an integral and ongoing component of the project and will be the responsibility of the project Research Officer. A mid-term evaluation will be carried out in 1996 and an outcome evaluation will be completed at the end of the project (1998). Technical assistance will be sought from the MOPH Planning and Statistics Office and the Central Statistical Organization (Ministry of Planning).

10.1 Indicators

The indicators that will be used for monitoring and evaluation are reviewed in Table 9.

TABLE 9: EVALUATION PLAN

Indicator	Method	Range	Sample
1. U5 Mortality (# per 1000 live births)	Random CSS	9 governorates	500 mothers
2. ORS Coverage (%)	Random CSS	9 governorates	540 households
3. Quality and timeliness of data	Record review		
4. # ORS availability at hospital, HC, SC and WVD levels	Record review, observation	9 governorates	20%
5. # ORS packets sold/distributed	Record review, observation	9 governorates	20%
6. # coalition meetings & annual action plan	Observation		
7. Radio and TV broadcast time (total hours)	Record review, observation	Radio & TV stations	100%
8. # TV and radio spots produced and broadcast	Record review, observation	Radio & TV stations	100%
9. # IEC materials produced	Record review, observation		
10. Whether IEC materials displayed (% outlets)	Observation	9 governorates	20% outlets
11. # references to ORT/Imam/year parents	Observation, RCSS	9 governorates	20% imams,
12. # community training workshops/governorate/year	Record review	9 governorates	
13. % health staff correctly demonstrating case management methods;	Observation	9 governorates	50%
% parents recognizing ORS packet;	SCSS	9 governorates	540 households
% parents cite ORS as immediate response treatment for diarrhoea;			
% parents state continued breastfeeding during diarrhoea;			
% parents correctly demonstrate preparation of ORS, etc.	Observation	9 governorates	90 households

Note: Random sample surveys and record reviews will be carried out by a Research Team comprising selected governorate MOPH personnel and the Research and IEC Officers of the Project.

10.2 Cost Effectiveness Analysis

Our analysis of the project (see Annex C) indicates that the cost effectiveness is US \$ 1.08 per healthy life year (HLY). The calculations are based on the following assumptions:

1. Total. no. of U4 children at project end (1998): 401765
2. ORS coverage (1998): 80%
3. Children suffering severe dehydration: 5% of children not receiving ORS
4. Mortality due severe dehydration: 50%
5. Cost of treating severe dehydration cases: \$ 8
6. As costs given in US\$, inflation taken as negligible.

The costs have not been discounted as a discount rate is not available at time of writing. Calculations are based on the final year of the project.

11 1993/4 Workplan

The following activities will be carried out during 1994:

1. Finalize project documentation for funding. Obtain MOPH budgetary approval. [Project team]
2. Recruit project staff, establish office premises and hold meetings to form the Research and IEC Teams. [PT]
3. Procure supplies and equipment. [Logistics Officer]
4. Prepare situation analysis for the project to provide information on population, disease patterns, health indicators, social and cultural beliefs, attitudes and practices, existing commercial distribution networks, profile of health facilities, etc. Quantitative and qualitative data will be collected by record reviews, observation, interviews and focus group discussions. A random sample survey will be carried out and sentinel sites established. [Project team]

5. Organize intersectoral meeting/workshop to motivate and recruit allies and coalition partners. [Project team]
6. Carry out a random sample survey covering 540 households in 9 governorates (see Table 9)[Research team].
7. Select 3 to 5 sentinel sites from among hospitals and health centres in each of 9 governorates. The governorate Health Offices will carry out in-service training (3 days each) of two staff members at each site [Research team].
8. Organize three focus group discussion events in each of 9 governorates (27 FGDs), one each for community leaders/imams/NGOs, health workers/pharmacists/shopkeepers, and village women [IEC Team/Research Team].
9. Organize 18 3-day orientation and training workshops in 9 governorates for imams, community leaders, teachers, traditional healers and NGOs. [IEC team]
10. With the help of local women's groups, select 100 Women Village Distributors in 100 eligible villages in 9 governorates. [IEC Team]
11. Organize a training workshop for WVDs in each of 9 governorates (Table 6). [IEC Team]
12. Design, pretest, produce and distribute IEC materials (1 poster, 2 booklets, 1 leaflet). These to be packaged with the ORS boxes and also distributed separately to pharmacies, shopkeepers, health workers and WVDs. [IEC Team]
13. Design, pretest and produce five new TV spots on ORS preparation and use. Previously produced spots to be evaluated by testing with focus groups. [IEC and Research Team]
14. Produce thirty new radio spots on ORS preparation and use and evaluate previously produced spots and programmes for re-broadcast. [IEC Team]

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ANNEX A NEURAL NETWORK

By their ability to learn complex relationships between effects and causal factors, neural networks can be used effectively by programme planners in the decision making process. It is proposed to introduce neural network software as a management tool for the Tihama CDD Acceleration Project.

The proposed system will use as input the data acquired by the project's Health Information System to determine the relationships between diarrhoeal dehydration and the various causal factors in the Tihama. The first year of the project will be used to collect initial data on the various factors which may relate to the dehydration problem. The neural network can be used to produce results after the first year and the system will be continuously refined as new data is acquired and input.

A sample of the data file is given below.

INPUTS

Location (governorate/district/other descriptors)
 Type of water supply
 Approx. distance of source from settlement
 % parents use solar water disinfection
 Type of sanitary waste disposal system used
 Type of nearest health facility
 Approx. distance of health facility from settlement
 Type of nearest facility where ORS available
 Approx. distance from settlement
 ORS price (YR)
 % parents using ORS

RESULTS

% ORS use
 % Severe dehydration
 % U5 mortality due diarrhoeal dehydration

The design uses 11 input layers and 3 output layers. At least 50 samples will be needed for the data file.

Data will be obtained from random sample surveys (annual), observation, and record reviews.

- ANNEX B -
RANDOM SAMPLE SURVEY ON ORS USE
SAMPLE QUESTIONNAIRE

Questionnaire No. _____ Interviewer _____

Month ____ Day ____ Year 199__

House # _____ Village _____ District _____
Gov. _____

Respondent's name _____ Age _____

1. How many children under 5 years of age live here? _____
2. Have any of these children had diarrhoea in the past 30 days? [Yes] [No]
3. If Yes, how many of them? _____
4. For how many days did the diarrhoea last? _____ (days)
5. Did any of your children get very sick with the diarrhoea? [Yes] [No]
6. Did any of your children die from diarrhoea in the last 30 days? [Yes] [No]
7. If Yes, how many? _____
8. Do you know what this is (show ORS packet)? [Yes] [No - end interview]
- 9.. Where have you seen it before? [] - Friend/relative [] - Village Distributor
[] - Shop [] - Hospital/health centre
[] - Private doctor [] - Health worker
[] - Television
[] - Other _____
10. Can you tell me the name of the packet? [] - correct
[] - wrong
11. Has someone explained to you how to use the packet? [Yes] [No] - end interview
12. Who explained use to you? [] - Friend/relative [] - Village Distributor
[] - Shop [] - Hospital/health centre
[] - Private doctor [] - Health worker
[] - Television [] - Radio
[] - Other _____
13. Can you tell me when the packet should be used? [] - correct
[] - wrong
13. Can you show me how to use he packet? [] - correct
[] - wrong

IF "YES" TO QUESTION 2:

14. Did you give ORS to any of the children sick with diarrhoea in the last 30 days?
[Yes] [No - end interview]
15. How many packets did you give each sick child? _____

21

16. Where did you get the ORS from?

- | | |
|--|---|
| <input type="checkbox"/> - Friend/relative | <input type="checkbox"/> - Village Distributor |
| <input type="checkbox"/> - Shop | <input type="checkbox"/> - Hospital/health centre |
| <input type="checkbox"/> - Private doctor | <input type="checkbox"/> - Health worker |
| <input type="checkbox"/> - Other _____ | |

17. Did you pay for the packet/s? [Yes] - How much? _____ (YR)
[No]

18. From where do you get water for drinking and cooking?

- | | |
|--|--|
| <input type="checkbox"/> - Taps in the home | <input type="checkbox"/> - Village tap |
| <input type="checkbox"/> - Well | Type _____ |
| <input type="checkbox"/> - Rainwater tank (berket) | |
| <input type="checkbox"/> - Water seller | |
| <input type="checkbox"/> - Other _____ | |

19. Do you ever buy bottled water? [Yes] [No]

20. Has anyone showed you how to purify water using the sun? [Yes] [No - end interview]

21. Who showed you?

<input type="checkbox"/> - Friend/relative	<input type="checkbox"/> - Village Distributor
<input type="checkbox"/> - Shopkeeper	<input type="checkbox"/> - Hospital/health centre staff
<input type="checkbox"/> - Private doctor	<input type="checkbox"/> - Health worker
<input type="checkbox"/> - Television	<input type="checkbox"/> - Radio
<input type="checkbox"/> - Other _____	

22. Can you show me how to do it? [] - Correct [] - Wrong