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REACH

RESOURCES
FOR CHILD
HEALTH

TRIP REPORT

STRENGTHENING OF IMMUNIZATION/DISEASE CONTROL ACTIVITIES IN SELECTED ACCS GOVERNORATES

Republic of Yemen

30 August - 31 October, 1991

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30 August - 31 October, 1991

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LIST OF ACRONYMS

ACCS	Accelerated Cooperation for Child Survival
DG	Director General
DPT1	Diphtheria-Pertussis-Tetanus, first dose
DPT3	Diphtheria-Pertussis-Tetanus, third dose
EPI	Expanded Program on Immunization
GHO	Governorate Health Office
GVS	German Voluntary Service
HC	Health Center
HMI	Health Manpower Institute
HTC	Health Training Center
MOPH	Ministry of Public Health
PHC	Primary Health Care
PHCU	Primary Health Care Unit
PHCW	Primary Health Care Worker
Polio3	Poliomyelitis Vaccine, third dose
REACH	Resources for Child Health Project
RH	Rural Hospital
UNICEF	United Nations Children's Fund
WHO	World Health Organization
USAID	United States Agency for International Development

I. EXECUTIVE SUMMARY

PURPOSE

The purpose of this consultancy was to quickly review immunization and disease surveillance in four ACCS/REACH focus governorates and then to assist in the development of governorate level "...plans that will serve as the foundation for implementation of an effective intervention and disease control program for the EPI diseases..." Implicit in this purpose was a need to identify where and how, if at all, the ACCS/REACH project could support immunization/disease control program development.

In addition, the writer was to determine, "... why the computerized disease surveillance system implemented under the USAID-funded Tihama PHC Project is not functioning."

SUMMARY

In the past few years the Yemen EPI, with strong support from UNICEF, has achieved impressive reported coverage levels in infants (89% for DPT/Polio3 in 1990) through a series of governorate-by-governorate community mobilization activities. In preparation for these activities there was a 300% increase in the number of fixed sites providing routine immunization services, as significant expansion of the cold chain, and a major mass media effort.

By 1991, as the community mobilization efforts ended, the program found itself with a large-scale service delivery network on its hands yet having the same management structure, resources and capability as before the acceleration period. Under such circumstances, program coverage (and quality) should be expected to decline and indeed that is what is occurring.

Thus it becomes a structural requirement to quickly establish management capability at governorate level. But, to do so is not an easy task. Authority, responsibility, budgets and technical know-how have to be decentralized and the whole operation integrated with governorate PHC management. And, the PHC management has its own problems. Indeed, the effort becomes one of establishing effective governorate, district (health center) and facility management for PHC (to include immunization and disease control components).

In supports of this effort, three governorate (Saadah, Marib, Hajjah) plans were prepared by a differing mix of governorate, MOPH/EPI, UNICEF, and ACCS/REACH staff. The Saadah plan turned out to be the most comprehensive, reflecting UNICEF's full participation and commitment to follow-up. The Saadah plan specifies activities and tasks which, when performed together, constitute embryo integrated management at governorate level. Some of these are:

- Ending the distinction between EPI and PHC supervisors (all do all) and the governorate divided into zones each under the responsibility of one PHC/EPI supervisor.
- Each health facility having a defined catchment area.
- Community involvement organized through the governor, district and local leaders whereby local influentials work with facility staff to improve coverage and services in each catchment area.
- Monthly coverage monitoring at governorate level by district (first phase).

- Supervision with checklist and checklist summation and comparison to begin "quality of service" monitoring.
- Control of surveillance reporting through report-receipt charts.
- Community reporting of under 30-day of age deaths as suspect neonatal tetanus deaths.
- Selected disease (poliomyelitis and neonatal tetanus) case/death investigation and follow-up.
- Vaccine and supply control through use of stock books.
- Establishing a cold-chain repair and maintenance capability.

In regards to the computerized disease surveillance system in Hodeidah implemented under the USAID-funded Tihama PHC project: The system was found functioning and data entry current. However, no use is presently being made of this information. If ACCS/REACH moves to support immunization/disease control activities in Hodeidah, use can be quickly made of this facility.

RECOMMENDATIONS

1. Promote and support the implementation of the Saadah governorate plan (coordinate closely with MOPH/EPI and UNICEF).
 2. Encourage and support the implementation of the Marib governorate plan (coordinate closely with MOPH/EPI).
 3. Support and assist arrangement of workshop for development of a national in-service curriculum for immunization related activities.
 4. Support and assist arrangement of national training for and establishment of cold chain repair services in Saadah and Marib.
 5. Review ACCS proposals for surveillance/disease control interventions. Coordinate future plans closely with MOPH, WHO and UNICEF.
 6. Arrange short-term, or if there is a new "buy-in", long-term, technical assistance to ACCS/REACH governorates in support of immunization/disease control activities.
- Note:** The technical officer should be Arabic speaking and preferably Yemeni.
7. Monitor and review program implementation and progress in Saadah and Marib. Modify the process accordingly and begin work in Hodeidah and/or Hajjah.

II. PURPOSE OF THE VISIT

The purpose of this consultancy has been described as follows:

"Review the status of the immunization program experience to date in Yemen and specifically in the four target governorates of Hajjah, Hodeidah, Marib and Saadah. Based on this assessment, the consultant, in collaboration with the responsible officials from the MOPH, will develop program plans that will serve as the foundation for implementation of an effective intervention and disease control program for the EPI diseases in children under five for the target governorates."

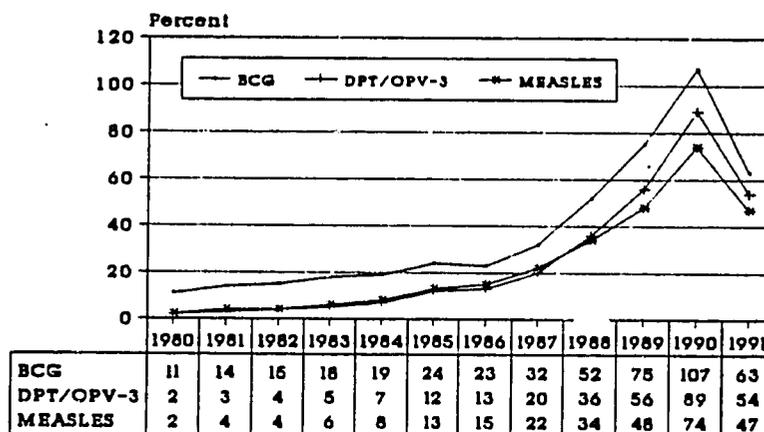
III. BACKGROUND

A. EPI in Yemen

Immunization program activities, as measured by reported coverage, underwent gradual development in Yemen until 1986. Beginning in 1987, the pace of development radically changed until 1990 when under one year of age reported coverage for DPT/POLIO 3 and measles immunization reached 89% and 74% respectively (source EPI, MOPH, 1991).

Figure 1:

PROGRESS OF EPI IN YEMEN, 1980 - 1991
1980 - JULY 91



Note: All percents shown (including those for 1991) are directly comparable without extrapolation.

When we use these reported percents as an indicator of progress, there is little doubt of remarkable achievement in the few short years since 1987. Through a series of governorate-by-governorate community mobilization activities in 1989 and 1990 (prepared for by a significant increase in the number of fixed immunization sites, by a large-scale expansion of the cold chain and by a major communication effort) the Expanded Program on Immunization (EPI) with its most active supporter, UNICEF, could bring immunization activities to all parts of the country.

The benefits of this effort, apart from high coverage, are:

- An apparent high level of public awareness regarding infant immunization.
- The field experience of having successfully involved non-health sectors and local communities in support of a health intervention.
- A greatly expanded network of fixed-site immunization points throughout the country. Note: Fixed site service points (hospitals, health centers, clinics, Primary Health Care units) which numbered about 470 in 1986 increased to more than 1,450 sites in 1990 - a gain of over 300%.
- Provision of a vast vaccine storage capacity at national and governorate levels as well as widespread distribution of cold chain equipment to facility level.
- The experience of having mounted a large-scale mass communication (and mass media) effort in support of a public health intervention.

These accomplishments, to mention only a few, are some of the building blocks of a successful, long-term, disease control effort for the immunizable diseases. Now comes the challenge to quickly take advantage of these accomplishments.

B. REACH Involvement in PHC/EPI

Under the ACCS project, it was originally envisaged that REACH would participate in a national mass immunization campaign originally scheduled for the period July-September 1987. However, due to lack of resources and budget constraints this strategy was abandoned and replaced by a governorate by governorate EPI acceleration strategy under the direction of the national MOPH/EPI. This was with the participation of UNICEF as the lead agency and primary donor. REACH was not a participant in this new strategy.

In the meantime, REACH assistance to the Ministry of Public Health (MOPH) and all ACCS project activities were further delayed because the Ministry of Health was not a signatory to the original project agreement and did not feel any ownership of the activities that they were now being asked to implement. There was also MOPH concern that there were not adequate assurances in the agreement to insure that the government would provide the financing to build the primary health care units after the PHCWs graduated. After two years of negotiation, these issues were eventually resolved with the signing of amendment No. 4 to the Project Agreement on December 31, 1989 by USAID, the government of Yemen represented by the Ministry of Planning and Development, and the Ministry of Health.

By the time this document was signed, REACH had formulated plans to provide assistance to the Ministry of Health that focused on manpower development and the expansion of the PHC infrastructure (as provided in the agreement) through the establishment of Health Training Centers (HTCs) in remote and underserved areas. These were to be for the training of male and female PHCWs in three of the seven governorates named in the above project amendment. For this purpose the Ministry of Health identified two health centers each in Hajjah, Mareb, and Saada governorates. The classroom furnishings, teaching materials, as well as the medical equipment and furnishings for the staff and patients visiting the health center were to be provided through REACH. This also included a vehicle for transport and supervision and plans to equip the primary health care units when the students graduated and were posted to their villages. The HTCs were also to serve as the focus of REACH technical assistance to support the training and eventually the supervision of this new cadre of PHCWs.

For the last twenty-two months since the signing of this amendment, REACH and the MOPH have devoted a great deal of energy and time to establishment of these centers and the training of this cadre of PHCWs. This occurred at a time of enormous change in Yemen and the region. These events included the unity of the two Yemens, the Gulf Crisis and major changes in personnel at the now Ministry of Public Health (MOPH) and USAID. After overcoming many difficult obstacles, some 200 male and female PHCWs are about to graduate and return to their villages to work as service providers in the prevention and treatment of diseases affecting their communities (with particular focus on women of child bearing age and children under five).

This successful effort has resulted in the establishment of excellent working relationships at the governorate level. It has set the stage to begin the difficult task of improving immunization service delivery and management as well as beginning specific disease control measures for selected immunizable diseases.

IV. TRIP ACTIVITIES (see Appendix A)

The two month consultancy was divided into four categories of activity:

- A. Briefing at central level by officials and staff of the MOPH, UNICEF, USAID and ACCS/REACH (and document review).
- B. Rapid assessment of immunization and disease surveillance activities/administration at health unit, health center and governorate levels in four ACCS-focus governorates (Saadah, Marib, Hajjah, Hodeidah).
- C. Assisting three governorate health directorates to analyze their current situation, develop operational plans and begin implementation for strengthening immunization and disease control activities.
 1. Saadah (to be assisted by MOPH/EPI, UNICEF, REACH)
 2. Marib (to be assisted by MOPH/EPI and REACH)

3. Hajjah (to be assisted by MOPH/EPI)

Note: Hodeidah was the location of a recent ACCS/REACH assessment, is involved in a large-scale tetanus immunization acceleration effort and the start-up of ACCS/ REACH PHC training activities. It was thought wise to postpone another major initiative until a less frenetic time.

- D. Assisting the development and scheduling of MOPH, UNICEF and ACCS/REACH support for governorate operational plans and implementation: and debriefing with the MOPH, WHO, USAID and ACCS/REACH.

V. METHODOLOGIES

The methodologies and approaches used in this consultancy were:

- A. Identify the common ground among, and priority issues facing, implementers and major supporters of immunization and disease control activities in Yemen.
1. Repeated interviews and discussion with key persons.
 2. Establish a MOPH, UNICEF, ACCS/REACH team to conduct a rapid field review of immunization/disease surveillance activities and develop a common approach to the findings.
- B. Support the "team" to assist at least one governorate to think through, plan and begin to implement the development of integrated management for all PHC components (including immunization and disease surveillance).
1. Team selects the governorate.
 2. Team prepares for and holds a self-training and planning workshop for integrated PHC/EPI management.
 3. Detailed action plan developed and finalized with decision makers (including governor).
 4. Implementation of the plan begins immediately requiring full participation of all players (governorate officials, MOPH officials, UNICEF and ACCS/REACH).
- C. Use the experience in the first governorate to assist the development of operational plans in the other ACCS/REACH governorates.
- D. Development of national level interventions which are tied to and specifically support governorate plans (to include):
1. Establishing local-area coverage monitoring procedures and formats.
 2. Establishing supervision-with-checklist and supervision summary procedures.
 3. Preparation of training curriculum for service providers.

4. Training storekeepers for management of governorate cold chain.
5. Training of governorate cold chain repair persons.
6. Establishing procedures for special disease notification, registration, investigation and follow-up.

VI. FINDINGS

A. Immunization

1. EPI Management

Until 1987, the immunization program in North Yemen used a strictly vertical approach. EPI supervisors under the direct control of the national program supplied vaccine to facilities, collected and carried up reports and attended to field problems. All operated by a separate national EPI budget.

Meanwhile the PHC system was being developed separately with its management and budget focused at governorate level. Thus, in the governorates, there were both EPI and PHC supervisors attending to the same facilities but with different responsibilities, under different authority and using different budgets.

Then, between 1987 and 1990, the immunization effort expanded from a modest operation managed from Sana'a into a country-wide effort with a large-scale buildup at field level (immunization sites, cold chain, community involvement, etc.). The EPI management and budget structure, however, did not greatly change. The slender EPI management resources (staff, energy, capability, time) which could handle the 1986 program from Sana'a had become, of course, inadequate for managing the sizeable service delivery network of 1990 that was built during the one-by-one governorate acceleration process. The EPI continued to rely on "supervisors" nominally under the control of the governorate health office, who in fact took their guidance, transport and budget from the national level. Thus in 1991, with no EPI management capability at governorate level (let alone an integrated PHC/EPI management and budget system), reported immunization coverage must decline (see Figure 1, under IIIA.) and further yearly decreases can be expected unless rapid management changes are made.

Indeed "coverage" will be only the most visible indicator of a management structurally unable to cope with the situation. Perhaps more serious is the matter of service quality (which is currently not monitored). Decline in coverage and service quality will preclude effective entry into the disease control phase of the effort.

2. Budget

Both national EPI budgets and governorate PHC budgets are often not received for as many as four to six months. It is reported that in some governorates, PHC budgets have been delayed for as many as nine months. There is evidence that "management operations" virtually grind to a stop when these running-cost budgets are so long delayed. It is also widely reported that even

to obtain the long delayed disbursements, governorate staff (and in the case of EPI, supervisory staff) must spend a great amount of time and repeated visits to extract the authorized monies from the bureaucracy.

The result is predictable. For those who want to work, the budget gaps cause major disruption and frustration. For those who are not much interested in the work, a valid reason for doing very little is at hand.

3. Field Operations

The following observations are a result of extended visits to twenty-five health facilities in the four ACCS/REACH governorates. The reader who wants a detailed assessment of conditions may refer to the 21 July - 17 August 1990 trip report of Mark Grabowsky "Review of EPI Activities in the Northern Governorates" and/or Rachel Feilden's comprehensive "Assessment of PHC in Hodeidah Governorate 1991".

3.1 Catchment Area

No facility staff or supervisor could identify a facility's catchment area and thus none were able to explain their coverage.

3.2 Community Mobilization

There was no present evidence of organized or systematic community mobilization activities. In most places, first dose immunization was low and declining, indicating further future decline in levels of coverage.

3.3 Recording & Reporting

The immunization recording and reporting system has some flaws (example: combining DPT and Polio) but is overall a good system. Its procedures are generally followed. Where errors and misunderstandings were found, they had often been going on for many months indicating a lack of supervision. No pattern of false reporting was found.

3.4 Cold Chain, Vaccine and Supply

Almost all facilities visited had gas powered refrigerators. They were usually found to be operating within or close to correct vaccine storage temperatures. Very few refrigerators were monitored by temperature chart.

Out of the 23 facilities visited which had refrigerators, three (13%) had refrigerators which no longer functioned.

No facility visited kept stock records (vaccine or syringe/needles). Stock levels varied anywhere from zero stock (for one or more antigens) in a few cases to more than six-months-stock in one case.

The organization of vaccines in the refrigerators was usually in accordance with Yemen EPI policy (policy is being changed to conform to WHO guidelines) and reasonably neat (with a few notable exceptions; Zabid Health Center, for one).

3.5 Work Area

There was no observed pattern to work area cleanliness and neatness. Some places visited were tidy and clean, others not. Supervisors were not observed to notice this distinction.

3.6 Disposal of Used Supplies

No pattern - some locations followed program policy (burn in a hole) and some did not.

4. Governorate Operations

The following observations pertain to Saadah, Hajjah and Marib - see Rachel Feilden's report for an in depth assessment of Hodeidah.

4.1 Management

As indicated elsewhere, management systems for immunization activities have yet to be established in the governorates. PHC and EPI have a separate set of supervisors and their budgets come from separate sources. The EPI supervisors are under the nominal control of the Director General of Health in the governorate but relate most directly to the program leadership in Sana'a (guidance, transport, budget, supplies, reporting).

4.2 Reporting and Coverage Monitoring

EPI supervisors collect, or are passed, monthly health facility reports. No collation or summation is done at governorate levels. The supervisors do not yet themselves check to see if all reports are received. The supervisors carry the reports to the national EPI in Sana'a where the computer operator informs the supervisor what back-reports are missing.

No coverage or dropout rate monitoring is prepared at governorate level.

4.3 Vaccine, Cold Chain and Supplies

The supervisor is expected to be the storekeeper. All cold rooms were found to be operating within the correct temperature range. Temperatures were generally being recorded on temperature charts. In all cases cold rooms were found clean and vaccines well organized.

Vaccine distribution records are kept but not records that can show stock balance. The concept of minimum/maximum stock is not used.

Syringes/needles were stockpiled with no discernable relationship to vaccine.

4.4 Cold Chain Repair

No cold chain repair capacity exists within the MOPH at governorate level (in the three governorates). Repair of equipment has taken more than one year in some cases.

4.5 Supervision

Supply, collection of reports and supervision are the main tasks of the EPI supervisors. For a variety of reasons supervision, in its classic sense, is not carried out. These reasons include:

- No supervision of the supervisors
- No clear line of responsibility; division of authority between the national program and governorate health office
- Budget gaps and no advance travel monies
- Inadequate training
- Little follow-up of problems, by authorities, when supervisor does raise an issue.

B. Disease surveillance

1. Routine surveillance system

The present channel for routine disease reporting begins with the recording of symptoms or diagnosis in the out-patient register at basic health service units. At the end of the month, those disease cases which fit the categories listed on the 30-disease reporting form used in north Yemen (a somewhat different list is used in south Yemen) are summarized from the register onto the form. The form is then passed to the identified staff at governorate level who summarize the data (by total) onto a health facility summary form. A copy of the health unit report is kept at governorate level and the original sent to the "Statistics and Health Information Unit" in the Planning and Monitoring Department of the Ministry of Health, Sana'a. The "Statistical Unit" is then to summarize these health unit reports and produce annual disease summaries which are published in the MOPH's "Yearly Statistical Report" and at last in the "National Statistical Yearbook."

This system, however, is not fully functioning. There are no case definitions or standard orders in use. Not all health units report or report regularly. It is widely held that much of the data on the forms is written from memory and unreliable. Staff assigned to collation activities at governorate level are sometimes not trained for the work. In three of the four governorates visited, no method was used to follow whether a report had been received or not.

At national level the system is heavily over burdened and unable to collate/summarize the large number of facility reports received. It has been a number of years since a "statistical report" or "statistical yearbook" has been published.

There is no provision for supervision of the system let alone training of staff. What information is collected, and passed up, does not appear to be used at any level. No system of "risk-area" identification, case investigation and outbreak follow-up was found. There is no feedback system.

2. EPI and Disease Surveillance

As the present disease surveillance system does not generate timely summarized data at national level, the National EPI has begun collecting immunizable disease data on the back of its immunization report forms.

3. Hodeidah Governorate

The Tihama PHC project assisted that governorate to computerize disease data at governorate level. This system was found to be fully operational and still capable of generating recent

summaries of disease related data (by source of reporting). No use is presently made of this data or capability.

4. Future Developments in Disease Surveillance

A number of ideas, consultant "trip reports" and work plans are extant. All seem to reflect the specialized interest of the writer and none appear to address a comprehensive, phased development of a disease surveillance/control system.

VII. RECOMMENDATIONS

The recommendations here set down (as with the "Findings") are a product of intensive team work (MOPH/EPI, UNICEF and REACH).

A. Current (Implementation of Plans)

Two governorate plans (Saadah and Marib) and two support activities (development of in-service training curriculum and development of governorate cold chain capacity) have been prepared, the details of which are in appendix C, D and E. Appendix B gives a composite workplan. Implementation of these plans has begun.

1. Coordination with MOPH/EPI and UNICEF

A planned effort must be made to continue the present, close, task-centered relationship among MOPH/EPI, UNICEF and REACH for already-started interventions in Saadah. The same task-centered relationship must be maintained between the MOPH/EPI and REACH in support of the Marib Plan. The two REACH field coordinators should be supervised in this effort.

2. Immunization/Disease Control Workplan (Appendix B)

The Workplan, summarizing Saadah, Marib and MOPH/EPI activities should be used to choreograph and follow-up planned activities.

REACH should play the critical "gadfly" role in the workplan implementation.

3. Management Development at Governorate Level (see Saadah plan in Appendix C)

The thrust of the governorate plans and supporting workplan is the development of integrated PHC/EPI management capability at governorate level. In the first phase of this process, the following tasks should be ensured:

- 3.1. The present EPI supervisors should be converted into PHC supervisors on the whole governorate divided into zones (groups of districts) under the responsibility of an integrated PHC/EPI supervisor.
- 3.2. All former PHC supervisors are to be assigned the additional task of immunization activity management in their zone.

- 3.3. The PHC/EPI supervisor is to be trained and made responsible for (at a minimum) the following immunization/disease control activities:
- a. Distribution and management of immunization supplies through use of routine stock control procedures.
 - b. Control of monthly disease surveillance reports and follow-up of late or non-received reports (same with immunization reports).
 - c. District monitoring of immunization performance (percent coverage and dropout rates) by graphs.
 - d. Supervision-with-checklist and summation of supervision results to obtain comparative "quality of service" data.
 - e. (Saadah only) organize the division of districts into catchment areas and facility catchment areas into different "levels" of service activity.
 - f. (Saadah only) organize community reporting of infant deaths under 30 days (infants who were normal for at least the first two days of life) and investigate such deaths. Take special action if death appears to be neonatal tetanus.
- 3.4. PHC/EPI supervisors should be trained with the new in-service immunization/disease surveillance curriculum (see Appendix D) to be trainers of service providers for the governorate. They, in turn, should train all service providers.
- 3.5. A storekeeper should be assigned to the governorate cold store. He will be trained to manage the cold chain equipment and the supply distribution system.
- 3.6. A person should be nominated by the governorate to be trained at the HMI training center in Sana'a as a cold chain repair person. A small workshop will be developed in the governorate and the repair person assisted to repair governorate cold chain equipment (Appendix E).

B. Future

1. Ministry of Health Budget

The planned decentralization of EPI budgets to governorate level should be strongly encouraged.

A solution to the governorate PHC budget delays should be found (as well as the long delays in the EPI budget).

No matter what gains are made in organizational and technical efficiency, current PHC and EPI budget delays will continue to stall management and service improvement until such delays are ended by responsible officials.

2. Disease Control

2.1. The disease control issue requires a comprehensive, prioritized approach. Any ACCS intervention in this area must be fully coordinated with the MOPH, its various departments, and with WHO. At least three developments need to take place:

a. The Statistics and Health Information section under the Planning Directorate of the Ministry of Health is currently the top of the disease reporting channel. This section, or whatever unit in the Ministry is assigned this task, and the reporting channel from health facility level through the Governorate Health Office, (as well as the disease-data collection process at health facility level) needs strengthening as a first priority. Case definition and use, minor reporting form revision, report collation at governorate and national level, report-receipt control, training of staff throughout, supervision of system and data feed back all need to be implemented.

Once the system is functioning, computerization of data summation/-analysis at national level should take place.

b. Somewhat after the process in 2.1.a begins, a field epidemiology unit should be established in the Ministry which (in complete coordination with the process in 2.1.a above) undertakes to develop the governorate level capacity to analyze and use data collected through the disease reporting system. This effort would include further training of curative service staff in case recognition, selected disease notification, registration, mapping, investigation and "probable-case" follow-up. In addition, trials of various "community based" surveillance networks should be made.

c. Sometime during the strengthening of the reporting channel and development of field-epidemiology-capability at governorate level, a third component (laboratory strengthening) may than take place. It is this component, and only this component, that should be located at the Central Health Laboratory.

2.2. In light of these needs, the proposed ACCS workplan "National Epidemiology and Disease Surveillance (NEDS) program" Developed by Dr. E. Kassira should be carefully reviewed (see also Mark Grabowsky's trip report " Review of EPI activities in the Northern Governorates, July 21 - August 17, 1990")

3. Technical Support

The ACCS/REACH involvement in support of governorate level immunization and disease control activities will not succeed without early and regular technical input. Nor can this effort be successfully promoted by a series of different consultants unless there is a comprehensive technical view guiding the whole effort. An Arabic speaking, preferably Yemeni, technical

officer should be recruited for follow-up of governorate activities. Such an individual may be recruited on a trial basis for the planned January/February 1992 cold chain assessments in Saadah and Marib. Should good results obtain, a long-term contract should then be regularized.

4. Expansion

Current workplans for ACCS/REACH support to immunization/disease control efforts focus on Saadah and Marib and national activities which support developments in these two governorates.

These efforts are experimental and a radical departure from present practice. They require continuous monitoring and review. If they are found useful, these efforts should be modified in light of experience and consideration should be given to their implementation in Hajjah and Hodeidah governorates.

VIII. FOLLOW-UP ACTIONS

Specific follow-up actions in support of the immunization/disease control effort are:

1. Promote and support the implementation of the Saadah Plan.
 - 1.1. Coordinate closely with MOPH/EPI and UNICEF.
 - 1.2. Ensure follow-up by REACH field coordinator.
2. Encourage and support the implementation of the Marib Plan.
 - 2.1. Coordinate closely with MOPH/EPI.
 - 2.2. Ensure follow-up by REACH field coordinator.
3. Promote, support and assist arrangement of the workshop for development of a national in-service curriculum for immunization related activities.
4. Encourage, support and assist arrangement of national training for and establishment of cold chain repair services in Saadah and Marib.
5. Review ACCS proposals for surveillance/disease control interventions. Coordinate future plans closely with MOPH, WHO and UNICEF.
6. Arrange short-term, or if there is a new "buy-in", long-term, technical assistance to ACCS/REACH governorates in support of immunization/disease control activities.

Note: The technical officer should be Arabic speaking and preferably Yemeni.

7. Monitor, review program implementation and progress in Saadah and Marib. Modify the process accordingly and begin work in Hodeidah and/or Hajjah.

APPENDIX A-1

A1. PLACES AND PERSONS VISITED

PLACES

- Sana'a
- Saadah Governorate (GHO)
 - .Al Salam Hospital
 - .Saqain RH
 - .Faut PHCU
 - .Haidan HC
 - .Rubou PHCU
 - .Ghamer PHCU
 - .Razah HC
- Marib Governorate (GHO)
 - .Juba Al Gidida HC
 - .Mydja PHCU
 - .Al Hesmah HC
 - .Atarif PHCU
 - .Rahaba HC
- Hajjah Governorate (GHO)
 - .Jumhori Hospital
 - .Al Khadan PHCU
 - .Al Thor Beni Kaice HC
 - .Abs HC
 - .Meydi RH
 - .Harrad Hospital
 - .Mustaba PHCU
 - .Robaa Matwala PHCU
 - .Aslam PHCU
 - .Sharif Al Ghalan HC
- Hodeidah Governorate (GHO)
 - .Zabid HC & Health Office
 - .Al Qotai HC
 - .Mahal PHCU

PERSONS

- Ministry of Health (Sana'a)
 - .Dr. Abdul Halim Hashem, Director PHC Services
 - .Mr. Ahmed Saeed Zaid, Director EPI
 - .Dr. Abdul Kaher, Director HMI
 - .Mr. Moh'd A. Kasim, Director Medical Equipment Repair Training, HMI
 - .Mr. Yousef Faggir, Statistics & Health Information section, MOH
 - .Mr. Abdul Rakib Tarbush, EPI Operations Officer
 - .Mr. Moh'd Nagi Shigni, EPI Operations Officer
 - .Mr. Saleh Mosine Ali, Cold Chain Repair (EPI)
- Saadah Governorate
 - .Governor
 - .Dr. Moh'd Sohail, Director General of Health
 - .Mr. Abdullah Ali Nasser, HE and PHC Supervisor
 - .Mr. Moh'd Al Aheal, PHC Supervisor
 - .Mr. Ali Mushed Al Shami, EPI Supervisor
 - .Mr. Magdi Al Dalla, ACCS/REACH Saadah Coordinator
 - .Mr. George Gleason, Director Al Salam Hospital
 - .Mr. Ziad Solh, Medical Records Officer, Al Salam
 - .(and all the staff interviewed in the health facilities visited)

A1. PERSONS (continued)

-Hajjah Governorate

- .Governor
- .Dr. Abdul Karim Nassar, Director General of Health
- .Dr. Ismael Homid, Director PHC
- .Mr. Ibrahim Moh'd Al Kuhlani, PHC Supervisor
- .Mr. Abdullah Moh'd Nassar, EPI Supervisor
- .Mr. Moh'd Abdulla Gahaf, PHC Supervisor
- .Mr. Ahmed Al Hokari, ACCS/REACH Hajjah Coordinator
- .(and all the staff interviewed in the health facilities visited)

-Hodeidah Governorate

- .Dr. Ali Fakirah, Director General of Health
- .Dr. Abdul Galeel, Director of Public Health
- .Mr. Yacoub Hail, Statistics
- .Mr. Farouq Al Aaqaf, Zabid Zone Director
- .Mr. Moh'd Ali Mohammed, EPI Supervisor
- .Mr. Ahmed Al Hodeidh, EPI Supervisor
- .(and staff interviewed at health facilities visited)

-Marib Governorate

- .Governor
- .Dr. Ali Sarajah, Director General of Health
- .Mr. Salih Moh'd Farhan, Deputy Director Medical & Health Services
- .Mr. Moh'd Shid Al Yusofi, EPI Supervisor
- .Mr. Salih Ahmed Hashwan, EPI Supervisor
- .Mr. Al Shami Daoud, ACCS/REACH Marib Coordinator
- .(and all the staff interviewed in the health facilities visited)

-UNICEF

- .Mr. S. McNab, Representative
- .Dr. Hassan Sugule
- .Mr. Robert Tyabji
- .Mr. Moh'd Beshir

-USAID

- .Mr. G. Flores, Director
- .Ms. Viviann Gary
- .Mr. Abdul Azziz
- .Ms. Holly Fluty

-WHO

- .Dr. I.A. Ali Beily

-SEATS

- .Ms. Sereen Thaddeus

-GVS

- .Mr. F. Mueller
- .Mr. Wolfgang Kaiser

-REACH

- .Mr. Noel Brown, Chief of Party

APPENDIX A-2

A2. ITINERARY

Sep. 1

- Arrive Sana'a
- Briefing ACCS/REACH

Sep. 2

- REACH staff meeting
- Briefing USAID
- Briefing UNICEF Representative
- Meeting with REACH Coordinators

Sep. 3

- Briefing Director EPI
- Briefing EPI Cold Chain & Stores
- EPI Information review

Sep. 4

- Briefing UNICEF, Health Programme Officer
- Document review

Sep. 5

- Briefing UNICEF, Field Officer
- Briefing SEATS
- REACH document review

Sep. 7

- Briefing Director PHC Services (MOH)
- Briefing "Statistics and Health Information (Disease Reporting)" section (MOH)

Sep. 8

- Followup meetings at MOPH (Director PHC, Director EPI, Senior Statistician for Health Information System)
- Briefing UNICEF (Communication & Social Mobilization)

Sep. 9-12

- Visit Saadah governorate with MOPH/UNICEF team to assess status of work at governorate level and at two hospitals, two health centers and three PHCUs.

Sep. 12-17

- Visit Hajjah governorate with MOPH personnel to assess status of work at governorate level and at three hospitals, three health centers and four PHCUs.
- Meeting (plan concept) with Governor

Sep. 17-20

- Visit Hodeidah governorate with MOPH/UNICEF team to ascertain similarity between situation here and the three other ACCS/REACH governorates. Reviewed Tihama Project computerized disease report collation system.

A2. ITINERARY (continued)

Sep. 21

- Report to ACCS/REACH
- Discussions with UNICEF (Representative, Health Programme Officer, Field Officer)

Sep. 22-25

- Visit Marib governorate with MOPH personnel to assess status of work at governorate level and at three health centers and two PHCUs.
- Meeting (plan concept) with Governor.

Sep. 26

- Report to ACCS/REACH; preparation for second (planning) round
- Briefing British ODA (Mr. David Bevans)

Sep. 28-Oct. 5

- Second visit to Saadah governorate with MOPH/UNICEF team for training/planning workshop to develop "Saadah Plan of Action"
- Plan discussion and implementation agreement with Governor

Oct. 6

- Report to ACCS/REACH
- Drafting "english version" of Saadah Plan

Oct. 7-13

- Second visit to Hajjah governorate with MOPH personnel for training/planning workshop to develop "Hajjah Plan of Action"

Oct. 14

- Saadah/Hajjah plan writing and development of national formats (Director EPI)

Oct. 15

- Review of central EPI Cold Chain Maintenance/Repair system and workshop
- Briefing by Director of Medical Equipment Repair Training, HMI
- Programme planning with Director EPI

Oct. 16

- Team (MOPH, UNICEF, ACCS/REACH) planning
- Meeting between UNICEF Representative and ACCS/REACH Chief of Party
- Debriefing USAID

Oct. 17

- Team work continues on Saadah draft and formats
- Preparation for Saadah Governor/District leaders meeting

Oct. 19-21

- Third visit to Saadah governorate with MOPH/UNICEF team:
 - .Final review of draft plan and schedule development
 - .Assist Governor/District leader's meeting to initiate routine community participation in immunization/disease reporting activities

A2. ITINERARY (continued)

Oct. 21-23

- Second visit to Marib governorate with MOPH personnel to finalize Marib Plan of Action and develop schedule of implementation

Oct. 24

- Report to ACCS/REACH
- Briefing/discussions with WHO
- Discussions with Director Primary Health Care Services, MOPH

Oct. 26

- Meeting with German Voluntary Service (GVS) re cold chain repair system
- Final discussions with UNICEF (confirmation of followup re Saadah Plan)
- Work continues under leadership Director EPI
 - .Curriculum development
 - .Cold Chain repair/maintenance development

Oct. 27

- Briefing by Director HMI
- Second meeting with Director Medical Equipment Repair Center, HMI
- Work continues with Director EPI on Cold Chain Repair proposal

Oct. 28

- Report to ACCS/REACH
- Report preparation

Oct. 29

- Report preparation continues
- Debriefing with (new) USAID Director

Oct. 30

- Final meeting with Director EPI and ACCS/REACH Chief of Party
- Report preparation continues

Oct. 31

- Departure delayed
- Trip report finalization

Nov. 2

- Depart Sana'a

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APPENDIX B

APPENDIX C

**STRENGTHENING OF PHC AND
IMMUNIZABLE-DISEASE-RELATED
ACTIVITIES**

**SAADAH
REPUBLIC OF YEMEN**

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I. INTRODUCTION

1. BACKGROUND

In Saadah, reported coverage with DPT3/POLLO 3 and measles in children under one year of age, in 1990, was 45% and 33% respectively. Achievement in 1991, based on first seven months coverage is not likely to exceed (and may well fall below) the 1990 level.

As a result, the Governorate has expressed a strong desire to improve coverage levels as well as improve service/management quality and begin specific disease control measures for selected immunizable diseases.

A combined Governorate, central Ministry of Health, UNICEF and REACH team have undertaken such a programme strengthening process which includes, among many steps (see Annex 1), the development of a plan of action.

2. ASSUMPTIONS

The plan, as set forth in this document, is based on a number of assumptions:

- 2.1 The responsibility and authority for planning and implementing immunization activities (as a component of PHC) belongs to the Governorate. In the near future the EPI budget is expected to come under the direct control of the Director General of Saadah Health Office.
- 2.2 The capacity to organize and manage immunization activities will be developed at Governorate level.
- 2.3 The division of a supervisors responsibility by component (one for immunization, two for other PHC components) will end and each assigned supervisor will be responsible for all PHC activities in designated districts.
- 2.4 Immunization and disease control components (to mention only two) will only succeed if the local community is closely involved in the planning and implementation of their health activities.
- 2.5 Monitoring (defined as the monthly analysis of selected coverage, service quality and disease control data) and follow-up action based on monitoring are the basic management measures for improving programme performance.

II. PLAN OBJECTIVES

1. COVERAGE

1.1 Children under one year of age

- A. By end 1992: To reach 60% fully immunized coverage of infants measured by lowest reported dose given (measles or DPT3/POLLO 3)
- B. By end 1993: To reach 75% fully immunized coverage of infants as measured by lowest reported dose given.

1.2 Woman of childbearing age

- A. By end of 1992: To give doses of TT2 to women of childbearing age (not including school attending girls) in numbers at least equal to the number of all DPT2 doses given in 1992. And, TT3 doses given at least equal to the number of measles immunizations given to infants.
- B. By end of 1993: To give doses of TT2 to women of childbearing age (not including school attending girls) in numbers at least equal to the number of all DPT2 doses given in 1993. And, TT3 doses given at least equal to the number of measles immunizations given to infants.

2. SERVICE QUALITY

To achieve high quality immunization activities in each health facility as determined by scores obtained through random visits to health facilities using the Saadah developed supervisory checklist.

- 2.1 By end 1992: To achieve a 65% average "quality of activity" rating.
- 2.2 By end 1993: To achieve an 80% average "quality of activity" rating.

3. DISEASE CONTROL

3.1 Routine Surveillance

- A. During 1992: To receive 65% of all monthly 30-disease reports (that should be sent) within one month of the end of the reporting period.
- B. During 1993: To receive 80% of all monthly 30-disease reports (that should be sent) within one month of the end of the reporting period.

3.2 Community Based Reporting For Neonatal Tetanus

- A. By end 1992: To establish a functioning reporting system for deaths of infants under 30 days of age who were normal for the first two days of life.

- B. During 1993: To investigate 80% of all reported neonatal deaths (deaths under 30 days of age) within ten days of receiving a report and initiating special immunization activities in the area within twenty days should the death be classified as "confirmed" neonatal tetanus

III. IMPROVING COVERAGE

1. ORGANIZATION OF IMMUNIZATION ACTIVITIES

- 1.1 Each district, as a whole, will be seen as a separate operational area.
- 1.2 The total area (villages) of the district will be divided and placed under the responsibility of the existing health facilities.
NOTE: All areas and villages will be under the responsibility of a health facility.
- 1.3 The resulting "catchment area" of each facility will be divided into as many as three levels:
- A. First Level - The area close to a health facility from which people will be expected/encouraged to come to utilize the service of that health facility.
- B. Second Level - The area farther from the health facility to which the health worker is expected to be able to walk to perform routine, scheduled outreach services.
- C. Third Level - The area which the worker will reach and serve only through support (e.g., transport or budget to hire a seat) provided by the local community.
- 1.4 The total catchment area of the health facility is its operational area and health staff will cover the three levels in close collaboration with the community:
- A. First Level
- 1) First level target populations will be listed by village and posted on the wall of the immunization area in the health facility.
 - 2) Staff will work with the local "Amin" and other influentials to ensure that all parents know the importance and specific days/time when immunization is provided at the health facility and that all infants and childbearing age women come to the health facility for immunization.
 - 3) All target population, coming for service of any kind, will be immunized.
 - 4) All first level immunization will be recorded both on daily tally sheets and in the hardcover (general) register book.
 - 5) Defaulter lists will be continuously updated from the hardcover

register book and local amin/influentials used to encourage named defaulters to complete the immunization series on time.

B. Second Level

- 1) Second level target populations will be listed by sub-district and village (organized by outreach immunization sites) and posted on the wall of the immunization area in the health facility.
- 2) The service provider (and Health Facility Director if Health Center), in consultation with local amin/influentials will determine the immunization outreach sites and schedule for outreach visits.
- 3) Prior to the scheduled visit to an outreach site, the health worker will send notification to the assigned community contact person for that outreach site. The community contact person will ensure that residents of the area know the place/time of the outreach activity.
- 4) All second level immunization will be recorded on both the daily tally sheet and in the softcover outreach register kept for second level immunization.
- 5) Defaulter lists will be maintained and given to the outreach contact person as part of the notification of a coming visit (see point "3" above).

C. Third Level

- 1) Third level target population will be listed by village (organized by outreach sites) and the list posted on the wall of the immunization area.
- 2) Third level outreach immunization will be organized through the planning of the district PHC Steering Committee (see section III.2.)
- 3) The Committee will be responsible to ensure that the importance of immunization, outreach site of immunization, time (schedule) of immunization is known to residents of the third level.

NOTE:

The Committee will assign one influential in each outreach site who will be the contact between the health worker and residents and who will ensure mobilization of target groups for immunization and follow-up of defaulters.

- 4) The Committee will also be responsible to finance the movement of the health worker to third level outreach sites on an agreed schedule.
- 5) All third level immunization will be recorded on both daily tally sheets and in the third area outreach register (organized by outreach sites).
- 6) Prior notification of visit will be sent to the community person responsible for an outreach site. Defaulter lists for third level areas will be maintained and used/sent as part of prior notification to the community member responsible for an outreach site.

1.5 A schedule of activities for each health facility catchment area will be worked out under guidance of the district PHC Steering Committee (see section III.2. below) every three months.

- A. The schedule will ensure that immunization services are provided every working day in facilities with more than one service provider, having a refrigerator and which is serving a sizeable population.
- B. A minimum of three fixed days of service per week will be provided in those facilities having a refrigerator and only one service provider. The remaining days will be scheduled in advance (with district PHC Committee) for outreach services giving particular consideration to area market days.

1.6 Monthly immunization reporting will be from the daily tally sheets which will correspond to the immunizations recorded in the two outreach registers plus the health facility (hardcover) register book.

2. IMPLEMENTATION PROCESS

The organization of immunization activities as described (see section 1.1 through 1.6 above) must be planned and implemented in close collaboration with the Governor, District Directors and local influentials. Steps in the process are:

- 2.1 Formal Invitation from the Governor (to listed individuals) to attend one day meeting in Governor's office for planning PHC/immunization service development
 - A. District Directors
 - B. Head of Local Councils
 - C. Health Center Directors
 - D. Other Influentials

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- 2.2 **Governorate Meeting:** Governor briefs, invites discussion and then directs:
- A. Formation in each district of a "District PHC Steering Committee" composed of:
 - 1) District Director
 - 2) Head of Local Council
 - 3) Health Center Directors
 - 4) Other Influentials

 - B. To fix a date (prepare a schedule) for the first "PHC Steering Committee" meeting in each district at which the following should attend for two days:
 - 1) PHC Steering Committee Members
 - 2) Key Sheiks in the District
 - 3) Representatives from each Uzula
 - 4) Immunization service provider from every facility in the district
 - 5) PHC/EPI supervisor from the Governorate

 - C. In these district meetings, preparation of district plans which will cover the following points:
 - 1) Assigning all villages in the district to the catchment area of available health facilities (see format in Annex 2).

 - 2) Division of each health facility catchment area into three levels and listing villages according to each level (see format in Annex 3).

 - 3) Identification of appropriate outreach immunization sites (collection points for a group of villages) for second and third level areas.

 - 4) Identification of community influential responsible at each outreach site for community mobilization and to act as communication channel between health worker and the community.

 - 5) Development of a three month schedule of immunization activities for each facility which shows days of facility immunization and outreach site/schedule for second and third level immunization.

 - 6) Calculation of budget (also identification of source and disbursement procedures) for movement of health workers to and from third level outreach sites (by agreed schedule) in each facility catchment area.

 - 7) Reporting of deaths of infants under 30 days of age (who were normal for at least the first two days after birth) to health facility (see Annex 4).

- D. To set a deadline for when completed district plans should be received in Governor's Office.
- 2.3 Directive from Governor to each District Director confirming members of district PHC committee, function of committee, schedule of first meetings and deadline by which district plans should reach Governor's Office.
- 2.4 (First) District PHC Committee meeting held where Governorate, central Ministry of Health, UNICEF and Reach staff join district meeting for on-the-job learning.
- 2.5 Each District PHC Committee meeting held (attended by Governorate PHC/EPI supervisor as "Facilitator") resulting in preparation of written district plans and filled formats covering the seven points identified in III. 2.2.C above.
- 2.6 District plans submitted to the Governor by deadline specified.
- 2.7 Governor officially authorizes implementation of district plans and district "outreach" budgets calculated in the plan. Letters, confirming plans, sent from Governors' Office to district.
- 2.8 Quarterly District PHC Committee meeting to review plan implementation and make new schedule.
- 2.9 Semi-annual Governorate level meeting (Governor and District Directors) to review progress and plan further steps.

3. COVERAGE MONITORING

Coverage monitoring is the monthly analysis of selected immunization data so as to know the status of programme activity and, in knowing, to take appropriate action.

- 3.1 First Phase (1992)
Coverage monitoring in Saadah will begin as governorate monitoring by district.
Data selected for cumulative monthly monitoring (by graph) are:

- A. **COVERAGE:**
Cumulative DPT1
Total (Annual) number of children under one year of age X 100 - Indicator of Community Mobilization
- B. **COVERAGE:**
Cumulative DPT3
Total (Annual) number of children under one year of age X 100 - Indicator of Community Coverage

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- C. **DROPOUT:**

$$\frac{\text{Cumulative DPT1} - \text{Cumulative DPT3}}{\text{Cumulative DPT1}} \times 100 - \text{Indicator of Programme Organization}$$

The graphing, by district, of these three indicators (see Annex 5) enable governorate officials to know the comparative status of each district in terms of success (or lack of success) in community mobilization, series completion coverage and programme organization. With this information programme managers are able to focus efforts on problems particular to a district and monitor change (if any).

3.2 Second Phase (1993)

As coverage monitoring becomes a routine and well understood practice, it will be expanded to two additional areas (governorate by district):

- A. Monitoring of measles coverage and measles dropout.
- B. Monitoring of TT immunization for women.

3.3 Third Phase (1994)

When district management becomes a feature of the PHC Programme (i.e., Health Centers monitor their own work as well as the PHC units and curative clinics in the district) then district coverage monitoring, by health facility, will be established using the same monitoring techniques used for Governorate monitoring by districts.

3.4 In order to begin coverage monitoring, the Governorate will utilize two management tools in the PHC/EPI office for control of work:

- A. Report receipt chart in which all facilities performing immunization are listed and the date of receipt of report for each facility is recorded (see Annex 6).
- B. A register for the monthly recording of selected health facility coverage data prior to the reports being sent to Sana'a (see Annex 7)
Note: The National Programme will need to devise methods for consolidation of facility reports at Governorate level (for Governorate use) prior to sending on to Sana'a.

IV. DISEASE SURVEILLANCE AND CONTROL

To begin disease control activities in Saadah, the Governorate will strengthen the routine disease reporting system, promote the reporting of neonatal deaths and will follow-up two diseases (Poliomyelitis and Neonatal Tetanus) when they are reported.

1. ROUTINE DISEASE REPORTING SYSTEM

1.1 Report Receipt Chart

In order to ensure completeness and regularity of disease reporting, the Governorate PHC/EPI office will use a Report Receipt Chart which will list all facilities (by district) which are expected to send in the 30-disease report. The date of receipt of each report will be indicated on the chart so that a pattern of on-time, late receipt or non-receipt of reports may be determined by health facility and appropriate action taken (see Annex 6).

1.2 Disease Summary

The current summary of data by health facility will continue. Thought will be given to summary of selected diseases by disease (e.g. Measles).

1.3 Training

Training of all curative staff in surveillance tasks will be conducted as part of the proposed training of all service providers (see section VI 2.1). Training in Surveillance will include:

- case definitions/diagnosis
- case registration
- use of 30-disease reporting form
- use of special "Polio Notification" and
- "Neonatal Notification" forms.

NOTE: The special notification forms (giving patient name, address, diagnosis, vaccination status, etc.) would be attached to the 30-disease form for each suspected Polio or Neonatal Tetanus case. (see Annex 8).

1.4 Directive from Director General of Health reinforcing training.

2. FIRST PHASE "COMMUNITY BASED" SURVEILLANCE (NEONATAL TETANUS)

2.1 Governor directs (see section III. 2.2.c.7) district PHC Steering Committee to encourage local amin/immunization contact person to report deaths of infants under 30 days of age (who were normal for at least the first two days of life) to health facility PHC/EPI staff.

2.2 Health facility staff record suspect death on special "Neonatal Tetanus Notification Form" and attach it to the 30-disease reporting form for sending to Governorate level.

2.3 Training of all curative service providers and PHC/EPI staff (see 1.3 above) in recording, follow-up and reporting of suspected neonatal tetanus deaths.

3. FOLLOW-UP OF DISEASE REPORTS

3.1 When a report of Poliomyelitis or Neonatal Tetanus is received in the Monthly Report (details on the attached "Special Notification Form", the suspect case will be entered in a special disease register (see Annex 9).

- 3.2 The location of the case will be spotted on a Governorate map (to begin "Risk-Area" identification).
- 3.3 The reported "suspect" case or death will be investigated (see Annex 10) to determine the probable diagnosis.
- 3.4 Should a suspect case be determined to be a "probable" case of Poliomyelitis or Neonatal Tetanus, specific mobilization and immunization activities will be carried out in the area surrounding the case (see Annex 10).
NOTE: Apart from training health staff at facility level (see section 1.3 and 2.3 above) a two to three day workshop for Governorate PHC/EPI supervisors and persons assigned to case investigation will be carried out.

V. LOGISTICS AND SUPPLY

1. ORGANIZATION

- 1.1 The Governorate will assign a full time "Store- keeper" to manage the cold store and supplies in Saadah. This Storekeeper will be responsible to:
 - A. Maintain, keep clean, monitor and manage all cold chain equipment at the central Governorate cold chain store.
 - B. Keep records of all vaccine transactions and ensure proper vaccine handling at the store (see Annex 11).
 - C. Properly store and keep up-to-date records concerning all other immunization supplies.
NOTE: In time, the Storekeeper should also come to summarize monthly facility coverage reports into Governorate records of immunization achievement (as well as monitor report receipt).
- 1.2 Based on stock records to be kept in the future at Governorate and health facility level (also district level where it exists), vaccine and supply usage will be calculated at Governorate level for national planning purposes.

2. VACCINE AND SUPPLY

- 2.1 Supply System
 - A. Immunization programme vaccine, syringes and needles, cards, registers and forms (as well as other selected PHC supplies) are to be supplied during scheduled monthly visits of the PHC/EPI supervisors.

- B. Calculation of initial monthly amounts of vaccine to be supplied are to use the Ministry of Health formula:

$$\frac{\text{Target Population} \times \text{doses} \times 1.3 \text{ (wastage)}}{12 \text{ months}}$$

- C. Follow-up supply of vaccine is to be based on usage:
- 1) Maximum vaccine stocks at health facility level should not exceed 6 weeks of usage.
 - 2) Minimum vaccine stocks at health facility level should not fall below one week of usage.
- D. Syringe/needle calculation will be based on the Ministry of Health policy that syringes/needles should be supplied and available for 70% of the total doses of injectable vaccine supplied.
- E. Stock records (see Annex 12) for vaccine, syringes and needles will be kept at each facility so that PHC/EPI supervisors can properly judge supply usage, minimum/maximum stock levels and resupply requirements.

2.2 Supply Storage

- A. Vaccine Storage at health facility level is as follows:
- 1) All vaccines will be kept in the refrigerator compartment.
 - 2) Polio, measles and BCG vaccines will be kept in the refrigerator compartment on the shelf (or in the area) closest to the freezer.
 - 3) DPT, DT and TT vaccine will be kept in the refrigerator compartment on the shelf (or in the area) next after the Polio, Measles, BCG shelf or area.
 - 4) Diluent and water bottles will be kept on the shelf/area farthest from the freezer.
 - 5) Only ice-packs will be kept in the freezer section.
- B. Other Supplies
Other immunization supplies will be kept neatly by kind and in relationship to vaccine stocks.

3. COLD CHAIN

3.1 Assessment

An inventory of cold chain equipment available in the Governorate (by location, type and condition) will be made.

From this inventory staff will list equipment by type and model that require repair.

As part of the assessment, the expected future cold chain capacity requirement, by area, will also be calculated.

3.2 Maintenance and Repair

A. Repair Training

One staff from the Ministry of Health in Saadah, who has mechanical interest and skills, will be identified and trained to repair cold chain equipment.

NOTE: Training would be in Sana'a for approximately three months.

B. Workarea

A cold chain workarea will be identified in Saadah which is on the ground floor of a secure building with a door opening directly to the outside to which a pickup truck may come.

C. Equipment

Cold chain tools, equipment and spare parts will be provided.

D. Repair Service Begins

The newly trained technician will return to Saadah from training and under supervision of Sana'a repair staff will begin repair and maintenance of Saadah equipment.

3.3 Expansion of the cold chain

As a result of the assessment made in 3.1 above, a phased expansion of the cold chain will be planned based on expected supervision centers, population to be served, "three-level" work areas and existing health facilities.

Appropriate equipment and sufficient spare parts will be ordered.

VI. MANAGEMENT AND SUPERVISION

1. ORGANIZATION

1.1 Three PHC/EPI supervisors are dividing the Governorate into three zones each taking one group of districts (no district is split between supervisors).

1.2 Each supervisor is responsible for all PHC activities in his zone. For the immunization component they are responsible for:

A. Organization of their districts (through district PHC Steering Committees) into defined catchment areas and the further division of catchment areas into three working levels (see section III. 2. above).

B. Ensuring that a minimum three month schedule of fixed/outreach immunization activities is prepared, given in good time to community influentials and that the schedule is followed.

- C. Ensuring that community support for immunization activities through the local contact persons and district PHC Steering Committee remains adequate:
 - 1) Mobilization of target to come to outreach sites (second and third level) and the facility (first level) on scheduled immunization days.
 - 2) Active follow-up of defaulters.
 - 3) Financing or arranging transport for third level visits.
- D. Ensuring that appropriate amounts of immunization supplies reach the facility in a timely manner and are properly controlled.
- E. Providing guidance, on-the-job training and support to health workers through the supervision-with-checklist process (see section VI. 2.2 below):
 - 1) Solving problems that can be solved at local level.
 - 2) Passing along (and follow-up) of larger problems to appropriate higher officials.
- F. Collecting, verifying and monitoring immunization coverage statistics (see section III. 3. above).
- G. Assisting the phased establishment of the community based surveillance system for Neonatal Tetanus (see section IV. 2).
- H. Providing the focal leadership for disease investigation and follow-up immunization activities (section IV. 3).
- I. Reporting essential information to the Director General of Saadah Health Office:
 - 1) Monthly cumulative coverage graphs by district (see Annex 5)
 - a. DPT1
 - b. DPT3
 - c. Dropout DPT3
 - 2) Monthly supervision summary and supervision graph showing percent activities performed correctly by health facility (see section VI. 2.2.B. below).

1.3 In order for supervisors to perform effectively a number of conditions will be met.

- A. Supervisor's knowledge and skills will be upgraded through periodic training.

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- B. Supervisors will receive on-the-job training and support from central Ministry and agency staff.
- C. The Director General will utilize their coverage graphs and supervision summaries/graphs for discussion with facility staff.
- D. Supervisors will prepare a minimum three month advance schedule of supervision. Per diem and petrol monies for the scheduled supervision will be set aside by the accounting unit and dispersed according to the authorized schedule (whether or not authorizing officials are in town or not).

2. QUALITY OF SERVICE

2.1 Staff training (see Annex 13)

The training and retraining of staff in the technical and administrative aspects of immunization service provision, disease control and activity management will be carried out:

- A. PHC/EPI supervisors will be trained as trainers of field staff by a Ministry of Health/UNICEF training team.
- B. All service providers (a minimum of two from each facility excepting facilities in which only one worker is stationed) will be trained in groups not exceeding 20 in number.
NOTE: Both Yemeni and foreign health service providers will be trained.
- C. All health center directors, staff assigned as statisticians and health facility doctors will also be trained in groups not to exceed ten in number.
NOTE: Curriculum for training is to be developed: technical and material development specialists will prepare Yemen-Specific training materials based on WHO/EPI materials. Finalized training materials will be produced in sufficient quantity to give each staff a copy.

2.2 Supervision/on-the-job training

Training or refresher training is only the first step in improving quality of service. The next equally important (if not more important) step is continuous supervision-with-checklist and on-the-job training.

- A. Supervision-with-Checklist
All supervision will be conducted with and recorded on a checklist (see Annex 14). It is the PHC/EPI supervisors responsibility to not only fill out the checklist during each visit but to personally work with staff to correct defects noted. Defects that can not be corrected at facility level

will be followed by the supervisor until action is taken from the higher level.

B. Supervision Summary (Annex 15)

All checklist results will be summarized on the "Supervision Summary" form. The data obtained from this form (percent of activities performed correctly by health facility) will be used by Governorate managers to assess administrative and service quality in facilities and to take appropriate corrective measures.

C. Supervision Graph

Supervision summary results will be graphed (same method as coverage monitoring graphs) and used by Programme Managers as analytic and motivational tools.

VII. CONCLUSION

The plan covers the period end 1991, 1992 and 1993 (see Annex 1).

It is a trial in the attempt to shift activity management from National to Governorate level, from EPI to PHC. It is also an attempt to involve the government administrative structure and local community in routine PHC activities.

Finally, in terms of the immunization effort, it is an attempt to address (at different levels of intensity) all three components of the programme - coverage, service quality and disease control.

ANNEX 1
SAADAH WORK PLAN 2

1. Initial assessment of immunization activities 9-11/9/91
2. Workshop for programme plan development (Saadah 1991-1993) 28-9 - 5/10/91
3. Draft plan revision 19-20/10/91
- 4a. First Governor/District Director meeting to initiate district planning 20/10/91
- 4b. Directive from Governor to districts requiring preparation of district plans 23/10/91
5. Training of PHC/EPI supervisors for plan implementation 30-31/10/91
6. Training of health center Directors re district planning and disease reporting 31/10/91
7. Plan finalization 31/10/91
8. First district planning meeting (for on-the-job learning of all involved staff) 2-3/11/91
9. Training of cold chain storekeeper in Sana'a for 3 days (to arrive Sana'a 4/11/91) 5-7/11/91
10. Appointment of one person to be trained for cold chain repair and identification of a suitable area for a cold chain workshop 15/11/91
11. Plan official sent (signed by Governor and Director General of Saadah health office) to Ministry of Health 15/11/91
12. All district planning meetings held 2-23/11/91
13. All district plans submitted and review of plans/budgets completed 24/11/91
14. Governor directive sent (making plans/budgets/contact persons official policy) 27/11/91

- | | | |
|------|--|-------------|
| 15. | Training begins in Sana'a for cold chain repair person | 12/91 |
| 16. | Assessment of proposed cold chain repair facility in Saadah made by Sana'a staff | 12/91 |
| 17a. | Training of Doctors (one day) re missed opportunity and disable reporting | 15/12/91 |
| 18a. | Coverage monitoring (monthly) with three graphs begins | 12/91 |
| 18b. | Supervision-with-checklist and use of supervision summary begins | 12/91 |
| 18c. | Disease report receipt monitoring begins | 12/91 |
| 19. | Training of PHC/EPI supervisors to be trainers of all Saadah service providers | 16-19/12/91 |
| 20. | First group of service providers (not more than 20) are trained by supervisors supported by national trainers | 21-26/12/91 |
| 21. | Remaining service providers are trained in groups of 20 or less | 1,2,3/91 |
| 22. | Cold chain assessment of Saadah carried out | 1/92 |
| 23. | Field supervision and support by Sana'a MOH and UNICEF staff begin (one visit at least every two months) | 1/92 |
| 24. | Cold chain repair training ends in Sana'a and workshop established in Saadah | 3/92 |
| 25. | Cold chain repair begins in Saadah under supervision of Sana'a staff | 3-4/92 |
| 26a. | Second round of PHC Steering Committee meetings begin for energizing community mobilization (to be held quarterly thereafter) | 4/92 |
| 26b. | Training of community contact person for one day in Community mobilization, defaulter follow-up and neonatal tetanus (death) reporting | 4/92 |

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- 27. Second Governor/District Director meeting for semi-annual review of progress and further planning 7/92
- 28. Programme evaluation 1-2/93

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APPENDIX D

DEVELOPMENT OF IMMUNIZATION/SURVEILLANCE
INSERVICE TRAINING MATERIALS
(16-28 November 1991)

INTRODUCTION

Immunization activities are now performed in all types of health facilities using all kinds of staff.

As there are presently no national inservice immunization and surveillance training materials available (excepting the EPI guideline summary), there is a critical need to develop a Yemenized curriculum based on the WHO training materials for service providers. The new curriculum will need to contain both technical and management information, for service providers, as well as learning exercises and a facilitator's guide.

The Ministry of Public Health proposes an intensive workshop for the contractual development of such a curriculum through the management and financial assistance of ACCS/REACH and the technical assistance of the Health Manpower Institute, WHO and UNICEF.

- A. The purpose of the EPI curriculum workshop will be to:
1. Prepare a Yemen specific curriculum for the inservice training of basic health service staff as immunization service providers.
 2. Develop a cadre of national trainers who, because they wrote the curriculum, will have a uniform and comprehensive understanding of immunization and disease surveillance activities at the facility level.
- B. It is proposed that a group of eight experienced health staff and facilitator be contracted as follows:
1. That during the period 17 through 28 November 1991 (to arrive the evening of 16 November and remain for 12 nights) the participants and MOPH facilitator will prepare a photocopy ready (text, illustrations, tables, exercises) service provider curriculum and facilitator's guide which will, at a minimum, cover the categories listed in section "C" below.
 2. That the participants will agree to make themselves available thereafter, as needed, to serve as national trainers/training managers of governorate PHC/EPI staff.
- C. The style of the curriculum should be easily understood by primary health care workers and the contents will include as a minimum (but not necessarily in this order) the following:
1. Immunization Programme Policy
 - 1.1. Target groups
 - 1.2. Coverage targets
 - 1.3. Indication/Contraindications
 - 1.4. Immunization schedule

2. Vaccine
 - 2.1. Types of vaccine
 - 2.2. How to keep them (temperature etc.)
 - 2.3. Amount of each dose, number of doses, interval, age group, side effects
 - 2.4. How to prepare the vaccine for use
 - 2.5. How to give each kind of vaccine
 - 2.6. Expired vaccine
 - 2.7. Vaccine without labels
 - 2.8. Opened vials
 - 2.9. Frozen vaccines (DPT, TT, DT)
 - 2.10. Method of vaccine discard

3. Cold Chain
 - 3.1. Equipment description (type, model, size, purpose) of all kinds including temperature monitoring devices.
 - 3.2. Refrigerators/Freezers
 - a. Positioning
 - b. Gas bottles and gas
 - c. Electrical connection
 - d. Shelves/areas in refrigerator and how to store vaccine
 - e. First in, first out
 - f. Temperature and temperature adjustment
 - g. Temperature recording chart (plus only)
 - h. Yellow temperature (equipment) monitoring card
 - i. Ice packs
 - j. Cleaning and defrosting
 - k. Emergency (cold chain breakdown)
 - 3.3. Cold boxes
 - 3.4. Vaccine carriers

4. Stock and Stock Control
 - 4.1. Target population
 - 4.2. Calculation of monthly requirements
 - a. Vaccines
 - b. Syringes/needles
 - 4.3. Stock book
 - a. Vaccines
 - b. Syringes/needles
 - 4.4. Adjustment of stock based on usage

5. Vaccination Session
 - 5.1. Static site
 - a. Arranging vaccine for use
 - b. Organizing the work area
 - c. Recording immunizations given (Register; card; daily tally sheet)
 - d. Health education

- e. Destroying used syringes/needles and open vials
- f. Cleaning area
- 5.2. Outreach sites
 - a. Suitable place
 - b. Organizing work area
 - c. Outreach site "Assistant"
 - d. Recording immunizations (register; card; tally sheet)
 - e. Health education
 - f. Taking away used supplies
 - g. Cleaning area
- 6. Management & Reporting
 - 6.1. Area mapping
 - 6.2. Monthly activity schedule
 - 6.3. Defaulter follow-up
 - 6.4. Missed opportunities
 - 6.5. Reporting
 - a. Daily tally
 - b. Monthly summary
 - c. Achievement monitoring
 - d. Keeping copies
- 7. Community Mobilization
 - 7.1. Organization
 - 7.2. Follow-up
- 8. Diseases & Disease Surveillance
 - 8.1. Description of immunizable diseases and case definitions
 - 8.2. Recording in outpatient register (and inpatient)
 - 8.3. Reporting using the monthly 30-disease surveillance form
 - 8.4. Special-case notification forms (Poliomyelitis and neonatal tetanus)

In addition to the curriculum the group will also prepare a photocopy ready "Facilitator's Guide" which will contain directions for organizing service-provider training, additional information that the governorate trainers may need, directions for arranging practical training and answers to the exercises in the curriculum.

D. Facilitators

Four facilitators are proposed for this workshop (one full-time and three part-time).

The full-time facilitator from the MOPH is the Director of EPI, Mr. Ahmed Saeed Zaid. He will be over all responsible for workshop process and outcome and is the MOH contact for the workshop.

The Director of the health manpower institute (Dr. Abdul Kaher) will be nominated as a part-time facilitator (four days) to guide and revise material development. UNICEF and WHO will be both asked to assign part-time facilitators to assist the beginning of the

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work and to review and revise materials as they are developed. These agencies will be requested to assign Dr. Hassan Sugule and Dr. Ali I.A. Biely respectively to join the workshop for a minimum of four days according to schedule (see "F" below).

E. The MOPH proposes:

Eight participants (depending on availability) for the workshop out of the list of nine below:

1. Abdul Rakib Tarbush, EPI Zonal Operations Officer, SW Yemen.
2. Moh'd Nagi Shigni, EPI Zonal Operations Officer, NE Yemen.
3. Moh'd Ali Kulais, EPI Officer in-charge, S. Yemen.
4. Moh'd Saleh Said, EPI Training Officer.
5. Moh'd Ali Shargabi, Director of PHC Training.
6. Abdullah Badr Moh'd, H.E. and Training Officer, Yemeni/Sweedish clinic, Taiz.
7. Ahmed Moh'd Saeed, Planning Officer, Health Office, Taiz.
8. Abdul Karim, PHC Trainer.
9. (Curriculum Development Specialist from the Health Manpower Institute)

F. The proposed schedule for the workshop is as follows:

- *16/11/91:** Participants and full-time facilitator arrives (evening) as do the three part-time facilitators.
- 17/11:**
- Group organizes the work, establishes a draft table of content.
 - Group drafts section 1 (see "C" above).
- 18/11:**
- Group drafts section 2 and starts section 3.
- 19/11:**
- Group completes section 3 and reviews/revises first drafts sections 1-3.
- *20/11:**
- Group drafts section 4 and starts section 5.
 - Part time facilitators review and revise 2nd draft of sections 1-3.
- 21/11:**
- Group drafts section 5 and starts section 6.
- 22/11:**
- Group continues work if they are behind (Friday) schedule. If the group is on schedule, rest day.
- 23/11:**
- Group finishes section 6 and reviews/revises sections 4-6.

- *24/11: - Group drafts section 7.
- Part time facilitators review/revise 2nd draft of sections 4-6.
- 25/11: - Group drafts section 8.
- 26/11: - Group drafts Facilitators Guide (FG) and reviews/revises section 7,8 and FG.
- 27/11: - Part time facilitators review/revise section 7,8 and FG.
- Group reviews/revises 3rd draft of complete curriculum and guide. They ensure photocopy ready text, illustrations, tables, exercises etc.
- *28/11: - Four facilitators approve the complete curriculum an guide and release (or do not release participants).
- Final payments released and workshop is over.

Note: The cost of accommodation and food will be paid to participants in advance. On finalization of the script, the remaining (estimated at 2/5's of entitlement) payments will be released.

G. Organization of Workshop

It is proposed that the workshop run from the evening of 16/11/91 to 28/11/91 (a period of 12 nights) and that it be held at the Hotel Bilquis in Marib. REACH is requested to arrange the following:

1. Venue/accommodation
2. Workarea
3. Stationary, flip chart paper, computer and photocopy paper and supplies
4. Computer and computer operator skilled in word processing and lotus.
5. Graphic artist
6. Liaison officer
7. Per diems for 8 participants
8. Per diem for full-time facilitator
9. Per diem for one part-time facilitator from HMI
10. Transport cost

The MOPH will:

1. Ensure that a photocopy-ready curriculum and Facilitators Guide is prepared by the end of the workshop.
2. Issue invitations and arrange attendance of eight participants, one full time facilitator and three part-time facilitators (one each from the Health Manpower Institute, UNICEF and WHO).
3. Provide at least 15 copies of the WHO training materials in Arabic and appropriate numbers of other source materials.
4. Overhead projector.

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5. Video projector and cold chain training cassettes.
6. Photocopy machine and paper.
7. All relevant immunization and disease surveillance registers, forms, cards, records and formats.

CONCLUSION

At the close of the workshop a "trial" photocopy-ready curriculum and Facilitators Guide will be available. This training material will be tested during a series of training courses held in Saadah and Marib governorates during the period December 1991 through April 1992. Based on the field use of these materials, modifications and revisions will be made with the intent to produce a final immunization/surveillance training curriculum in mid-1992 (to be used nation-wide).

APPENDIX E

5

DEVELOPMENT OF COLD CHAIN REPAIR CAPACITY AT
GOVERNORATE LEVEL
(November 1991 - April 1992)

INTRODUCTION

Due to the rapid expansion of immunization services, there is now a large amount of cold chain equipment operating at every health service level.

Some of this equipment has broken down and, as the equipment ages, much more equipment is likely to do so. The MOH is unable to cope with this growing problem through a centralized cold chain repair system.

The MOH proposes the training of governorate health staff in cold chain repair and the establishment of a cold chain repair service at governorate level. The ACCS/REACH Project is requested to assist this development in Saadah and Marib.

PROCESS

One individual will be selected each from Saadah and Marib for cold chain repair training at the HMI (medical equipment) Training School.

Under the technical supervision of the HMI and administrative supervision of the MOPH/EPI the candidates will undergo a four month course of theoretical and practical training.

Upon completion of this training, the repair person will return to the Governorate and establish a small workshop under the guidance of HMI, MOPH/EPI and consultant staff.

The repair person will then maintain and repair governorate cold chain equipment under direction and administrative supervision of the DG/GHO and with the technical support of the MOPH/EPI.

RESPONSIBILITY

1. Governorate
 - a. Each DG/GHO will select one candidate for the position of "cold chain repair person" the candidates will have the following minimum qualification:
 - Presently employed by the Ministry of Health
 - Be from the Governorate
 - Have at least an International School Certificate.
 - Be active and obedient
 - Be interested in this kind of work
 - (Preferably) have some mechanical experience

- b. The DG/GHO will assign a room for the site of the future cold chain workshop. This room must:
- Be at least 3x4 meters in size
 - Be in a secure building
 - Be on the ground floor with a door directly to the outside up to which a truck can come
 - Have electricity
 - Have good ventilation
 - (Preferably) have water
- c. The DG/GHO will send a letter to the MOH identifying the candidate and workarea and certifying that both meet the minimum conditions set above. In addition the DG/GHO will confirm responsibility for the following points:
- All cost associated with maintaining, operating, cleaning and securing the workroom and its equipment.
 - Provision of transport for the repair person to travel to health facilities for repair work (Note: he will travel with the PHC/EPI supervisors)
 - Provision of all salaries, entitlements and per diems
 - Minor workshop operating costs (gas, cleaning materials, minor repair items such as wire, etc.)
 - Work Plan, work output and administrative supervision

2. Health Manpower Institute, Sana'a

- a. The HMI will ensure that the candidates are under full time training and that, upon completion, the trainees are capable of standard cold chain repair work.
- b. The first two weeks of training will be considered a probation period in which a candidate's fitness for the work is evaluated. Should HMI decide the candidate is not fit for the work, the individual will be called by the GD/GHO to return to the governorate.
- c. HMI will keep a record of attendance and progress and at end of training will certify the trainees capability.

3. MOPH

- a. The MOPH/EPI is responsible to coordinate activities of the governorates, HIM, GVS the supporting agency and candidates. The MOPH/EPI will:
- Conclude an official agreement between EPI and HMI regarding this training
 - Ensure governorate compliance with the terms of this document
 - Provide the administrative supervision of the trainees while they are in Sana'a
 - Arrange technical assistance for procuring required tools and equipment
- b. MOPH/EPI will also provide:
- A set of cold chain repair tools for the training of the repair persons
 - Clearance and transport of imported commodities

- Provide the basic spare parts (WHO/UNICEF Standard) for each refrigerator and freezer needing repair
 - Provide all future spare parts needed after the initial special order of spare parts is received (see "4.b" below)
 - Do on-going technical supervision of governorate repair activities after the initial start-up period is over
4. The MOPH requests the ACCS/REACH Project to support this effort as follows:
- a. Provide per diem for the two candidates while they attend the repair course in Sana'a (plus transport).
 - b. Procure the equipment, tools and spare parts shown on the attached list (excepting spare parts listed as item 3.2 which the MOPH/EPI will provide).
 - c. Assume costs of installation of equipment in Saadah and Marib as well as installation of security devices for protection of the equipment.
 - d. Conduct cold chain assessments in Saadah and Marib to identify and prepare equipment for priority repair and maintenance.
 - e. Provide a repair technician to work with the governorate repair person for the initial start-up of the workshop (14 days each governorate).

TIME SCHEDULE

Necessary arrangements for this activity should be concluded in November 1991 so that the candidates may start training in December.

The tools and tool kit cases shown on the attached list as items 2.1 and 2.2 need to be ordered as soon as possible and sent by airfreight.

The "Universal Spare Parts Kits" should also be ordered as soon as possible but sent by sea freight.

A Governorate cold chain assessment should be conducted in January/February 1992 so that all out-of-order equipment can be identified and prepared for repair.

The target is to begin governorate workshop operations in April (latest May) 1992. All components (training, material, installation, technical assistance) should be committed by that date.

JOB DESCRIPTION

By the end of the start-up phase of this plan, the following will be expected from the repair person:

1. Repair both compressor and absorption type cold chain equipment of the PHC/EPI system.

2. Provide routine inspection and maintenance of all PHC/EPI cold chain equipment in the Governorate every six months.
Note: Repair and maintenance work is to be carried out at both field and governorate level.
3. Respond immediately to emergency repair requirements.
4. Keep the workshop orderly and be accountable for all equipment, tools and spare parts.
5. Keep inventory of all equipment, tools and spare parts.
6. Submit routine spare part and supply requisitions to national EPI (through the DG/GHO) at least three months before they are required.
7. Submit a monthly report of repair activities and schedule of following months maintenance/repair tasks to the DG/GHO for information and approval.

CONCLUSION

This proposal represents a trial in decentralization of cold chain repair activities to governorate level. If successful, this process (modified through experience) will be tried in other governorates.

Note: See next page for equipment list.

LOCAL WORKSHOP EQUIPMENT, TOOLS & SPARE PARTS

1. <u>EQUIPMENT</u> (Two each)		
1) Workbench AB+Vice	Can be made from wood in the local market or Facom No: 2105.200 AB	1900,-s
2) Workbench cabinet "200"	Can be made from wood in the local market or Facom No: 2101. AT	800.-s
3) Mobile compressor	Bugnard No: 65.108 or equivalent (may be able to obtain on the local market)	800,-s
4) Standard welding outfit	Local Market	
5) Door cabinet	Local Market	1500,-YR
6) Chest for small parts	Local Market	800,-YR
7) Gas cylinder	Local Market	600,-YR
8) Cylinder nitrogen	Local Market	6000,-YR
9) Cylinder oxygen	Local Market	4000,-YR
10) Drill machine	Local Market	3000,-YR
11) Drill set	Local Market	1500,-YR

2. <u>TOOLS</u>		
1) Toolkit for EPI Refrigerator Repair Kit (two)	UNICEF No: 1199100	1300,-s
2) Toolkit-Case (two)	UNICEF No: P.I.S. E7/37	798,76s

3. <u>SPARE PARTS</u>		
1) Refrigerator/Freezer Universal Spare Part Kits (two)	UNICEF No: P.I.S. E7/26	2813,-s
2) For each type of refrigerator or freezer spare parts following the WHO UNICEF standard.		