

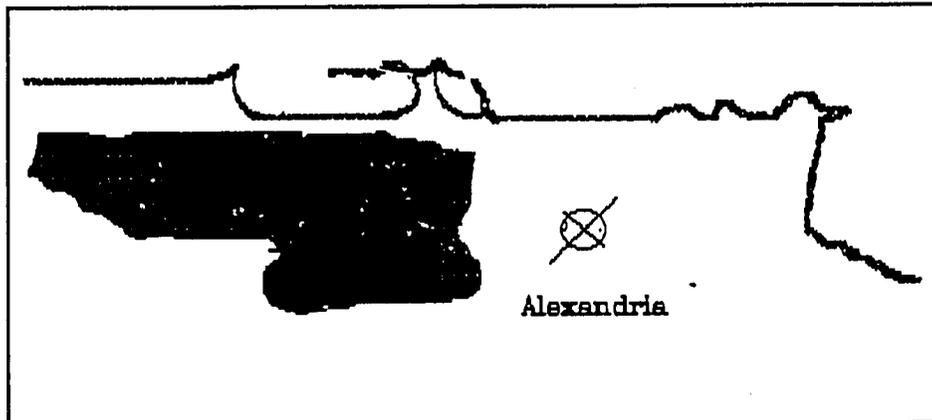
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Arab Republic of Egypt

Urban Health Delivery Systems Projects in Alexandria Governorate

by

Robert C. Emrey



Arab Republic of Egypt
Urban Health Delivery Systems Projects
in Alexandria Governorate

FINAL REPORT

1. Ministry of Health
Maternal and Child Health Program
2. Health Insurance Organization
Management Information System Project

Prepared by
Robert C. Emrey

1989

USAID/Cairo Contract 263-0065-S-001

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Preface

Health services development activities have drawn from many disciplines and areas of study. This report provides a brief summary of two such activities in the Arab Republic of Egypt conducted during the period 1980 to 1988 in the City of Alexandria. The report provides information on the problems addressed and the solutions applied for the two projects.

The two projects are best described as efforts to upgrade existing health services activities. The projects were focused on the following areas:

- o Ministry of Health urban maternal and child health services; and
- o Health insurance and prepaid care management information and computer system.

Covering, as they do, a diverse urban population from many socioeconomic groups, these two projects focus on various aspects of the health needs of a large proportion of the Alexandria population.

The report is intended for those who have an interest in urban social problems. A summary of general statistics covering Egyptian urban programs is given in a table below at the end of this section. The report provides the perspectives of an external consultant, specializing in management of health services. The consultant provided public health and management guidance to the project participants through nearly 25 visits over a 7-year period. The day-to-day management of the projects was provided by a specially assigned team in each project, which received training on project operations to guide their work.

Acknowledgements

This report covers the efforts of hundreds of very dedicated people working for the improvement of Egyptian health services. There is not enough space available here to list all the people who provided help and encouragement to the consultant during the several years over which we worked together. A few names must be mentioned here as being especially important to the development of the ideas discussed.

The Executive Project Directors for the national urban health project were always helpful and supportive of our efforts in the Alexandria projects: Nabahat Fouad, MD (from the beginning of the work until 1983) and Dr. Hassan El Deeb, MD, Ph.D., Undersecretary of State (from 1983 until the project conclusion in 1988).

The projects reported here were provided with the benefit of continuous support from many Alexandria officials. In the Ministry of Health, the Undersecretaries of State for health services in Alexandria Governorate were Dr. M. Said Tawfik (from the beginning until 1987) and Dr. Hassan El Ghawaby (from 1987 through 1988). The Alexandria Directors General for Preventive Medicine were valuable supporters of the Project: Dr. Samia Riyadh (1981 to 1984), Dr. Abd el Hamid Sakr (1984 to 1986), Dr. Moustafa Abbas (1986 to 1988), and Dr. Mahmoud Omar (1988).

In the Health Insurance Organization, our efforts were helped and supported by the National Chairman, Dr. Samir Diaey in Cairo. The Health Insurance activities in the project were implemented in the branch for Alexandria, where the project had the benefit of help from the managers of the Northwest Delta Branch: Dr. Mohamed Ibrahim Shehata (from the beginning until 1984), Dr. M. Saad Abul Maaty (1984 to 1986), and Dr. Abdel Mohsen el Hakim (1986 to 1988).

Within the Maternal and Child Health (MCH) Project, five served as Project Director: Dr. Nawal Kassem (September 1981 to December 1982), Dr. Hassan Rashid (January 1983 to June 1985), Dr. Abd el Hamid Sakr (July 1985 to March 1986), Dr. Moustafa Abbas (March 1986 to January 1988), and Dr. Hoda Azziz (January 1988 to the end of the Project in July 1988). Senior project consultants for the MCH Project were highly dedicated and involved in the efforts to improve MCH service performance: Prof. Dr. Fawzi R. Gadallah (February 1982 to September 1983), of El Azhar University Faculty of Medicine, and Prof. Dr. Ibrahim M. Shoaib (October 1983 to July 1988), of Tanta University Faculty of Medicine. Numerous other Alexandria public health officials and educators participated in making the project a success. Special mention is deserved for the highly professional and extraordinary efforts made by two people who were constantly available to guide the project through

numerous difficult problems and who gave unselfishly of their time even when it took them away from their many other duties outside the project: Dra. Muneera Hegazi, Director of Moharem Bek MCH Center (Retired), and Engineer Moustafa Heba, Senior Engineer of the Alexandria Emergency Medical Service in the Ministry of Health.

Within the Health Insurance Organization Project, two people served as director of the project: Dr. Shehata and Dr. Diaey. Of particular importance to the continuity of the project were the efforts of Dr. Ramzie Riad, Director of Planning for the HIO in Cairo and Dr. Rashad Salem, of the HIO in Alexandria. The Senior Technical Advisor to the Project provided continuing support and guidance, Professor Dr. Magdy H. Nagy, of Alexandria University Faculty of Engineering. Also providing support were Dr. Haluda of the Central Agency for Public Mobilization and Statistics (CAPMAS). The Project benefitted from the efforts of many dedicated people, who are too numerous to mention here. One person in particular deserves special mention for his efforts starting in 1978 with his collaboration to plan the original HIO computer project with Dr. Shehata. The person is the present Director of Information Services of HIO, Dr. Adib Tawfik Komy, who manages the newly developed computer system and staff.

External funding to the projects was provided from the U.S. foreign assistance program through the Human Resource Development and Cooperation (HRDC) Department of the Agency for International Development Mission to Egypt. The Project was known officially as the Urban Health Delivery Systems Project (A.I.D. Number 263-0065) and was developed by the Office of Health of USAID/Cairo. During the life of these projects the HRDC program was directed by Elizabeth (Keys) McManus (1980 to 1983), Dr. Howard Lusk (1983 to 1984), Dr. Bernard Wilder (1984 to 1987), and William Gelabert (1987 to 1988). The USAID/Cairo Office of Health Directors during the project were: Dr. William Oldham (1981 to 1986), and Dr. James E. Sarn (1987 to 1988). The USAID Coordination Office in Alexandria provided numerous important services to support the project and the consultant. The Coordination Office Manager is Nawal el Abd and the Administrative Assistant is Gehan Saleh.

In Washington, D.C., the projects were supported by the Asia and Near East Bureau of A.I.D. During the Project life, the Egypt health program was supported by Terry Lucas, Chris Loken, and Nicholas Studzinski. Special mention should be given, also, to Dr. Oldham, Barbara Turner, Dr. Pamela Johnson, and Charles Johnson. Also, after several difficult problems faced the project in procurement, Fernando M. deVoto of the A.I.D. Procurement Office arranged to complete the purchase of equipment for the MCH project for shipment to Alexandria. Special mention is due also the support provided the consultant and the HIO project by Suzanne Buzzard of the AID/Washington Data Management program (M/SER), who from Washington and on the ground in Alexandria helped greatly in guiding the HIO Project in its difficult early development.

The A.I.D. Project Managers deserve the major credit for bringing the projects through to completion. The original A.I.D. Project Manager

was Emily Leonard (1978 to 1982). During the period in which the consultant participated in the project, John W. Wiles was the Project Manager. He was active and interested in helping with the large and small problems which faced these projects. He provided imaginative leadership in shaping the direction in which these projects attempted to confront the realities of urban health services in this new era for Egypt's public health activities. In the closing period of the project, the project was managed by Charles Mantione and Lawrence R. Eicher. They showed great patience and care in seeing that the greatest possible benefits were provided for the people of Alexandria even while attending to numerous details required to close-out the nearly ten years of work.

Lastly, I wish to express my thanks to my wife, Suzanne G. Emrey, and our sons, Eric and Michael, who came to know and love Egypt through our experiences together there. I was fortunate to have their continuing support during my many trips away from our home in the United States to participate in these projects.

Robert Emrey

Alexandria

June 1989

List of Abbreviations

A & E	Architect and Engineer
A.I.D.	Agency for International Development, U.S.
AIDS	Acquired Immune Deficiency Syndrome
CCO	Curative Care Organization
DPS	Data Processing Services, Inc., Cairo
GOE	Government of Egypt
HIO	Health Insurance Organization
LE	Egyptian Pounds (Livre Egyptienne)
MCH	Maternal and Child Health
MOH	Ministry of Health
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PACD	Project Activity Completion Date
PC	Personal Microcomputer.
PHC	Primary Health Care
PIL	Project Implementation Letter (USAID procedure)
PP	Project Paper (USAID procedure)
PVO	Private Voluntary Organization
UHDSF	Urban Health Delivery Systems Project
USAID	U.S. Agency for International Development
WHO	World Health Organization

General Descriptive Data, Arab Republic of Egypt

Total Population	47 millions (1984)																									
Area	1,002,000 square kilometers 386,000 square miles																									
Inhabited Areas	35,189 square kilometers 55,039 square kilometers with periphery governorates																									
Language	Arabic																									
Religion	Islam (95%), Coptic Christianity (5%)																									
Currency	Egyptian Pound (LE)																									
Density of Population	47.1 per square kilometer for all surface area 854 per square kilometer for all inhabited areas																									
Administrative Subdivisions	26 Governorates, of which: 4 are Urban Governorates 9 in Lower Egypt (mixed urban/rural) 8 in Upper Egypt (mixed urban/rural) 5 are Boundary and Periphery Governorates																									
Urban Governorates	<table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: center;">Popu- lation <u>000</u></th> <th style="text-align: center;">Percent of Total Populat.</th> <th style="text-align: center;">Surface Area <u>(Sq.Km.)</u></th> <th style="text-align: center;">Populat. Density <u>/Sq.Km.</u></th> </tr> </thead> <tbody> <tr> <td style="padding-left: 20px;">*Cairo</td> <td style="text-align: center;">5,992</td> <td style="text-align: center;">12.75%</td> <td style="text-align: center;">214</td> <td style="text-align: center;">27,974</td> </tr> <tr> <td style="padding-left: 20px;">Alexandria</td> <td style="text-align: center;">2,764</td> <td style="text-align: center;">5.88</td> <td style="text-align: center;">314</td> <td style="text-align: center;">1,032</td> </tr> <tr> <td style="padding-left: 20px;">Port Said</td> <td style="text-align: center;">372</td> <td style="text-align: center;">0.79</td> <td style="text-align: center;">72</td> <td style="text-align: center;">5,160</td> </tr> <tr> <td style="padding-left: 20px;">Suez</td> <td style="text-align: center;">245</td> <td style="text-align: center;">0.52</td> <td style="text-align: center;">307</td> <td style="text-align: center;">14</td> </tr> </tbody> </table>		Popu- lation <u>000</u>	Percent of Total Populat.	Surface Area <u>(Sq.Km.)</u>	Populat. Density <u>/Sq.Km.</u>	*Cairo	5,992	12.75%	214	27,974	Alexandria	2,764	5.88	314	1,032	Port Said	372	0.79	72	5,160	Suez	245	0.52	307	14
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*Note: Data for Cairo Governorate administrative zone only. Greater Cairo area has an estimated population of 9.688 millions and includes part of Giza and Kaliabia Governorates. It contains approximately 21% of the nation's population. SOURCE: Egypt Urban Health Delivery Systems Project. General, Demographic, and Health Data for Egypt, Rural and Urban Areas and Cairo, 1984. Cairo: April 1985.

Chapter 1

Background and Objectives

In 1980, two projects in Alexandria were proposed to USAID/Cairo for funding under the Egypt Urban Health Delivery Systems Project. Both projects were oriented toward the needs of urban populations in Alexandria. The city is located near the mouth of the Nile River and has the largest commercial port facilities in the country. Alexandria has had a long history of innovation in its health services. The two projects described in this report came from those 1980 Alexandria proposals. They each had a quite specific focus and purpose.

The two projects were approved June 1981 by the Egyptian and American governments, to focus on the following urban health needs:

- (a) Alexandria Urban Health Sub-Project. Improvement of maternal and child health (MCH) centers and their capacity to provide service in Alexandria. Implementing Agency: Ministry of Health.
- (b) Innovative Activities and Technology Transfer. Preparation of a computerized information system for beneficiary registration and control of drug supplies in the prepaid health care program. Implementing Agency: Health Insurance Organization

The main features of the two projects are given below in Table 1.1

The two projects presented in this report were started as a result of discussions between officials of the governments of the United States and Egypt during the late 1970's. The remainder of this chapter sets a perspective on the projects by summarizing the national and local urban health situations and the older Cairo urban health project.

Egyptian Urban Health Services

The Arab Republic of Egypt is a large country, which is rich with resources but facing many developmental problems. The country's role in recorded history dates back thousands of years. The varied land forms, population groupings, and national administrative structures are massive and highly complex. A more in-depth treatment of these topics, far beyond what is possible to present here, is available in the works given in Annex E, Section 6.

TABLE 1.1. Description of the Alexandria Health Projects Discussed in the Report

<u>Description</u>	<u>Maternal & Child Health Project</u>	<u>Prepaid Health Care Computer System Project</u>
Implementing Agency	Ministry of Health	Health Insurance Organization
Geographic Area	Alexandria Governorate	Northwest Delta Branch (Alexandria, Kafr el Dauwar, and Matruh)
Service Units	11 health centers	3 hospitals, 25 polyclinics and 500 contract private pharmacies
Project Features	Building renovation, replacement of equipment, staff training	Computer system design, computer purchase, software development, staff training

The health services of Egypt are extensive. The services are operated by governmental bodies, quasi-governmental organizations, and private sector providers. These services vary in quality and quantity from place to place. No single scorecard could reasonably provide a picture of what is now in use or of what is planned to be added.

Hospitals, clinics, and public health facilities are available throughout the country, and the numbers are very impressive. The health worker cadre is elaborate, highly educated, and distributed to nearly every part of the republic. The various financial and administrative arrangements used in Egypt demonstrate the practical application of nearly every model of medical care organization now available anywhere in the world. Still, many gaps exist and many expensive resources go underutilized.

The two major subdivisions in modern organized health services are usually defined as the curative and the preventive. The projects discussed in this report represent examples of each of these two main branches. The prepaid health care computer project falls within the operation of a largely curative care program. The maternal and child health project is an example of preventive services.

Curative care programs are usually described in terms of the operational activities found in a general or specialty hospital. Egypt has made a large investment in hospital plant and equipment (see Figure 1.1, below). The total of 90,425 beds provides an indication of the

magnitude of the investment. The Ministry of Health operates well over half of the hospital beds, with the Health Insurance Organization and Curative Care Organization (CCO) each having about 4,000 beds, or less than 5% each. The quality of care and the operational status of equipment in hospitals varies greatly within each hospital system.

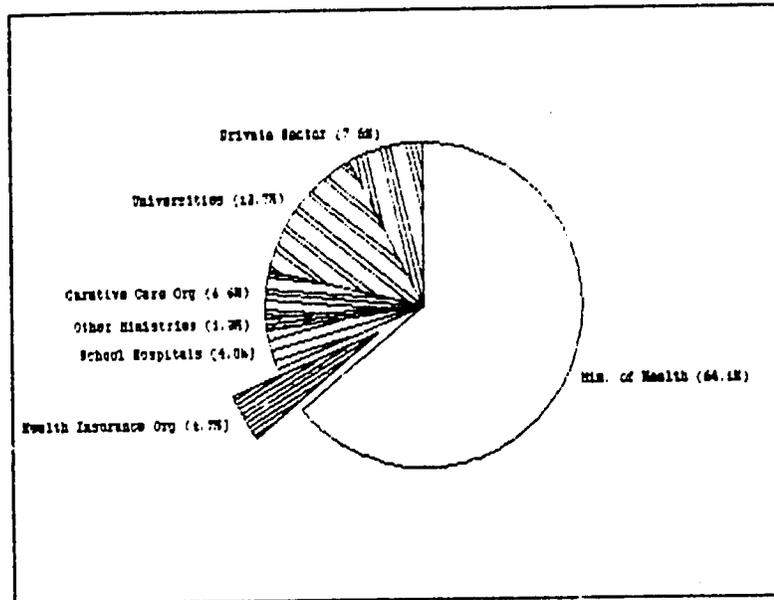


Fig. 1.1 Hospital Beds, Egypt, 1985¹

During the past ten years, many health professionals worldwide have given emphasis to primary health care. The new emphasis focuses on the first level of care in both curative and preventive medicine. Primary health care is recognized by the World Health Organization, UNICEF, and most national health institutions, including Egypt, as the first line of defense for improving the health of communities. In some countries, new facilities have been planned and opened to provide primary health care for areas not previously receiving organized health services. Egypt, on the other hand, was among the countries which already had installed an extensive network of clinics and health centers. These Egyptian clinics and health centers were operated by the Ministry of Health in all urban and rural areas. The six types of health facilities which are now considered to be the mainstay of Egyptian government primary health care are listed in Table 1.2, below.

The urban primary health care programs of the Egyptian government faced many problems. Dr. Hassan el Deeb of the Egyptian Health Ministry recently summarized the situation as follows:

1. Service is essentially based on specialized facilities and is not community oriented.
2. There are discrepancies between the number of health facilities and population served by each facility.

¹NOTE: Total beds: 90,425. Source: Egypt Urban Health Delivery Systems Project. General, Demographic, and Health Data for Egypt, Rural and Urban Areas and Cairo, 1984. Cairo: Urban Health Delivery Systems Project, Ministry of Health, April 1985.

**TABLE 1.2. Urban Primary Health Care Facilities Operated
by the Ministry of Health, Arab Republic of Egypt, 1985**

1. <u>Maternal and Child Health (MCH) Centers--257 Total</u>	
Principal Clients:	Children Under 6 Years Women of Fertile Age
Potential Service Population*	7,945,000 Women/Children
Workload (1985 Visits)	1,375,131 Adult 2,913,623 Pediatric
2. <u>School Health Centers and Units--283 Total</u>	
Principal Clients	Children of School Age
Potential Service Population*	5,093,841 Attenders
Workload (1985 Examinations)	2,706,898 in Schools 34,642 in Units
3. <u>Health Bureaus--383 Total</u>	
Principal Clients	Children (Vaccinations) Adults (Vital Records) Food Inspections
Potential Service Population*	Entire Population
Workload (1985 Recording)	721,774 Births 178,248 Deaths 8,407 Still Births 763 Maternal Deaths
4. <u>Endemic Disease Units--168 Total</u>	
Principal Clients	Adults
Potential Service Population*	10,338,496 Urban Adult
Workload (1985 Examinations)	1,223,335 Urine 1,148,686 Stool
5. <u>District Outpatient Clinics--123 Total</u>	
Principal Clients	Children and Adults
Potential Service Population*	Not Available
Workload (1985)	Not Available
6. <u>General Urban Health Centers--91 Total</u>	
Principal Clients	Children and Adults
Potential Service Population*	4,859,400 Target Pop.
Workload (1985)	5,733,000 Visits

*NOTE: Estimated population of Arab Republic of Egypt in 1985 was 48,575,000, with 43% urban and 57% rural. Source: Robert Emrey. Replication of Health Service Interventions. Cairo: Urban Health Delivery Systems Project, Ministry of Health, 1986.

3. In general, the greater the population served by each facility, the lower the level of service provided.
4. There is a lack of physical and functional integration of [primary health care] (PHC) services leading to a loss of time and effort to obtain the services.
5. Under these circumstances, part of the urban population prefers to seek the help of the private sector.²

The many problems facing primary health care providers in urban areas have worsened as the budgetary situation has become more acute.

Cairo Urban Health Project

The overall project for urban health services delivery improvement was planned as a demonstration of methods for improving accessibility and effectiveness of services. The original project design concentrated on the Cairo districts of Helwan, and South and West Cairo. These zones covered an estimated population of 1.7 million, 66% of whom were in lower income brackets. The population in the original area contained 625,000 women of child-bearing age and children 5 years and under.

Key problems. The following problems were addressed in the original project design for Cairo:³

1. Fragmentation of services (as many as six health services delivery systems are represented in some areas);
2. Poor distribution of personnel resources;
3. Poorly maintained and deteriorating physical resources;
4. Low public acceptance and utilization of peripheral health care units;
5. Poor control and management of the system;
6. Lack of motivation and skills on the part of the health personnel and lack of practical experience available to

²Hassan el Deeb and Albert R. Neill. New approaches for the management of primary health care: The urban setting. In: Annual International Health Conference, 12th, Washington, D.C. Management Issues in Health Programs in the Developing World. Washington, D.C.: National Council for International Health, 1986.

³U.S. Agency for International Development. Urban Health Delivery Systems Project Paper. Cairo: USAID/Cairo, October 1978, pp. 2-3.

them within the medical education system; and

7. Inadequate outreach of health services from clinics.

These problems were of major concern in the late 1970's, but many elements of the situation had existed already for many years.

Project aims. The project aims were set-up in 1978:⁴

Goal. The project contributes to the overall goal of improving the health status of the Egyptian people. Forty-four percent live in urban areas, the majority of whom are in the low-income segment.

Purpose. The purpose of this project is to assist the GOE to make the existing urban health care delivery system more accessible and effective so that it better supports efforts at health improvement in the project area and could form the basis for Cairo-wide and other urban area replication.

Strategy. The strategy of this project is to modify the current marginally functioning health delivery system and to improve the delivery of health, nutrition, and family planning services to low-income families in the project area.

The assumption is that if higher quality (more effective) health services are made easily available locally, the services will be utilized and the health status of the consumers will improve, as measured over time by increased life expectancy, decreasing infant mortality and reduction of fertility rates.

The activities of the project in Cairo had been progressing for about two years when the proposal was made for an additional effort focused on Alexandria, on the Mediterranean coast.

Alexandria Urban Health Projects

Alexandria has a rich history and culture with a cosmopolitan and innovative population. The city derives much of its energy from many long-standing ties to peoples and institutions throughout the Mediterranean region. Health services in the Alexandria health agencies have a record of being innovative. The two agencies reported here, the Ministry of Health and the Health Insurance Organization, have been leaders in developing and applying new approaches to meeting the health needs of the population. The size of the population has been growing

⁴U.S. Agency for International Development. Urban Health Delivery Systems Project Paper. Cairo: USAID/Cairo, 1978, p. 4.

rapidly, having increased from 2.59 millions in 1981 to 2.92 million in 1986. The six administrative zones of the Alexandria Governorate have all been growing at a rapid pace, excepting the West Zone. The new Amreya Zone, to the far west end of the governorate, has been growing very rapidly as can be seen in Figure 1.2.

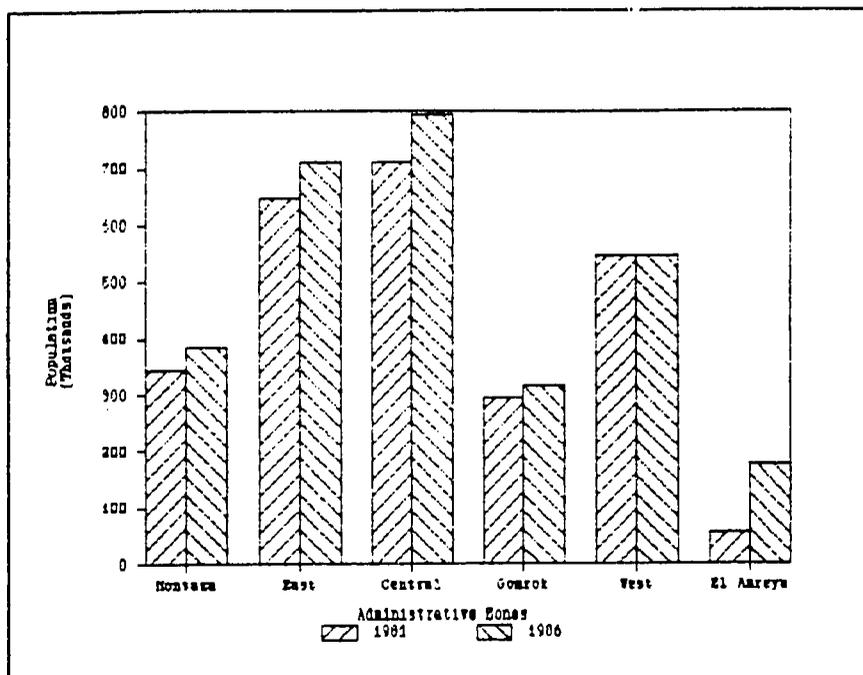


Fig. 1.2 Population, Alexandria,⁵Egypt, 1981,86

Factors affecting project design. Alexandria has many health services institutions in addition to those involved in these projects. Large numbers of highly trained personnel were available to the two projects in the fields of medicine, engineering, and other technical and administrative areas drawn from the immediate surrounding area. The institutions of higher learning, including Alexandria University and its High Institute of Public Health, are available as a source of expert guidance to specialized projects such as those discussed in this report.

Both projects were organized to upgrade existing arrangements of service and management. The host institutions and the USAID decided jointly on a plan to make improvements in the operations of their present programs rather than expanding the number of hospitals, centers, or other delivery mechanisms. A common thread between the two projects is that they aimed to use an operational research approach to find and implement changes which could improve the services they provided to their respective populations.

It should be noted that the two implementing organizations each had its own distinct capabilities. The maternal and child health

⁵Source: 1981 data--Alexandria Maternal and Child Health Project. Objectives and Implementation Plan for Year Two, October 1982 to September 1983. Alexandria, October 1982. 1986 data--Maternal and Child Health Directorate, Ministry of Health. Unpublished population data. Alexandria, 1987.

project was to be implemented in facilities of the Ministry of Health (MOH), which is a cabinet-level body of the government. The prepaid health care project was to be operated in a special public organization, the Health Insurance Organization (HIO). The HIO is supervised by the Health Minister but otherwise is independent of the governmental budgetary process. Also, the maternal and child health services are directed to preventive medicine concerns, while the prepaid health care system is basically a curative care organization. The maternal and child health program and the project were basically low technology, free services. The prepaid care project was focused on improvements to services which are considerably higher in their use of complex medical technology and, of course, the payments for these services come from premiums paid in advance.

Alexandria project objectives. The two projects were introduced within the larger urban health project in Cairo. The official agreement establishing the Alexandria project is given below in Annex B. The Cairo and Alexandria projects share some common purposes and also have some unique aspects due to their differing situations.

The maternal and child health project aimed to improve service quality, and raise the capacity to serve greater numbers of patients in each Health Ministry MCH center. Population has increased greatly in Alexandria during the past 25 years, but the number of centers has remained almost static since the mid-1960's. There was discussion at the time about the project doing construction of new centers. In the end, it was decided to have the project concentrate on the eleven existing centers. They all needed great amounts of repair and refurbishment.

The project was planned to operate with frequent communication between the Alexandria participants and the Cairo project operations. It became clear from the start that much could be learned from the experiences in Cairo as the work progressed in the new site. Nonetheless, a large amount of autonomy developed within the first year as the Alexandria project prepared its own plans for building renovations and staff training.

The prepaid health care project was focused on improved information resources as a way to reduce service costs and improve service efficiency and efficacy. The prepaid health care program in Egypt is known in English as the Health Insurance Organization (HIO) or General Authority for Health Insurance (tahmin sehi in Arabic). In the 25 years of life for HIO, enrollment had reached 750,000. By the time the project was being considered, this large number of members received outpatient, inpatient, and prescription drug services in return for paying an insurance premium through their employers. Employers (governmental, public sector industries, and private) also contribute an additional amount for each enrolled worker. These funds are to be used to cover part of the cost of the insurance program. The computer system for the project was designed to replace and enhance a stable, manual arrangement of processing the massive amounts of HIO data. The two

areas chosen for initial computer system use were the registering of insurance beneficiaries and the management of prescription drugs in the program.

Organization of the Report

The remainder of the report is organized to provide a clear picture of the two projects.

Chapters 2 and 3 provide a description of the maternal and child health project and its activities. Chapter 2 reviews the problems being addressed in the project. Chapter 3 describes the service improvement and renovation accomplishments of the project.

Chapters 4 and 5 cover the prepaid health care computer system. In Chapter 4, the problems addressed by the project are given. In Chapter 5, the accomplishments of the project are described, covering computer system development and personnel development activity.

Chapter 6 analyses the approach taken to providing consultations to the two projects during their life from 1982 to 1988. Chapter 7 draws together the issues and lessons learned from the two projects. The Annex includes lists of project personnel, portions of project design information, and lists of documents used in the implementation of the project.

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Chapter 2

Maternal and Child Health Project Purpose

The background and problems of maternal and child health (MCH) service are discussed in this chapter to provide a perspective on the Project purpose.

Evolution of MCH Services

Beginning in the early part of this century, the government established organized maternal and child health services for people in the cities of Egypt. Over time, these services were given additional resources and expanded in scope. After the revolution in the 1950's, the MCH program was augmented to include additional activities in rural areas as part of the integrated rural health programs covering all parts of upper and lower Egypt.

In Alexandria, the establishment of fixed centers for maternal and child health started in the 1940's. The Moharem Bek Center was established first, in 1948. The number of centers was expanded over time, and various types of buildings were put into service for MCH work. The new services covered prenatal care, obstetrical deliveries, and postnatal follow-up services.

In addition, basic immunizations were offered for the services from the beginning of the work. Trained midwives and public health physicians were assigned to each of the centers. In time, numerous other public health specialists were assigned also to the cadre of MCH workers. By 1981, there were 436 MCH workers, covering many medical and allied health specialties (see Figure 2.1, right).

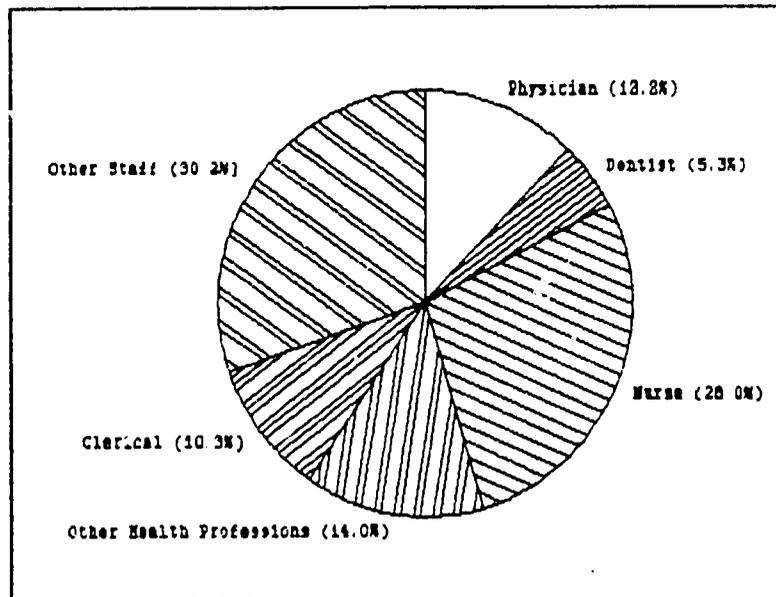


Fig. 2.1. MCH Workers, Alexandria, 1981.

The number of MCH centers grew as the population of the city ex-

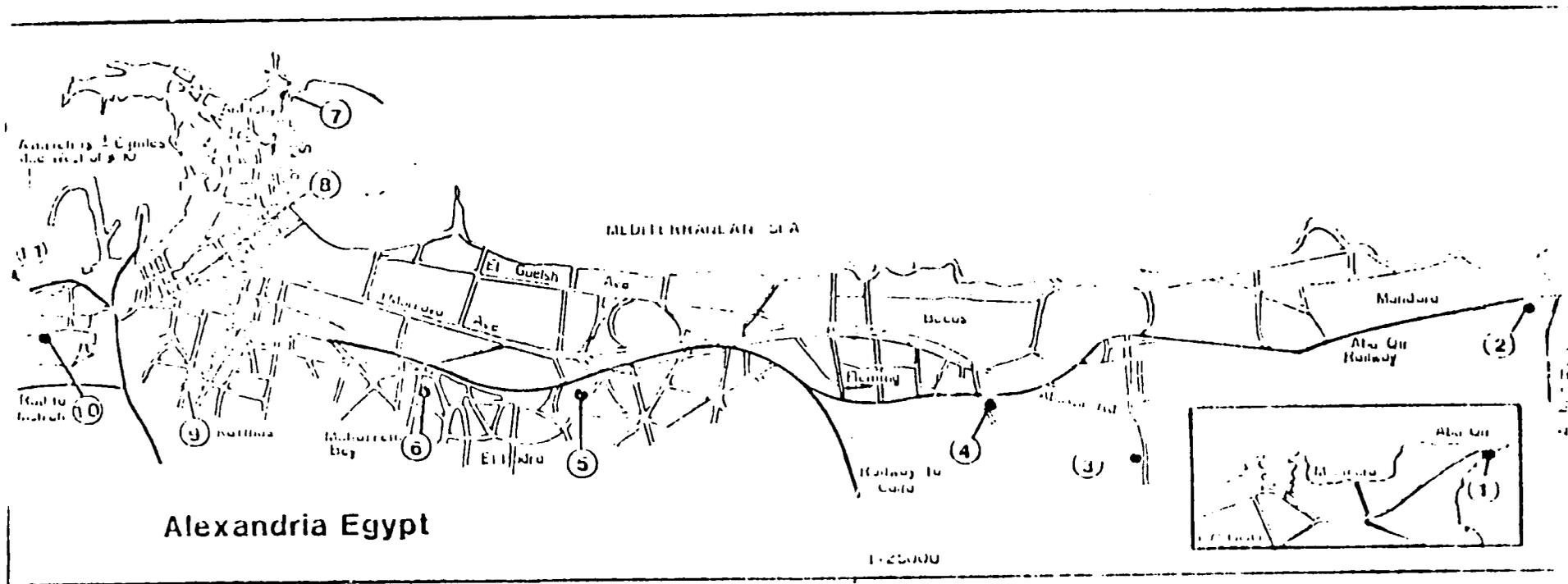
panded. The number of centers was expanded to 12 in hope of making the services accessible to more of the population (see Figure 2.2 and Table 2.1, below). This process of expansion became increasingly expensive for the government to operate as the national economy and national budget were being stretched to cover needs in other sectors.

The diayahs, or traditional birth attendants, deserve some mention at this point. They deliver the majority of babies in all parts of Egypt. In the early stages of the national MCH program, diayahs were involved in the MCH program. Diayahs were given special instruction concerning delivery techniques and were encouraged to visit the MCH center nearest their homes for discussions with the director. For several years, the diayahs were given an examination and licenses by the Ministry of Health. The examination covered their understanding of both techniques and possible complications in delivery. The MCH center directors participated in the examinations and in approving the licensing of the diayahs.

This policy was changed in the 1970's, and the Health Ministry decided against continued direct cooperation with diayahs. Their licenses were not renewed after that time, their training at MCH centers stopped, and they no longer received sterile supplies from the MCH program. The exact reasoning behind this change in policy is now subject to many interpretations. Some officials say the change was intended to encourage a more direct involvement by MCH and other governmental health personnel in the provision of care. Others say it was related to a feeling that cooperation with local diayahs was becoming too expensive. The more recent situation is that health officials in a few governorates now are experimenting again with training and other types of involvement in the work of diayahs. This experimentation has not reached the point where MCH centers have returned to their previous frequent contact with diayahs. The situation may eventually return in some localities to the more or less full partnership between diayahs and other health workers. Under the national policies in effect during the implementation of the project discussed here, there was no direct involvement in the work of diayahs nor was any equipment or training provided to them by the project.

Numerous issues concerning the efficiency and effectiveness of the MCH services were under discussion at the beginning of the Alexandria MCH project. These issues had in many cases remained of concern to Egyptian health policymakers for decades. There are no known published findings by the Government of Egypt concerning these issues. Based on my interviews with numerous officials in Cairo and Alexandria, the following issue areas have been major concerns about MCH:

- (a) Increasing direct cost of services and lack of patient payments for most services received;
- (b) Requests for service have surpassed service facility capacity due to urban population increases;



Location Map for MATERNAL CHILD HEALTH CLINICS

Legend:

- | | |
|-----------------------|------------------|
| (1) Abou Keer | (6) Moharem Bek |
| (2) Montazah | (7) Gomrok |
| (3) Hagar El Nawatiya | (8) El Labban |
| (4) El Raml | (9) Karmouz |
| (5) El Hadera | (10) Kabbary |
| | (11) (El Amreya) |

TABLE 2.1. Maternal and Child Health Service Facilities and Population, Alexandria, Arab Republic of Egypt, 1981 & 1986

<u>Zone and Facility</u>		<u>Service Population</u>	<u>Budget 1982-83 (LE)</u>	
			<u>Staff Salary</u>	<u>Drugs/Supplies</u>
Montaza Zone				
1.	Abou Keer MCH Center	39,000	42,267	4,000
2.	Montaza MCH Center	300,000	25,050	4,000
	Rural Areas	46,921		
East Zone				
3.	Hagar El Nawatayah MCH Center	388,500	74,206	4,000
4.	El Raml MCH Center	323,090	24,260	4,000
Central Zone				
5.	El Hadara MCH Center	274,000	55,895	4,000
6.	Moharem Bek MCH Center	444,672	49,056	4,000
	Rural Areas	74,844		
Gomrok Zone				
7.	El Gomrok MCH Center	203,000	48,679	4,000
8.	El Labban MCH Center	110,000	25,902	4,000
West Zone				
9.	Karmoz MCH Center	300,000	26,892	4,000
10.	El Kabbary MCH Center	235,000	25,883	4,000
	Rural Areas	9,421		
El Amreya Zone				
11.	El Amreya MCH Center	50,000	12,879	4,000
--	Wadi El Amr MCH Center	19,000	NA	NA
	Rural Areas	106,494		
TOTALS		2,924,543	410,969	44,000

SOURCES: Alexandria Maternal and Child Health Project. Objectives and Implementation Plan for Year Two, October 1982 to September 1983. Alexandria, October 1982.

- (c) Under-utilization of some services, such as immunizations and family planning, which are offered by MCH centers in competition with other governmental and private providers;
- (d) Changes in health and social conditions of population which have not been met by adjustments to service functions provided;
- (e) Deteriorating staff motivation under poor working conditions and facilities, low salary payments, and numerous added demands of urban living;
- (f) Lack of resolution of complex issues involving attended obstetrical services. The issues include the following: belief that

there is a need for professional monitoring of diayah services and equipment, lack of sufficient governmental facilities and transportation to deliver babies in increasing quantities each year, and decreasing numbers of trained young midwives and specially trained secondary technical nurses, who are needed to enter the profession in growing numbers.

These issues were dealt with to greater or lesser degree during the Alexandria project.

Problems Addressed by MCH Project

The maternal and child health (MCH) project was initiated to improve the quality of health services in Alexandria based on the methods developed by the Cairo project. The problems addressed and the approaches planned to be used were based on the experience gained during the first two years of work in Cairo. It was hoped that there would be few surprises for the project implementors in Alexandria, because it was assumed that conditions applying in the two cities would be more or less the same. The central problems addressed in Alexandria would be: renovate the existing clinics without getting into the complexities of building new buildings and motivate the staff members by replacing their broken equipment and providing training in all aspects of their work. This chapter summarizes some of the problems addressed by the project. The accomplishments of the project are analyzed in the next chapter.

Lessons from the Cairo Project. The work for Alexandria was outlined in an amendment to the Project Paper (see the text of the Amendment in Appendix B, below). Eleven of the twelve centers operated for maternal and child health by the Ministry of Health in Alexandria were to be improved as the similar centers in Cairo were being improved. (The twelfth center, Wadi el Amr, toward the western part of the city, was excluded from the project by decision of the Ministry of Health in Alexandria. No explanation is available as to the reason for its exclusion.) The intent of the project plans was to keep staff and bureaucracy to a minimum in Alexandria with the work coupled at each stage with the work in Cairo. In the best of worlds, the project would be, as they say in the construction professions, a turn-key operation. That is, all the project participants would be obliged to do is pay the bills and later turn the key on newly upgrade centers.

Unfortunately, the obstacles facing both the Cairo and Alexandria projects proved to be far greater than anyone had expected. Delays in nearly every aspect of the Cairo project had accumulated to the point that all previous work schedules for Cairo seemed irrelevant before the Alexandria work began in 1982. The causes of delays in the Cairo project were listed during a major project evaluation in August of 1982 (see Boostrom, et al, 1982, in Annex D, below). All parties to the project shared blame for the delays, including the cooperating governments, private contractors, advisors, and numerous bizarre turns of event. Excepting for the crucial significance of the work undertaken,

the problems would almost be laughable when looked at after nearly ten years of painstaking project implementation steps.

The evaluation report⁶ prepared in 1982 provided some good basic advice for the new Alexandria project, based on the difficulties exposed during the first efforts in Cairo. The basic message for the Alexandria team was to proceed with its work, realizing that obstacles in the Cairo project would from time to time affect the degree to which they could be of support. Still, a highly developed arrangement for training, service improvement, and equipment planning was in use in the Cairo project at that point. Those elements of the work from Cairo could be transferred and used from the beginning.

The MCH program in Alexandria had operated over many years with growing clientele and shrinking resources. The project offered the opportunity to attack many key problems facing the program. The Project Paper had set out the following purpose for the work, "To make the existing urban health care system more accessible and effective."⁷ The Alexandria project team sought to identify the highest priority problems affecting service access and effectiveness.

Service-related problems addressed. During the first year of operation, the project team conducted studies to highlight MCH service problems. These studies included inventories of service activities, worker attitudes, patient knowledge, attitudes, and practices, and obstacles to effective service. The numerous existing regulations from the Ministry of Health in Cairo were brought into the analysis. The project team involved staff members from the MCH centers in these studies. The resulting data was brought together in numerous meetings with the MCH center directors and other Ministry of Health officials. By the start of the project in 1982, the number of service functions performed in MCH centers had risen to 16, as shown in Table 2.2, below.

The results of the service analyses identified the following areas as being in need of greatest attention:

- a. Need to resolve knowledge gaps among many MCH staff members through use of training and supervisory techniques. Knowledge gaps were identified especially in the areas of: family planning counselling and medical procedures, supervision and management, bacterial sterilization, and community assessment and outreach.

⁶Eugene R. Boostrom, John W. Wiles, Robert Rucker, Robert Cook, & Nawal el Messiri Nadim. Report of the Special Evaluation of the MOH Urban Health Delivery Systems Project (UHDP), August 18 to September 24, 1982. Cairo: USAID/Cairo, October 1982.

⁷U.S. Agency for International Development. Egypt Urban Health Delivery Systems Project Paper. Cairo: USAID/Cairo, 1978, p. 4.

TABLE 2.2. Maternal and Child Health Service Functions and Workload, Alexandria, Arab Republic of Egypt, 1980-1981

<u>Services</u>	<u>New Clients</u>	<u>Total Visits</u>
<u>Services to All Women</u>		
1. Family Planning Services		70,689
2. Nutrition Education Services		3,599
3. Other Health Education Services		2,264
4. Food Distribution Services		74,787
5. Social Work and Referral Service		NA
<u>Services to Pregnant Women</u>		
6. Prenatal Care Services	12,640	31,963
7. Home-based Intranatal Services [1]	6,426	--
8. Clinic Intranatal Services [1]	485	--
9. Home-based Postnatal Services	NA	--
10. Clinic Postnatal Services	NA	--
<u>Services to Infants and Children Under 6 Years</u>		
11. Healthy Child Care Service [2]	NA	99,492
12. Immunization Services	NA	29,402
13. Oral Rehydration Therapy (ORT)	NA	NA
14. Dental Care Services	NA	NA
15. Hearing Care Services	NA	NA
16. Sick Child Treatment Service [2]	--	--

NOTES: [1] Referrals to hospital for complications of pregnancy totalled 828; total deliveries to MCH clients totalled 7,537. [2] Healthy child and sick child services combined. SOURCE: Alexandria Maternal and Child Health Project. Objectives and Implementation Plan for Year Two, October 1982 to September 1983. Alexandria, October 1982.

- b. Need to raise the consciousness of MCH staff members of the importance of MCH work, of many MCH workers whose morale and motivation was low, of the detrimental effects their low motivation can often have on patient response and attendance.
- c. Need for improved record keeping and record retrieval arrangement for clinical information to permit staff and patients to follow-up on health problems and progress.
- d. Need for greater communication among MCH center directors and professional staff members across Alexandria, permitting the sharing of common problems and joint solutions.
- e. Need to develop work assignments which would permit better use of the large numbers of staff physicians and dentists assigned to MCH

centers under the government policy of automatic professional employment. Assignment to outreach services and center-based services both could be used to expand the use of these professional resources.

- f. Need to ensure that professional MCH workers have an understanding of, motivation toward, and responsibility for basic equipment repair and preventive maintenance due to the chronic lack of maintenance budget funds.
- g. Need to bring the support services--pharmacy, laboratory, social work, and medical records--into the mainstream of MCH center planning and management decision-making. In several cases where there was no operating laboratory, some provision needed to be made to establish a basic laboratory service.
- h. Need for a clinical priority setting and follow-up tool to be available for use in MCH client risk assessment. The existing routine in all MCH programs of Egypt provided no systematic assessment of health risk nor any provision to follow-up the high risk problems to ensure they received continuing attention.
- i. Need to upgrade and replace equipment, in some cases using more modern designs, while keeping the level of technology at a level that spare parts and repair services would likely be available if and when needed.

These areas became the focus for service improvements in the MCH centers during the project. The accomplishments and difficulties in these areas are discussed further in Chapter 3, below.

Facility-related problems addressed. The project team conducted a series of studies in each MCH center using a systematic assessment questionnaire. The purpose of these studies was to identify gaps in service and problems in the patient flow due to the present arrangement of services, rooms, and equipment. The teams developed a questionnaire instrument of their own, based on the recommended procedures contained in report on facility planning from Boston University^a. A complete inventory of spaces and their use was developed. The inventory was standardized to permit comparison of space utilization among the centers (see Table 2.3, below).

It often was difficult to separate the problems of services from the problems of facilities. The team learned early in its studies that the present disrepair of the MCH center buildings had a pervasive effect

^aWilliam J. Bicknell, Eileen M. Connor, & Susan M. C. Shaw. Primary Care Health Centers: A Guide to Planning and Design with Limited Resources. Boston: Health Policy Institute, Boston University, and Metcalf and Associates, 1980.

on many aspects of service quality and quantity. There was great variation among the Alexandria centers in the size of buildings, operating status of equipment, and arrangement of work space and patient flow. In time, a comprehensive listing of service spaces was prepared to permit comparison of service and facility-related problems. The listing of service spaces prepared by the team is given below in Table 2.4. The uses of the listing in preparing for facility improvement is further discussed below.

The centers were known to be in great need of repair and renovation. A separate contract was arranged for the services of an architectural and engineering (A&E) firm. The contractor was responsible for conducting structural inspections and for preparing preliminary renovation designs. The project team provided the A&E firm with reports listing the services required to be available in each renovated center and arrangements for equipment and work area.

The Alexandria centers varied in size, ownership, age, and condition across a great range (see Table 2.4, below). In one case, the Karmouz MCH center, it was determined that the problems could not be solved through simple renovation. Eventually it was decided that the most economical solution would be to demolish the existing building and rebuild on the same site. In the rest of the centers, many problems were uncovered related to the electrical wiring, plumbing, lighting, windows, roofs, floors, drainage, and related aspects of the structures.

Severe delays were caused in the Cairo project by the unexpected finding that many of the MCH centers were not owned by the Government of Egypt. Instead, they were privately owned buildings which had been leased to the government after the Revolution. The Alexandria project started early to try to resolve potential problems with private owners. Some owners were willing to have free renovations made to their buildings. But, as was the case earlier in Cairo, some of the Alexandria owners had hoped that the MCH buildings would collapse in time, thereby cancelling their government leases. Lengthy and difficult negotiations were in store for the project team with these private owners concerning the amount and type of renovations they would permit in their buildings. The accomplishments of the project in facility improvements are discussed in Chapter 3.

TABLE 2.3. Maternal and Child Health Service Functions Requiring Space in Urban Centers, Alexandria, Arab Republic of Egypt, 1983

- A. Adult Services
1. Family Planning
 2. Nutrition Education
 3. Other Health Education
 4. Food Distribution
 5. Social Work
 6. Prenatal Care
 7. Intranatal Care in Home (Coordination Function)
 8. Intranatal Care in Center
 9. Postnatal Care in Home (Coordination Function)
 10. Postnatal Care in Center
- B. Child Services
11. Weight Measurement and Charting
 12. Healthy Child Care
 13. Immunizations
 14. Oral Rehydration Therapy (ORT)
 15. Dental Care
 16. Hearing Care
 17. Sick Child Care
- C. Clinical Support Services
18. Laboratory Services
 19. Pharmacy Services
 20. Registration and Medical Records
 21. Clerks' Work Areas (Money, Referrals, Immunizations, Staff Attendance, Patient Attendance)
- D. Administrative Support Services
22. Direction and Supervision
 23. Nurses' Hostel and Personal Items Storage
 24. Patient Waiting
 25. Equipment Storage
 26. Instruments and Materials Storage
 27. Water Closets

TABLE 2.4. Maternal and Child Health Facilities,
Alexandria, Arab Republic of Egypt, 1982

<u>Zone and Facility</u>	<u>Service Began</u>	<u>Latest Building Finished</u>	<u>Owner</u>	<u>Type</u>	<u>Square Meters</u>
Montaza Zone					
1. Abou Keer MCH Center	1965	1965	Private	Flat	120
2. Montaza MCH Center	1960	1976	Government	Polyclinic	600
East Zone					
3. Hagar El Nawatayah MCH	1962	1962	Private	Flat	150
4. El Raml MCH Center	1959	1976	Government	Polyclinic	600
Central Zone					
5. El Hadara MCH Center	1962	1962	Private	Flat	180
6. Moharem Bek MCH Center	1948	1920?	Private	Villa	600
Gomrok Zone					
7. El Gomrok MCH Center	1952	1952	Government	Flat	600
8. El Labban MCH Center	1962	1962	Government	Flat	200
West Zone					
9. Karmoz MCH Center	1960	1980	Government	Flat	150
10. El Kabbary MCH Center	1961	1981	Government	Flat	900
El Amreya Zone					
11. El Amreya MCH Center	1967	1983	Government	Clinic	Not Avail
Wadi El Amr MCH Center	(---Not included in MCH Project---				

SOURCES: Alexandria Maternal and Child Health Project. Objectives and Implementation Plan for Year Two, October 1982 to September 1983. Alexandria, October 1982; Mier Consulting Engineers. Preliminary Report. Cairo, 1983.

Chapter 3

Maternal and Child Health Accomplishments

The Alexandria Maternal and Child Health (MCH) Project was focused on eleven existing health centers located across the city. The background on problems addressed by the project is provided in Chapter 2. This chapter provides a summary of accomplishments and progress made in solving problems during the project. The chapter divides these activities into five parts: facility upgrading, equipment replacement, service improvement, management development, and project operations. Each of the topics is discussed in turn below.

Consultant's Role

My role in the project involved assisting MCH and A.I.D. officials with preparation of plans and review of progress at each stage of the work from 1982 through the completion of equipment installation in 1988. My role was to assist in the definition of each step in the work to be done and in providing instruction to the project directors and project team members in carrying-out their work. The host country contracting procedures required by A.I.D. for the construction and equipment procurement involved me in assisting along with the A.I.D. Project Manager in setting up the arrangements for contract management. In the service improvement portion of the project, my work was done jointly with the Egyptian medical consultants in helping to identify training and problem-solving needs. Further discussion of my over-all role in the project is provided in Chapter 6.

Facility Upgrading

The buildings and equipment being used by MCH centers in Alexandria at the start of the project had been put into service over a span of many years. Many of the buildings were built for use as family homes or flats. Plumbing and electrical systems in all the centers were in need of repair. Some of the buildings faced rather difficult structural or mechanical problems, such as weak floors and stairways, lack of connection to a working outside sewer system, flooding of lower levels from rainfall or sewage, and insufficient capacity in the electrical mains. The major problems in each center were identified by the project team, the project engineer and the contract architect and engineering (A&E) firm. During the construction phase, most of these problems were resolved. In only a few instances was it found to be impossible to complete the upgrading of basic structural and mechanical systems. The main outstanding problem was at the centers located in non-sewered areas

or areas where the sewers were no longer able to cope with the number of new buildings in the neighborhood.

Architect and engineer contract. The project was planned for extensive renovations in the various centers. This work was to be supervised by a contract architect and engineering (A&E) firm. The project director with assistance from the project manager and consultant prepared a request for technical proposals to hire an A&E. The request was advertised in Egypt and the U.S. The request specified that the A&E would help in the preliminary design stages to determine the best arrangement of the spaces and their use in MCH work. Then, engineering drawings and specifications were to be prepared. After they were approved, the A&E would assist in the bidding process to hire construction companies to do the work. During construction, the A&E would supervise the work of the contractors and ensure that the work was done to specifications. Where changes were needed, the A&E would assist in resolving problems to ensure the work was completed properly. The bills from the construction contractors were submitted through the A&E for their concurrence. The project engineer from the Ministry of Health was available to coordinate the project's work with the A&E. He also was involved frequently in resolving problems encountered throughout the construction process with outside ministries and agencies, such as public utility organizations, local councils, building inspectors, private owners of the MCH center buildings, and others.

Planning and design. The use of available internal space in many of the centers was reduced due by a large degree. Some of the reduction was caused by the limitations of the room layout, especially for those centers in private flats. In many cases, these problems meant that certain basic functions of the MCH program could not have a separate space assigned for their use. The project team and the architect worked together to find the optimum layout of space for each center. In all centers it was possible to establish a basic service area for each function. For instance, many of the centers were without a laboratory or dental service. These areas were added to all centers, excepting that the dental equipment could not be fitted into the Abou Keer center due to objections from the private owner. A solution was needed in most centers to the many of the problems of patient flow and work area.

The project team was involved in assessing the numbers of spaces and their sizes for each center. Space lists were prepared by the project team and discussed with the A&E during the design phase. Preliminary drawings and were prepared and these were discussed with the project team and all MCH center directors. Many helpful suggestions came from their inputs during this phase. The center directors were warned at the outset that their inputs were desired and encouraged at the stage of design, but that changes later would not usually be possible. The A&E and project team held many meetings with the center staffs to ensure their understanding of what was going to be done in renovations. In polyclinics, where the MCH center shared space with other services under the same roof, the discussions were held also with the polyclinic manager.

Temporary quarters. The project plans called for each center to be removed from service during the renovation. This meant that the existing center staff and services would have to be moved elsewhere. The project team held many discussions and conducted lengthy searches to identify the best locations for the centers to stay during the construction. The A&E contract contained a requirement for them to design a temporary building to be built at some nearby site in those cases where it was found that no other suitable arrangement could be made. In the end, a prefabricated building was designed for use as a temporary quarters. The building was built to the A&E specifications by an Alexandria company and had enough space to permit most routine services to be given and for the storage of patients' records. There was not enough space for the storage of all the center's furniture in the temporary building. The decision was made that centers wishing to continue use of the temporary buildings could do so after construction of the centers was completed. Most of the centers decided to keep the temporary buildings, and they are now being used as auxiliary clinics, storage areas, or additional offices.

Walls and partitions. The original wall and door materials in most city dwellings in Alexandria consists of cement block or brick core walls covered with several coats of plaster. Doors have heavy wooden frames and strong hardware. All of the MCH centers were built with these materials, and the staff members were used to the strength of them. International engineering practice in public building construction have moved toward use of lighter and cheaper materials for most internal areas, including doors, windows, and walls. The cost of materials and installation of the older materials has become very expensive in Egypt as in many other places outside. In spaces requiring heavy cleaning and sterilization, the walls were prepared with outer surfaces made of ceramic tile. The original contract documents specified where these materials would be used, but as the work progressed the center directors requested that certain additional rooms be tiled. In the end, all delivery rooms and many of the medical care and toilet area walls were tiled.

A decision was made to use lighter wall materials in many places where new partitions were needed. This decision was made of necessity for some centers where the private owners refused to approve any "permanent" changes to the building. The partitions in many centers were made with aluminum frameworks and composition wall materials. These arrangements were rather new to government buildings in Alexandria at the time, and at first there was concern by center staff about their durability. The project team provided training and explanations to center staff about the need to exercise some care in cleaning walls, closing doors, and other uses of the new spaces.

Floors. Floors were perhaps the most difficult structural element to deal with in the centers. The centers in the Cairo project had been treated with a special rubber and epoxy material which was bonded to the existing floor. This material was not found to be successful, and after

a time it was deteriorating. The existing floors in many of the centers in Alexandria were in need of upgrading. In the end, the materials were chosen from the more traditional types. The main difficulty affecting the strength of the floor covering was underlying structural weakness. The project engineers and contractors tried to ensure that a strong underlying floor was present before any covering were applied. For the most part, they succeeded. Where possible, the covering was chosen to match the type of use the rooms would be getting. Delivery rooms and other wet areas were covered with quarry tile flooring in some cases. Most general use areas were floored with asphalt tile squares or sheets.

Construction contracting. The contracts for construction were advertised in Egypt. It was decided, based on experience in the Cairo project, that the job was too big for one firm of medium size to be able to take the work and complete it competently and on-time. So, the work was divided into two, with one contract for the western centers and another for the eastern centers. Several of the contractors in the Cairo project had fallen behind schedule due to difficulties with cash flow, availability of work crews, shortages of materials needed for their work, and limitations on the ability of their management structure to supervise several jobs at once. The outcome of the decision to divide the work was successful. The major delays in construction came during the bid negotiation period when it was decided that these projects in Alexandria could not be approved without resort to higher legal authorities in the government in Cairo. The overall processing of the contract documents through the courts in Cairo involved a delay of over a year. During this time, the successful bidders were asked to extend the operative life of their bid prices repeatedly as there was never an indication of how long this unexpected review would take. Needless to say, the center staffs who had been briefed and prepared for their move to temporary locations were frustrated by this development. In some cases, the Ministry of Health had already removed furniture and equipment from centers that would not be used in the temporary quarters to a storage warehouse on the reasonable assumption that the construction soon would begin.

The day-to-day construction process after work finally began was rather smooth. The system of supervision through the A&E worked quite successfully. Bills and change orders were processed on a routine basis. Questions about quality or quantity of work done were opened for discussion with the project director and A.I.D. project officer on a regular basis and resolved usually without delay.

Equipment Replacement

Equipment specification. The centers were surveyed by the project team and outside engineers to assess equipment needs. The project team prepared spreadsheets listing all rooms in the completed buildings, based on the architectural drawings. These spreadsheets were entered into a computer with standard spreadsheet software to assist in calculating the numbers of each item required by room and center. Exact

descriptions of the needed items were prepared for each piece of equipment. The project team had a set of specifications prepared for the Cairo project to serve as a guide, but in many cases they modified or replaced those specifications with ones they prepared in Alexandria. An extensive library of medical equipment catalogs was developed to help identify various types of equipment and their features. A standardized format was developed by the project team for use in writing specifications. Before the specifications were issued in the tendering process, a series of meetings was held with center directors and some departmental specialists in the Ministry of Health to get their concurrence and advice. The dental and laboratory equipment especially was given extensive discussion with the various specialists in Alexandria.

Broken equipment. Medical equipment and furniture were present that was no longer used or was broken. The complex property management rules followed by the government make it difficult to remove unneeded equipment after it is not in use. Various committees and inspections are required to be involved in the process. The result of these factors was that many of the centers were using several rooms to store old items which they could not use. The project team was successful in getting all centers formally inspected and cleared of the accumulated unused equipment stored on the premises.

Equipment procurement and installation. The equipment funded through the project came from off-the-shelf purchases in Egypt and from international bidding with U.S. firms. Many of the items were available from local sources so the project team with help from the Ministry of Health procurement department was able to arrange for local bidding. The remaining items were assembled into lists, and an A.I.D.-approved procurement services agent (PSA) contract was requested. After a lengthy bidding process, a PSA contract was awarded and the U.S. off-shore purchases began. The project team's specifications and bill of quantities were used directly by the PSA in its purchasing process. Under this arrangement, U.S. firms selling medical equipment are contacted and encouraged to submit bid prices for the items. These prices and the descriptions of the items they offered were then sent back to Alexandria for consideration by the project staff. Unfortunately, at about the point where the decisions were being made as to which bidders' offers to accept the PSA firm went bankrupt.

Nearly a year was lost during which the decision was made to cancel the PSA contract and re-assign the final purchasing steps to the internal A.I.D. procurement section in Washington, D.C. The project team participated in many difficult adjustments in the schedule of the final project steps during this time. As construction in the centers was completed, they were obliged to find ways to provide some combination of old and new equipment which would permit the start-up of work in the center. It was very difficult to know exactly when the imported equipment would arrive for use in the centers. When the materials finally began to arrive at the port of Alexandria, the project team and consultants worked long hours opening and documenting the condition of each item. The items were logged into the property records of the

government, A.I.D. reports were completed on the purchases, and the items were delivered to the centers for installation. The project team participated also in extensive training of center staff on the use of certain of the instruments that had been purchased.

Service Improvement

The project team and consultants gave attention to the quality of services in MCH centers from the beginning of the project. Nearly all of the several hundred MCH workers in Alexandria participated in these efforts over the life of the project. These efforts involved direct training of center staff members and studies of service effectiveness.

Training. The program of training was organized by the Egyptian medical consultants to the project. A series of classes was designed and written materials were prepared for use during by the trainees. All of the project team members and several others from the MCH centers were given a class on training of trainers at the beginning of the project. The project classes were designed to combine theoretical concepts involved in MCH work and actual practice of the ideas where possible. For physicians and nurses, for example, the classes were held part of the time in the training facilities at the project headquarters and part of the time at local Alexandria hospitals. The clinical training of physicians and nurses was an almost continuous process during the 6 years from 1981.

A special problem and opportunity for training involved needs of the newly graduated physicians arriving for obligatory service in the MCH centers. It had been the practice of the Ministry of Health to provide some basic introductory classes on preventive medicine and family planning to the arriving physicians. During the time of the project, this training was expanded so that each arriving group of physicians was given rather extensive training in MCH service and concepts in addition to the previously covered topics. The annual arrival of the several hundred physicians to do service in Alexandria had in the past been a sizable burden on the training resources of the Ministry. The arrangements and curricula prepared by the project made a positive contribution to the upgrading of this process. The training staff of the project included outside instructors selected from the University and Ministry of Health headquarters in Alexandria. In the end, most of these physicians will spend only a few months of their required year of service in MCH. Almost none of the physicians passing through the MCH centers during this time have any interest in pursuing a career in MCH or any other part of public health. At the heart of the curriculum provided to these new graduates was the intention that public health and especially MCH would be presented as a viable and rewarding field in which to specialize. At the least, the physicians were given a perspective on the contribution of MCH and preventive medicine in the health system.

Others receiving training within the project structure were given up-to-date instruction concerning their area of activity. In some cases, the project training was the first program ever targeted toward certain health workers. For instance, the sizable number of clerical personnel involved in medical and administrative recordkeeping in MCH centers was given training. There apparently had never been an organized course on their duties in MCH.

Within the plans for construction, a training center located at the Moharem Bek Center was prepared. There had been an MCH training center prior to the project located in an apartment flat that was in very poor condition. It was decided that there would be extra benefits to taking over an unused garage building in Moharem Bek for this purpose. It was rebuilt with equipment and furnishing especially for this purpose. The project headquarters had been located during the life of the project at the Ambulance Center in borrowed buildings which would revert to the emergency service. This training arrangement now provides a permanent site for the training materials, including films and videos, and classroom space for classes up to 75 people.

Overseas training was provided to some of the project team members. The several successive project directors attended training courses in the U.S. and some of them also did site visits at U.S. institutions providing MCH services. Two of the project team members, Dr. Hoda Salim and Dr. Laurice Eskander, received extensive training in MCH service management at a course arranged through the project in Boston.

Other improvements. Other service improvements were developed through hands-on observations of MCH services in the centers. The project team and Egyptian consultants developed service improvement programs in several high priority problem areas using a problem-solving procedure. The following are some examples of service development programs:

- o Baby weighing and charting. This essential MCH service was studied and a protocol for improving the process was prepared by the team members. The problems identified with the service included: inaccurate weights due to faulty equipment, forgetting to record weights in charts, lack of understanding by mothers of the importance of tracking infants' weights, and failure by mothers to bring babies for weighing except when they were obviously sick. The solutions included: replacement of scales, training of staff members in proper weighing, health education for mothers, and introduction of a new weight form to be carried by mothers with the growth chart marked on it.
- o Patient risk assessment. A high priority has been given by the World Health Organization during the past few years on upgrading MCH services' capacity to identify patients having a high risk of health problems or complications. No such mechanism is now in use for the national MCH program. With the close supervision of the

Egyptian medical consultant, Dr. Ibrahim Shoaib, the project team worked with a few of the centers to develop a risk assessment technique tailored to the types of cases presenting in Alexandria. Rather than taking risk factors and scales from outside Egypt, they did studies of records and health statistics to identify the causes and underlying factors involved with high risks. For example, the risk factors related to hypertension were identified and blood pressure levels were determined to help MCH workers identify and follow-up patients having such problems. A special, simple recordkeeping system was prepared for use in this program and training was eventually given to all MCH workers concerning the use of the system.

The project team was available to follow-up problems that occurred in the centers. The service improvement programs were prepared with written descriptions and each participant from the project team was given a clear role to play in implementing the work.

Management Development

Each MCH center has an assigned director, and there is a city-wide MCH director within the Ministry of Health. These people are responsible for planning and directing the MCH service. The MCH service comes within the preventive medicine section of the Health Ministry. There is a preventive medicine director for the Governorate of Alexandria and for each of the six medical zones. Then, each specialized area of work in the MCH center is represented by a specialist in the Ministry of Health. For instance, there are directors for dentistry, nursing, pharmacy, social work, laboratory, and other fields. This technical group is available to help with problems in MCH centers, but in practice each individual responsible for these services has his or her hands full with the larger health programs, such as hospitals. The direct supervisory process for MCH comes largely within the immediate MCH program.

During the life of the project, it was possible to establish a regularly scheduled MCH directors' meeting, where the directors could come together to share problems and solutions. These meetings were organized by the project directors, with the help of the Egyptian medical consultant, Dr. Shoaib. Later, the meeting arrangement was encouraged when the project director and the city MCH Director posts were assigned to the same person. The meetings were taken as an opportunity to give some instruction to the directors on management methods and to encourage them to practice joint problem-solving techniques.

An example of a problem facing the director involved the assignment and use of the newly graduated physicians. Through the directors' meetings it was possible to discuss the priorities for assignment of these people and how they could be used. Also, training schedules for their introduction to MCH could be discussed and coordinated.

Another example of a problem facing some MCH directors involved

the joint services in polyclinics. Some MCH centers are located in larger polyclinic facilities, sharing services such as laboratory and pharmacy. The director could discuss their problems with making this process work and share their common experiences with each other on how to deal with the situation.

Project Operations

Organization. The project organization was headed by the Project Director, appointed by the Minister of Health at the Director General rank. Over the life of the project, 2 to 5 physicians and nurses were assigned from the Ministry of Health to work with the director, selected from the MCH centers or, in one case, the Emergency Services Training Center nearby. In addition, a graduate engineer was assigned on a part-time basis. These people plus the project secretariat staff members were assigned and paid from the Ministry of Health. Several people were hired on contracts funded by A.I.D., which extended from a few months for some to several years for others.

The project secretariat staff members were established under the first project director, Dr. Nawal Kassem, drawn from the Ministry of Health. This full time staff in the project office consisted of 4 secretaries, 3 drivers, 1 tea and reception person, and 1 cleaner. The 4 secretaries were bilingual and were given additional English training at the American Cultural Center. Several part-time people were assigned also, including: the project accountants, project storekeeper, and a customs and purchasing expeditor.

The contract personnel consisted of the following personnel: the senior medical consultants to the project, training instructors hired for a single course or series of courses, and a bilingual administrative assistant, who was a university graduate. There was a senior medical consultant and a bilingual administrative assistant under contract throughout the life of the project.

Project team. After the first few months of the project, it was decided that a project team of physicians, nurses, and engineer assigned to the project could be of greatest benefit if they came on a regular but part-time basis. They were selected from MCH center staffs for the most part. They were scheduled so they worked in their centers on days they did not come to the project. On Mondays and Thursdays, all of the project team members were scheduled to come to the project. On the other days, each of them came on a different day so every day was covered with at least one of them to provide continuity to the work. The American consultant was able to work with the team during his visits and provide training as needed during their common days together at the project (see Chapter 6, below, for further discussion). When the team needed to visit all of the centers over a week's time, they could organize their work on the days together and then make their visits alone or in pairs on the other days. In some cases, they were permitted by the center directors to assist on non-project days with special

studies or assignments. The full team travelled to visit the Cairo project several times on their common days together. Also, during the portion of the project when they were collecting information about equipment available for purchase in the local Egyptian market, they would make those visits together in Cairo, Alexandria, or elsewhere on their days together.

The concept for organizing the team in this revolving schedule was developed by the second project director, Dr. Hassan Rashid. In retrospect, there were benefits to his idea that went beyond serving the immediate needs of project operations. The team members provided a continuing channel for communications with the MCH centers. Their days in their centers were opportunities to look around and better understand what needed to be given attention. The team members developed a special relationship to each other which facilitated their work and helped them during difficult parts of the project. For most of them, they worked together over a four to five year period and came to know well their individual strengths and weaknesses.

For example, there was an especially difficult time when the start-up of all construction was postponed so the state court council in Cairo could inspect and review the draft contract documents. Their request was unexpected and completely unprecedented. The order apparently was initiated because of some legal or political problems unrelated to this project but became part of a general review of projects. At the time, neither the Ministry of Health nor the American officials were successful in their attempts to intervene or bypass this official order. The state council requested that all the contract documents, which followed A.I.D. procedures and were in English, first be translated into Arabic before submission. A brief survey of local attorneys in Alexandria by the project team showed that private attorneys who were bilingual would charge a small fortune per page for such translations and would take up to a year to complete the full set of documents.

After much discussion by the doctors, nurses, and engineer about the fact that they were not trained lawyers, they agreed to attempt translation of the contracts. With newly purchased English/Arabic legal dictionaries in hand, they prepared the translation over a period of a few days of concentrated effort. Many of the terms in the contracts were not found in the dictionaries so that the job included preparing running vocabulary lists of new word definitions. The secretariat staff did the typing as the work proceeded. All who participated felt, with some justification, that this work might put them personally in legal jeopardy if there were faults discovered by the lawyers in their work. Nonetheless, they finished the translation in what must be record time and probably saved the project from what might have become a permanent cancellation of the construction program. The full review by the court council delayed the work of the project nearly a year even with the efforts of the project team. Incidentally, as a by-product, the project team also came to know in detail the terms, conditions, and arrangements of a construction contract.

Contract management. Finally, it should be noted that all contracting for services and commodities was done by action of the Egyptian Project Director. This is called host country contracting in the A.I.D. system. Host country contracting required heavy involvement by the me and the USAID Project Manager to provide instruction in contracting methods to each new project director. The process was extremely slow. The highly experienced project directors still had no way to have gained experience in the American contracting process and many of them had not been directly involved in Egyptian contracting procedures either.

This ends the section of the report concerning the MCH project. The next two chapters provide a description of the prepaid medical care information system project at the Health Insurance Organization. Chapter 6 covers the role of the American consultant, and the last chapter summarizes the lessons learned and impacts from both projects.

Chapter 4

Prepaid Health Information System Project Purpose

The Health Insurance Organization (HIO) began discussions and studies about its management information problems in the late 1970's. A feasibility study was prepared in 1979 under a contract HIO made with a local computer software firm. The study was discussed further during the following two years, and outside consultants from universities and the World Health Organization evaluated the study's findings. The feasibility study proposed a total of five applications for the HIO system:

1. Beneficiary Registration
2. Drug Control
3. Patient Information
4. Cost Accounting
5. Quality Assessment

HIO officials approached USAID/Cairo for possible funding of the first two applications of the planned project in 1981. These discussions led in time to a decision to proceed with USAID participation in the project. The project would include the purchase of computer hardware, development of software, training of staff in HIO to operate the system, and testing of the system in 21 clinics, 3 hospitals, and the headquarters.

This chapter summarizes the problems addressed by the HIO project and the background of the HIO operation. The next chapter summarizes the achievements of the project.

Background to Health Insurance Organization

The health insurance law (Law Number 75) came into effect in Egypt in March 1964. It was originally applied to civil servants. The plans called for the gradual increase of coverage to include many other sectors of Egyptian society. To achieve the intended purpose of high quality care and accessibility of services, a separate organization was created for health insurance. The newly created Health Insurance Organization (HIO) was established with its initial operations in Alexandria, and the Alexandria program became known in later years as the Northwest Delta Branch. Branches now cover all parts of the country.

The first hospitals and clinic facilities for HIO were provided from among the existing nationalized units which came under government

control in the Revolution. Workers from the private sector and the semi-public, or general, sector were added to HIO membership during the next ten years. Facilities were built in several parts of Alexandria to provide polyclinic services and general practice clinics for these new beneficiaries (see the map in Figure 4.1, below). Dispensaries are staffed by HIO physicians and support staff in member factories throughout the Northwest Delta Branch. In addition, contracts were made with private pharmacies and physician specialists to provide services to certain patients.

The HIO remains independent of the Ministry of Health, although the Chairman of the Organization is appointed by the Health Minister. The budgets of the HIO are reviewed by the Health Minister, but funding for the HIO program comes from the insurance premiums paid by workers and employer organizations. Among the special features of the program is the provision for free prescription drugs to be provided to beneficiaries. The proposed computer system under the project discussed here seeks, among other things, to control growing costs related to the distribution of these free medications.

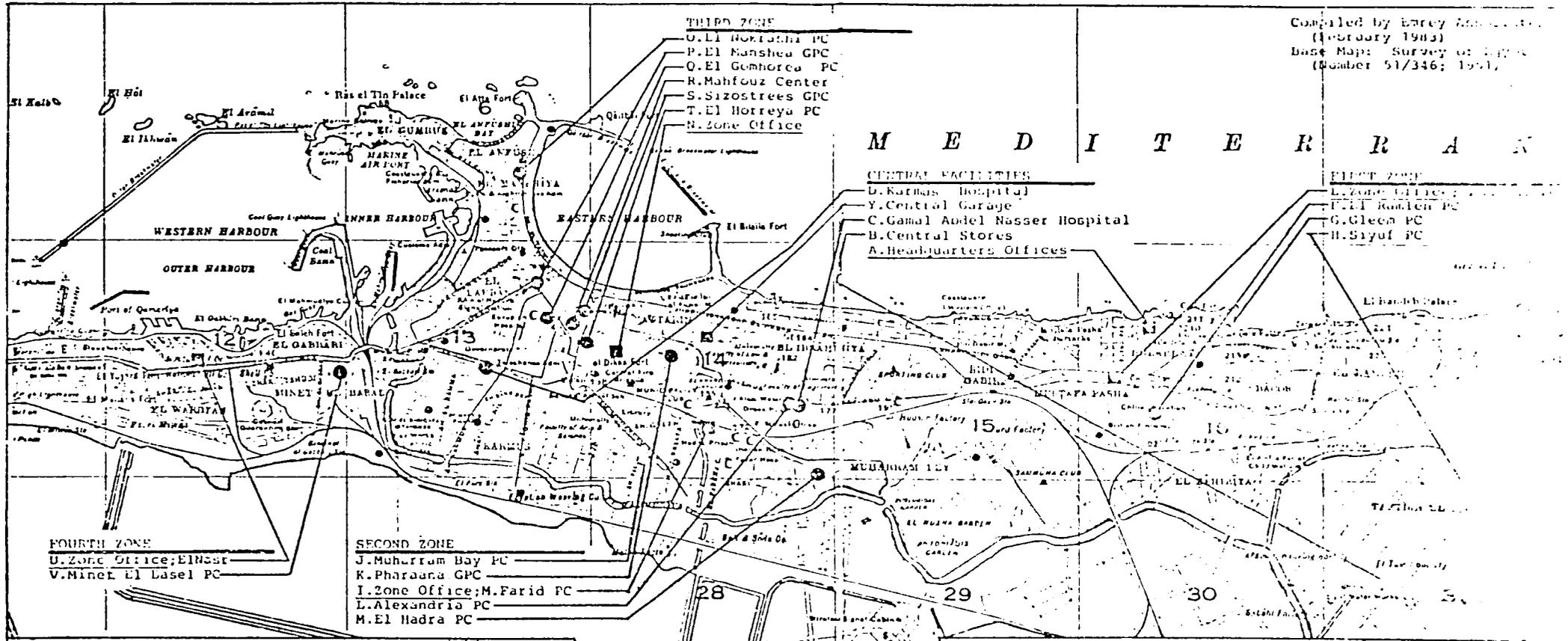
Membership for the Northwest Delta Branch now covers nearly 800,000 people. Discussions in national political circles would have the number of beneficiaries increased greatly, but the funds to add new facilities would have to come from the national treasury. School children's health services were transferred from the Ministry of Health to the HIO, beginning with the Fall 1988 term. The staff and facilities from the existing government program were to be retained by HIO as much as possible. The eventual coverage of workers' dependents within the existing HIO program has been planned for many years. Several experimental arrangements of services for beneficiaries' dependents have been tried by HIO in Alexandria. Much of the control over these decisions to increase covered beneficiaries rests with national political leaders.

Northwest Delta Branch Facilities

The Northwest Delta Branch operates facilities for its beneficiaries throughout their service area of Alexandria, Behera, and Matruh governorates (see map in Figure 4.1, below). These facilities are located within the local communities of the area and also within the premises of member companies (see Table 4.1, below). The overall growth in membership has produced a continuing burden on the operations of HIO, requiring managers' attention and efforts to develop additional capacity.

The Northwest Delta Branch is organized with a headquarters located at Stanley Bay, in the eastern part of the city near to the sea. There are six medical zones through which administrative and technical direction is given to the services. There is a Branch Chairman and zone directors in each zone. The headquarters has a staff of technical and administrative specialists responsible for directing the insurance and medical service programs. The hospital directors and zone directors report to the headquarters.

Compiled by Percy Anderson
 (February 1963)
 Base Map: Survey of Egypt
 (Number 51/346; 1951)



- THIRD ZONE**
- U. El Horreya PC
 - P. El Mansheh GPC
 - O. El Gemhorea PC
 - R. Mahfouz Center
 - S. Sizostrees GPC
 - T. El Horreya PC
 - N. Zone Office

M E D I T E R R A N

- CENTRAL FACILITIES**
- D. Karnas Hospital
 - Y. Central Garage
 - C. Gamal Abdel Nasser Hospital
 - B. Central Stores
 - A. Headquarters Offices

- FIRST ZONE**
- L. Zone Office
 - F. El Kamien PC
 - G. Gleem PC
 - H. Siyuf PC

- FOURTH ZONE**
- U. Zone Office; El Nasr
 - V. Mine El Lasel PC

- SECOND ZONE**
- J. Muharram Bay PC
 - K. Pharaana GPC
 - I. Zone Office; M. Farid PC
 - L. Alexandria PC
 - M. El Hadra PC

ALEXANDRIA TOWN

Meters 1000 500 0 1 2 Kilometres

- | | | | |
|-------|-------------------------|---|-----------------|
| ☐ | Mosque | ★ | A.R.A.P. |
| ✝ | Church | ⊕ | Hospital |
| ■ | General Buildings | ○ | Police Outposts |
| --- | Governmental Boundaries | ⚓ | Lighthouse |
| — | E.S. Railways | ● | Amusement |
| — | Tramway Lines | ⌚ | Hotel |
| — | Omibus | ▲ | Sport Clubs |
| +++++ | Light Railways | □ | Gardens |

**ARAB REPUBLIC OF EGYPT
 HEALTH INSURANCE ORGANIZATION
 NORTHWESTERN DELTA BRANCH**

Locations of Facilities and
 Offices Owned by Northwestern
 Delta Branch

KEY TO GOVERNORATES IN THE DELTA

- | | |
|-----------------|------------------|
| 1. Al Bahariyah | 7. Al Qahirah |
| 2. Al Bahariyah | 8. Al Ismailiyah |
| 3. Matruh | 9. Ash Shariyah |
| 4. Al Bahariyah | 10. Al Bahariyah |
| 5. Al Bahariyah | 11. Dumyat |
| 6. Al Bahariyah | 12. Bur Sa'id |

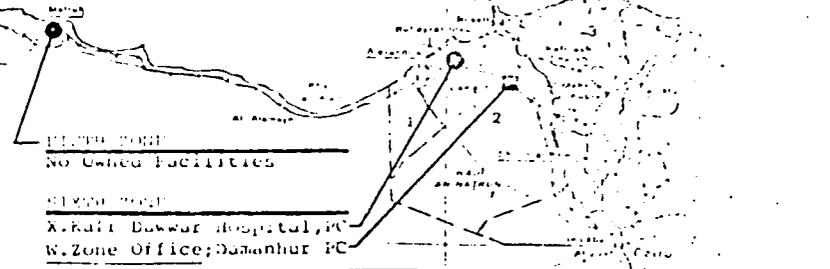


TABLE 4.1. HIO Northwest Delta Facility Capacities, 1984

Hospitals	Karmos Hospital	400 beds
	Gamal Abdel Nassar Hospital	750 beds
	El Mebarrah Hospital	60 beds
Polyclinics	15 Polyclinics	6,080 visits/day
Clinics:		
	3 Group Practice Clinics	362 visits/day
	132 Group Practice In-Company	4,192 visits/day
	39 Private GP Clinics	142 visits/day
Pharmacies:		Prescriptions:
	9 Polyclinic Pharmacies	4,100/day
	250 Contract Pharmacies	4,000/day
	(Prescriptions from all sources:	2,500,000/year)

The headquarters personnel maintain direct contact with employers concerning the registration of beneficiaries, complaints about over-all service, and arrangements for changes in service. The headquarters staff also operates the Branch accounting, personnel, and supply system. The records for all beneficiaries registered to participate in the Branch program are kept in the headquarters. The zone directors monitor the care given in their area, pursue the solution to problems arising with patients, physicians, or staff members, and ensure that their facilities are staffed properly.

The remaining sections of this chapter provide a summary of the rationale for developing the computer system and the early stages of planning for the new system.

Feasibility Study

In the late 1970's, managers of the HIO in Alexandria decided to investigate how computers might help them in managing their programs. The services had grown rapidly over HIO's first 15 years. The succeeding management personnel had always taken a keen interest in information-related tools which would help them better to understand the insurance-aspects as well as the medical services in their program. They had welcomed and encouraged specialists in biostatistics and health administration from the nearby High Institute of Public Health to review their work and give advice on ways to strengthen the management approaches being used (see example in box on next page).

HIO contracted with an Egyptian software house, DPS, for assistance in preparing a feasibility study on computing. The study was made by a combined team of Egyptian and Swedish computer specialists working together with HIO managers and professional staff members. The study provided a detailed look at the operations of HIO and the management problems then facing the organization. The study concluded that several areas could benefit from computing systems and that many of the manual information systems were sufficiently well-designed that they would lend themselves to computer applications.

The DPS¹ study found that there were several management problems requiring attention where computing systems could contribute effectively to improvements:

- o Too much paperwork had accompanied the growth in numbers of beneficiaries;
- o Cost of medications and prescription drugs needed close control;
- o Increasing abuse of services by non-beneficiaries gaining access; and
- o Registration processes were not accurate or complete.

The study laid-out a number of avenues for computer system development, based on the then-current ideas about data base design and available computer system hardware. The study contained transaction volumes for many of the key medical and administrative information process and basic schema for data base structures for use in the HIO system.

Medical Care Quality Audits

An interesting example of the managers' attention to management information development is the hospital medical quality auditing program used by HIO in Alexandria. This process was started by HIO officials' actively enforcing basic rules about the medical charts. Physicians, nurses, and others were obliged to maintain proper medical records according to the HIO system. The HIO managers, with advice from outside specialists, then established routines for medical records librarians to follow in processing the records. These routines included assignment of proper patient serial numbers, preparation of complete patient discharge summaries, calculation of discharge statistics, and scientific sampling and physician review of charts from discharged patients. There was an effort to make physicians and managers accountable for the quality of medical care. There was also an appreciation for the costs of developing and using such information systems. HIO managers were careful to ensure that costs did not exceed the return from the medical information systems.

¹Data Processing Services (DPS). Feasibility Study for Management Information System in Health Insurance Organization. Cairo: D.P.S., 1978.

The over-all system development proposed in the DPS study proposed seven modules that eventually were linked to form five main groupings:

1. Beneficiary Registration
2. Drug Control
3. Patient Information Tracking
4. Cost Accounting
5. Quality Assessment

The concept was proposed that information control for the insurance aspects of the system needed to come ahead of other systems development. This meant that beneficiary registration records would need to be complete and accurate, with numbers assigned systematically, before other steps were taken.

The DPS results were shared with the World Health Organization Information Systems Program in Geneva and Alexandria. Their review² suggested that the DPS study provided a reasonable basis on which to proceed with development of a system.

The HIO managers then proceeded to advertise an international tender for bids to develop this first component of the system. There was funding internal to HIO to attempt an initial part of the system, and it was believed that the bids could help to clarify the then present cost situation for developing the system. The request for proposals (RFP) issued by HIO during this process was essentially a scaled down version of the several volumes from the DPS study. This process was proceeding when the HIO managers first came to USAID/Cairo for discussions about their participation. The process eventually led to the partnership being developed for developing the system.

The accomplishments of the system development process during the period 1982 to 1988 are discussed in the next chapter. The remainder of this chapter gives some more perspective on the two specific areas proposed in the system: beneficiary registration and drug control.

Beneficiary Registration Process

The beneficiary registration process provides the basic records and admission identification materials for all services of HIO. The HIO programs provide services through employers in the form of group insurance and to individual widows and pensioners. The registration process for employers involves the completion of application forms giving names, addresses, and other information about each new employee. The forms containing this information are sent to the headquarters in Alexandria for processing. Individuals in the widows and pensions can complete

²World Health Organization. Information Systems Program. Analysis of Proposed Information for Health Insurance Organization of Egypt (Alexandria Branch). Geneva: W.H.O., January 1980.

their forms at the headquarters for approval.

Basic registration process. As the individuals are registered, they are assigned to a primary clinic and a book is prepared for their use in taking services. The book contains a picture and serial number. The records for registration under the manual system were recorded in large log books, certifying the admission of the individual to membership. Most of the beneficiaries had always come from the industrial employment part of the HIO program. The decision was taken early in the history of HIO to address industrial hazards and health problems on a scientific basis. The registration process, therefore, includes the scheduling of required periodic medical examination for beneficiaries. Records of physical examinations and other treatment records are analyzed regularly to look for trends in health problems in certain districts or at specific employers.

A continuing problem in the registration system was the difficulty of known who was no longer employed and covered. This led to the possibility that people would not return their registration books after they were no longer eligible for services. Another problem was the great volume of recordkeeping required to keep the system accurate.

Initial computer efforts. At about the time that the decisions were being made to begin bidding to get computing equipment, in about 1980, a contract was prepared to begin storing all beneficiaries' basic information on computer. The contract did not involve buying any equipment but rather focused on getting an outside service bureau to prepare accurate records from the data in the registration books. This contract proved to be a very complex and frustrating endeavor. There were many disputes over the accuracy and speed of the contractor's work. There were many additional disputes over the accuracy and disorganization of the HIO registration records. The process eventually led to a series of steps aimed at correcting errors in the records and proofreading the data entered into the computer. Employers were asked to verify data given in computer printouts from the contractors. This step seemed to be a logical way of resolving the difficulties facing those involved in this effort. In fact, the nearly one million records were very difficult to manage, and employers' involvement in the editing process was only partially successful in resolving these problems.

Ministry of Social Affairs system. An additional complexity for the computer systems faced HIO managers at about this stage. The original health insurance legislation had decreed that the Ministry of Social Affairs would be the primary point of contact for the collection of health insurance and other social security premiums. This meant that the basic records and funds actually flowed from employer to Social Affairs and then eventually to HIO. The HIO had long ago approached its employer members and collected basic beneficiary data from them directly. The waiting for data from Social Affairs' processes would have produced impossibly long delays in processing membership data.

As the coverage in Social Affairs expanded over the years they too

began to worry about coping with paper records for millions of beneficiaries. An extensive network of computer systems was proposed for Social Affairs in the late 1970's and A.I.D. agreed to participate in its funding. In fact, the Social Affairs computer system was under design at the time the DPS and related studies were being prepared. This meant that the HIO could eventually expect to have up to the minute beneficiary registration data from the Social Affairs in machine-readable form. The problem for HIO was in deciding how long to wait for the Social Affairs system to become a reality. The Social Affairs system already had experienced many delays.

Meetings were held by HIO with the Ministry of Social Affairs officials with the participation of the Central Agency for Population Mobilization and Statistics (CAPMAS), which oversees all Egyptian government computer system development. These meetings succeeded in starting a dialogue about such problems as standardized numbering of clients, formatting of clients' names and addresses, and processing schedules for the data going to HIO. But, the dialogue continued for several months and eventually years. Among other things causing problems, the Social Affairs system still had many internal procedures needing to be resolved before definitive specifications could be agreed-on with outside agencies. Furthermore, CAPMAS had long ago proposed that all national identification papers be issued with a standard person number, patterned after that used in Sweden and some other European countries. When and if this number was assigned, its use would probably become mandatory for Ministry of Social Affairs and HIO systems to use as well. HIO managers decided to proceed with their efforts to develop their internal management information system even in the absence of a definitive arrangement for Social Affairs.

The beneficiary registration system developed by HIO in its computer system involved the assignment of a new "temporary" number for identification of beneficiaries. The remainder of the development process for beneficiary registration and problems faced in implementation are discussed below in Chapter 5.

Drug Control Process

The program for health insurance covers the cost of prescription drugs. These medicines amount to about 40% of the budget of HIO. As the program evolved through to the late 1970's, it became clear that this was a very popular feature of the health insurance coverage. A careful arrangement of drug purchasing and inventory control was needed to ensure the availability of drugs. In addition, HIO began making contracts with private pharmacies to fill their prescriptions and bill HIO at agreed prices for the service. Eventually, about 50% of all prescriptions were filled by the outside private pharmacies. The total

annual cost of prescription drugs issued by HIO in 1986-87 grew to LE11,582,729³

The distribution of drugs also was a program that was very much open to abuse. Pharmacists and zone directors were given responsibility early in the development of HIO to supervise the prescribing and distributing of drugs. Pharmacists were asked to maintain records outside the patients' charts which documented the pattern of prescribing by physicians and usage by patients. When patterns of use seemed to show that a given physician or patient might be misusing the drugs, the physician managers were brought into the process to investigate. For instance, a physician who apparently gave the same drug to everybody would stand-out in the pharmacists' spreadsheet records of prescription records. Patients who might be seeking treatment from several doctors, or might, illegally, be carrying more than one membership booklet permitting them to visit additional centers, were monitored. Patients were found from time to time who would collect medicines from the HIO system and turn around to sell them.

It is within this situation of cost and program operations that the decision was taken to include Drug Control as a high priority in the HIO system. Development of the Drug Control application is discussed further in the next chapter.

³Adib T. Komy & Magdy H. Nagy. Development of the Management Information System in Health Insurance Organization (HIO) of Egypt. International Conference on Computing, Cairo, February 1988.

Chapter 5

Health Insurance Project Accomplishments

The Health Insurance Organization participated with USAID/Cairo from 1982 to 1988 in developing the first two applications of a management information system. The background to development of the system was given in Chapter 4. This chapter provides a summary of the accomplishments and problems encountered during the development process.

Consultant's Role

My role in the project involved assisting HIO and A.I.D. officials with preparation of plans and review of progress at each stage of the work from 1982 through the completion of the new system in 1988. My efforts were focused at each stage on identifying problems to be solved, interpreting to HIO officials the A.I.D. and Egyptian rules for managing the project, and, with other A.I.D. and HIO officials, participating in the search for technical and administrative solutions to problems. Further discussion of my over-all role in the project is provided in Chapter 6.

Project Steps

The HIO project had started with a feasibility study prepared at the request of the Organization's managers. The steps which were followed from that point forward were focused on obtaining the services of a contractor firm to bring the system into reality. The managers decided early in the process of preparing the request for proposals (RFP) for A.I.D. funding that they wanted a "turn-key" job. That is, they wanted a single contractor to do as much of the work as possible, rather than parcelling the work out among several separate contractors. This decision placed an additional burden on the contracting process. Much like a one-time rocket trip into space, all the plans had to be completely ready for every part of the work before the contracting process could begin.

The contract was prepared to cover the following areas: technical assistance, technical training, hardware specification, hardware procurement, software specification, software procurement and development, computer site design, hardware installation, software installation, testing of each system, and management training and advice.

In keeping with Egyptian and A.I.D. rules for procurement, the contracting process passed through several steps to ensure that competi-

tive bidding procedures were observed. The brief calendar in Table 5.1, below, gives a summary of the steps and time required for each.

Table 5.1. Steps in HIO Project

Initial Discussions with USAID	Jan. 1982
Begin Development of Request for Technical Proposals	Sept. 1982
Final RFTP Released	March 1984
Contract Awarded	April 1985
HIO Training in the U.S.	April 1985
Software Development Completed in U.S.	Dec. 1985
Hardware Importation and Installation Completed	April 1986
Software Testing Ended	1987

The scope of the work to be included in the project was examined in detail by various A.I.D. offices before going ahead with the work. Several visits were made to HIO by Suzanne Buzzard of the AID/Washington Data Management section to provide advice and guidance. The decision to proceed with the first two applications was made in early 1983. The next step was to prepare the advertisements and bid documents.

The final request for technical proposals was prepared with the assistance of a team from the firm of Birch and Davis, Inc., in the U.S. They were guided in the development of the document by the DPS study report and several preliminary draft RFTP documents prepared by the HIO managers with my assistance. The problems encountered in preparing the RFTP related to the basic nature of a computer contract.

The contract for a computer system is actually a nearly lifetime attachment to the winning contractor. The complexity of the computer system and the difficulty of transferring work from one vendor's machine to another puts the contracting agency in a vulnerable position. It is essential that the RFTP document be prepared to reflect that reality. Nearly all of the negotiating power of the contracting agency is expended up front, at the time the original contract is signed. Thereafter, the arrangements for system maintenance, upgrades, replacements, or additions will likely have to come from the same vendor. In this situation, prices may be dictated to the buyer and the seller make take-on an

almost monopoly position in the transaction. A mistake in the definition of what is needed or in the determination of qualifications for the vendor may have long term consequences that only get worse for the buyer.

The contract-making process took many months and involved extensive discussions with legal and computer specialists. Engineers from the Central Agency for Population Mobilization and Statistics (CAPMAS) in Cairo participated in many of these meetings, and the Director, Dr. Haluda, personally convened several of the discussions.

During the time the contracts were being negotiated, the HIO officials proceeded with the identification and testing of candidates for the computer department. The original schedule for implementing the project was considerably delayed by the drawn-out contracting process. The selection of candidates was slowed by these delays but the candidates were ready when the training program was ready to begin.

The HIO took responsibility for preparing the rooms that would be used for the computer system. The contractor prepared the specifications and layouts for the rooms which were then turned over to local engineering and construction contractors.

Hardware and Software Systems

The system of computers that was requested from the contractor consisted of a minicomputer system at the headquarters and microcomputers at the satellite sites. The prime contractor was responsible for arranging to procure the hardware and have it installed. Although the funds passed from the project directly to the computer company, the prime contractor was responsible for supervising and approving each step in the computer system purchase.

The configuration of computers was intended to permit expandability of the system to include eventually the full range of applications outlined in the DPS study. HIO officials requested USAID participation in purchase of hardware which could be expected to function, with some additions, as the system was expanded. The system was specified by the contractor to permit such flexibility for expansion. The system was being developed at about the time when personal microcomputers were just becoming a sort of commodity item. The IBM personal computer had been available for a few years, and its design was dominating the market for business microcomputers. Many other companies were beginning to make so-called clones which were functionally identical to the original IBM designs. The central computer system, however, was of a size for which several vendors were competing actively with quite different architectures. Three of the largest selling minicomputer firms were among the final bidders in the project: International Business Machines (IBM), Digital Equipment (DEC), and National Cash Register (NCR). The contract negotiations eventually decided on NCR equipment. As was mentioned

above, this meant also that NCR maintenance service, peripheral equipment, and expansion components would also be required over time.

The configuration used in the system is shown in Table 5.2, below. The minicomputers were arranged with two central processors loosely coupled to permit redundancy in case one failed. The main storage is on the disk drives. The personal computers supplied by NCR were a combination of units, the DM-V and the PC-IV. The PC-IV is an IBM compatible unit with greater power than the other units. The selection of these units was made on the basis of their capabilities and their being already Arabized. NCR was producing at the time several other units which had greater power but were not yet Arabized.

Table 5.2. HIO Computer Hardware Configuration

Central Data Base System

2	Central Processor Units (NCR 8555-II)
3	Disk Drives (3.6 Gigabytes of Storage)
2	Tape Drives
2	Band Printers
1	Generator
1	Uninterruptible Power Supply (Battery Back-up)
1	Electric Power Stabilizer
2	Plastic Card Embossers with Computer Controls

Data Entry Systems

101	Personal Microcomputers (63 assigned to satellite sites)
77	NCR DM-V
24	NCR PC-IV
22	Hard Disk Units (21 assigned to satellite sites)
13	Dot Matrix Printers (12 assigned to satellite sites)

Several hardware-related issues were faced by HIO managers in developing the system. The issue of expandability was mentioned already. Additionally, the trends in development of hardware have

produced great increases in computing power at the low end of the market. The microcomputers available at the end of the 6 year project at HIO were highly advanced over those available at the beginning. It is clear that this trend will continue, making it possible that large-scale mainframe equipment will be needed less and less.

Another issue is reliability and security. The purpose of converting the HIO activities to computers was to provide operational efficiencies as the organization grew. The hardware systems must be reliable and available to provide the needed service. Electric power sources in Alexandria have proved to be extremely unreliable. The HIO put its own money into additional electrical equipment to provide backup power for the computer system. Still, there have been great difficulties in keeping the system in operation. The uninterruptible power supply (UPS) unit has been difficult to maintain and to secure spare parts. Security of the system is related to reliability in several ways. HIO purchased an extensive fire protection system for the headquarters center. Security guards and other forms of protection are provided for the system, also. Nonetheless, many potential problems related to reliability and security of the system are continuing to be studied by HIO managers.

A final issue relates to the cost of pursuing the development of highly integrated data structures at HIO. At the core of the HIO computer system is a data base management system. The data base system permits data from many sources to be stored, manipulated, and interrelated. This arrangement permits business and medical personnel to prepare studies and reports. Businesses in all countries are increasingly making use of software packages that do data base management rather than programming their specific applications from the beginning. The packages available, including the one purchased for the HIO system, permit record handling, file maintenance, data dictionary, and other key functions to be done efficiently and more or less automatically. The user organization must take care of defining the contents of the files, the types of reports, and the nature of the processing required. With the help of a relational data base system, it is possible to interrelate client names in one file with their purchases in another file and the names and stock levels of the individual stock items in another file. Larger systems can cope with large numbers of items and relationships. The greater the power of the system, the greater the cost of hardware, including storage devices, and the software systems. The HIO system in its first two applications was planned to ensure a high degree of integration. It is time now to look closely at the actual costs and efficiencies that may be gained from that integration. It may prove to be the case that integrated data can contribute to only a limited set of decisions and transactions in HIO. Other means of handling the data on a more decentralized basis may be more efficient for other situations.

We will turn now for a brief look at the two applications that were developed in the project: beneficiary registration and drug control.

Beneficiary Registration Application

The beneficiary registration application was designed to take the computerized records from HIO's outside contractor and proceed with routine registration of new members. At the time the new application was ready for testing and conversion, the outside contractor's data was still being prepared and cross-checked. Even after considerable delay, there continued to be problems with the computer records of beneficiaries. It was decided to bring the registration process totally back into HIO and to use the new HIO computers to continue searching for errors in the old data while continuing to input new registration data.

One of the key elements in the new computerized registration arrangement was issuance of embossed cards bearing the name and new HIO number for all one million members. The embossing hardware had been purchased under the original contract. The embossers could be attached to the computer to enter data directly from computer files. The size of the task and relatively slow speed of the machines made this an extremely long process. Over many months, the computer and registration staffs at HIO continued to input data, cross-check for errors, assign the new computer generated HIO numbers, and prepare plastic embossed cards.

The total computer records in the system is now about one million with about 25,000 employers represented in the data base. The HIO staff have made great progress in converting the registration system to computers, but obstacles have occurred frequently. While it is known that not all of the beneficiaries are in the computer records, a substantial portion of the records have now been entered and verified. The basic underlying processes are now being reexamined to try to identify ways of speeding the process of enrolling members and maintaining the accuracy of their records. The prospect that HIO will be required to take-on large numbers of additional beneficiaries in the near future makes it essential that the system be operating with greater efficiency.

Drug Control Application

The drug control application was planned as one, integrated network of data covering all aspects of procurement, distribution, prescription writing, and dispensing. The complexity of the task proved to be much greater than most people participating in the project had expected. The control of drug inventories is now a rather routine matter, which can be handled by readily available software packages. The complexity entered the HIO system at several points, as it turns out.

A major obstacle in drug control was the computerization of the previously manual prescription spreadsheets. HIO pharmacists had kept tallies of prescriptions dispensed for many years. Even as the volume of prescriptions grew, the pharmacists seemed to be able to cope with the increases. Under a computerized arrangement, the coding of prescriptions had to precede their entry into the computer. This meant that

each prescription had to be analyzed and a code number assigned for each drug item designating its name, strength, and dosage. The system came into operation at a time of explosive growth in the number of HIO prescriptions. The number in 1980 had been about two million per year. The rate of prescription writing has now reached three million per year for the Northwest Delta Branch.

The progress made thus far has been slow. The software system was prepared and tested on a demonstration basis, but the full load of prescriptions has not yet been input to the system. The coding process has undergone several changes, including a revision of code numbers from long stock numbers of over ten digits to a smaller code with fewer digits. The assignment of people to do the coding has changed also as HIO managers tried to find ways of coping with the volumes of these documents.

Staff and Management

The project provided training and development for all members of the new Information Services Department. The training process included instruction in Egypt for all personnel and additional advanced training in the U.S. for 6 programmers, data base administrator, and 2 systems analysts. There were to be 3 computer operators and 60 data entry operators in the original plans. The experience has shown that computer operators needed to be increased in number. Also, the number of coders was nearly tripled from the original 70 to cope with the volume of data.

The Information Systems Department was established with the start-up of the project. The staff members were given special pay incentives and encouraged to work hard as the system came into being. The level of turnover within the department has been extremely low. This is especially surprising in view of the generally held belief that governmental agencies in Egypt would have grave difficulties in retaining computer specialists. The contractor was instructed from the beginning of the project to encourage staff members to stay, not to hire them away from HIO, and not to provide certificates or other forms of written documentation of their training. Information System Department and Northwest Delta Branch managers have provided strong support in encouraging the staff members to make extra effort and to reward staff members' achievements.

Chapter 6

Structure and Process for Project Consultations

The consultations for these projects were provided under a personal services contract to the Agency for International Development. The consultant provided services in the two projects described in Chapter 1 during planned periodic visits to Alexandria. The work started in July 1982 and continued to June 1988. The scope of work under the contract for consultations is given below in Table 6.1. As is shown in Appendix C, there were a total of 24 visits made to Alexandria over the six-year period. A total of nearly 550 days of professional service were provided under this assignment.

Maternal and Child Health

Consultations to the Maternal and Child Health Project were arranged to allow the consultant to assist in planning each stage of project work with the Project Team. The Project Team consisted of from 5 to 15 Health Ministry staff members assigned to participate in implementation activities. During the extended start-up visit (Visit 2), lasting three months, the consultant provided direction for the Project Team to prepare an initial annual plan of work. After the start-up visit, the succeeding visits were arranged to permit both a review of work accomplished and the extension and revision of plans for upcoming work. Under this structure, the Project Team was able to maintain a continuing process of implementation activity during the time the consultant had returned to the U.S. Project monitoring was available also as needed from the USAID Project Manager, John W. Wiles, in Cairo--a distance of 3 hours by train or car.

Prepaid Health Care

Consultations were provided to the prepaid health care computer project, also, through periodic visits from the U.S. In this case, it was expected that the main features of project implementation would result in the establishment of a trained, permanent information department staff. Unlike the situation in the MCH Project, the plan and expectation was that the project team would survive the end of the project and would not, as is usually the case in development projects, be dissolved once the computer project was completed.

In this case, the consultations were structured to provide extensive discussions with the initial Project design team at HIO. These initial discussions focused on the need for HIO experts to propose

a structure for their project which would satisfy A.I.D. contracting and project management requirements. Through careful monitoring of this process by USAID/Cairo Project Manager John W. Wiles, he was able at various points to identify problems requiring specialist consultations by others.

As the final procurement and contracting process was nearing completion and the selection of implementation contractor was decided, the project moved into the computer system development phase. The consultant again provided assistance to the HIO design team on selection of project management approaches and problem-solving. During the life of the implementation contract, brief periodic visits were made to assess project progress and help identify potential problems facing the HIO. Finally, after completion of the implementation contract, the consultant assisted in discussion with HIO managers and information department staff members to plan a feasibility study for computer system expansion.

Issues

The structure of this consulting assignment was intended to provide participants in the two Alexandria health projects, from 1982 to 1988, a sufficient level of consultation services while avoiding the cost of having an expatriate consultant be resident in Alexandria throughout the project period.

The key issue involved the difficulty of predicting exactly when problems would be facing the project. That is, it was not likely that difficult problems requiring attention of project officials would neatly occur around the time of the consultant's usual quarterly visits. In the end, there were only a few occasions where large problems occurred entirely by surprise during the project. When such problems occurred, the USAID/Cairo Project Manager was willing to step-in and provide advice and support during the consultant's absences from Alexandria. The absences by the consultant had the added benefit of instilling a sense of self-reliance on the project teams in the MCH and HIO activities. Team members took a great deal of individual and group initiative to identify and solve a wide range of unexpected problems during the consultant's planned absences.

**TABLE 6.1. Scope of Work for Project Consultancy
Contract, AID/263-0065-S-2042-00**

The Contractor will:

1. Prepare a detailed implementation plan for the Alexandria Urban Health Delivery System Project;
2. Coordinate and advise on the replication of interventions and other program activities being developed in Cairo under the same projects;
3. Develop a system of management and administration for the Project;
4. Identify in-country training requirements, resources available and required (both teaching and facilities); and develop a detailed training schedule for the Project;
5. Identify out-of-country training needs; recommend training locations; and develop a schedule for this type of training;
6. Identify other consultant requirements (Egyptian and other) for the Project; recommend timing of these resources; and prepare draft scopes of work for the specialties recommended;
7. Develop a system of evaluation and follow-up for all phases of the Project, including training, interventions, and health information.

Chapter 7

Project Impacts and Lessons Learned

This brief chapter summarizes and extends some of the discussion in the earlier chapters concerning the impacts and lessons of the project. The chapter is divided into four parts: construction, service improvement, computer systems, and general project management.

1. Construction

A. The construction program for MCH centers was almost entirely involved in renovations rather than new construction. Renovations are extremely difficult to plan and control due to the possibility of surprises from previously undetected structural or mechanical problems. The project successfully completed the renovations in all centers without great difficulties. The greatest sources of delay in the work came from legal and administrative interference in the process of doing the work. The number of local government agencies that are play a role in regulating construction activities proved to be very large. A lesson from the experience in Alexandria would be to carefully identify but not necessarily contact all agencies that are likely to have regulatory or approval powers over a project before beginning. The list of agencies should then be discussed with local experts to get their advise on strategies for coping with their procedures.

B. MCH services were upgraded through construction because people were not coming to the centers in their present conditions. The brief time since the project was completed has already demonstrated a sizable increase in attendance at the centers. It remains for the future to determine the longer-term effects of the improvements, but the near-term effects are very positive.

2. Service Improvements

A. The technical assistance and training provided in the MCH project was developed as a demonstration process. By showing and doing the various types of studies and service upgrading procedures, it was possible to encourage MCH managers and staff members to learn how to solve problems. The staff members were quite active in proceeding with their own problem-solving activities based on the techniques which were taught in my sessions.

B. The project team concept worked very well. This permitted the project to operate with a small, active core of people who come from

the affected services. By permitting the team to divide their time between the project and their home clinics, the project got the benefit of their day-to-day problems in trying to find solutions to service delivery and equipment problems in centers.

3. Computer Systems

A. There is a clear danger in developing any complex system that it will become impossible to manage and maintain. The HIO system is just now beginning to meet the project production targets and its capacity to expand and take additional workload is unknown as yet. The HIO system appears to have the capability of serving the HIO well in its present two applications. Before further applications are developed, however, it seems wise to consider just how much additional complexity and integration of data structures is going to be essential.

B. Staff turn-over was feared in the computer system from the earliest discussions between HIO and A.I.D. officials. The procedures used by HIO managers have been successful thus far in resolving the problems and demonstrating that turn-over need not be high in a governmental agency's computer service.

4. Project Management

A. Host country contracting was used for all purchases of goods and services in these projects. The process was slow and frustrating for all who participated in the development or management of the contracts. On the positive side, the host country system permits very close involvement by host country personnel in the operation of the project, giving them an opportunity to understand better how and why decisions are made.

B. Turnover of project directors was heavy in both projects relative to the time involved. The effects of the turnover were to stop all work and in many cases require much work to be repeated. The changing of project directors is a problem which demands a solution if efficient work is to be done in large, complex projects.

C. The two projects reported here were extensions and expansions of projects previously approved for implementation in Cairo. As such, they did not go through the entire long process of project design that would normally have applied. The rapid and less detailed project designs developed for these two projects served the projects well in terms of arranging for needed funding, supporting contractors, and technical supervision. The many delays in the work of both projects, as reported throughout this reports and in Table 7.1, below, might have been predicted to some degree if additional studies had been made. The chief benefactor of such warning about delays would have been the A.I.D. officials who are responsible for programming and managing the funds for the projects. The delays caused extremely large build-ups in the

pipeline of funds which was frustrating and troublesome for the officials involved.

Table 7.1. Time Schedules of MCH and HIO Projects

Time Schedules (Mo)	<u>MCH Project</u>		<u>HIO Project</u>	
	Planned	Actual	Planned	Actual
Problem Analysis	3	3	3	12
Engineering Design	3	12	3	12
Site Renovations	12	24	3	9
Training	(3)	(12)	(3)	(12)
Equipment Import/Install	3	3	3	6
Conversion and Use	<u>3</u>	<u>3</u>	<u>9</u>	<u>15</u>
Totals	24	72	24	72

Appendix A

Names of Project Participants

Urban Health Delivery Systems Project, Cairo (1978 to 1988)

Project Executive Director

Nabahat Fouad, MD (1978 to 1985)

Hassan el Deeb, MD, PhD, Undersecretary of State (1985 to 1988)

Maternal and Child Health Project, Alexandria (1981 to 1988)

Undersecretary of State, Health, Alexandria

M. Said Tawfik, MD (1981 to 1987)

Hassan el Ghawaby, MD, MPH (1987 to 1988)

Director General for Preventive Medicine, Alexandria

Samia Riyadh, MD, MPH (1981 to 1985)

Abd el Hamid Sakr, MD (1985 to 1986)

Moustafa Abbas, MD (1986 to 1988)

Mahmoud Omar, MD (1988)

Director of Maternal and Child Health Services, Alexandria

Hassan Rashid (1981 to 1985)

Abd el Hamid Sakr, MD (1985 to 1986)

Moustafa Abbas, MD (1986 to 1988)

Hoda Azziz, MD (1988)

Maternal and Child Health Project Director, Alexandria

Nawal Kassem, MD (1981 to 1983)

Hassan Rashid, MD (1983 to 1985)

Abd el Hamid Sakr, MD (1985 to 1986)

Moustafa Abbas, MD (1986 to 1988)

Hoda Azziz, MD (1988)

Senior Project Technical Consultant, Alexandria

Fawzi R. Gadallah, MD, Dr.P.H. (1982 to 1984)

Ibrahim M. Shoaib, MD, MPH (1984 to 1988)

USAID/Cairo Consultant Advisor

Robert C. Emrey (1982 to 1988)

Project Technical Team, Alexandria

Moustafa Heba, BSE (1982 to 1988)

Nadia Kishk, MD (1982 to 1988)

Hoda Salim, MD (1982 to 1988)

Laurice Iskander, MD, MPH (1982 to 1988)

Nurse Magda (1982 to 1988)
Nurse Nagda (1982 to 1986)

Contractor Organizations

Misr Contracting and Engineering Company, Cairo
Demerdash Construction Company
Alexandria Construction Company

Prepaid Medical Care Information System Project, Alexandria
(1982 to 1988)

Northwest Delta Branch Manager, Alexandria

Mohamed Ibrahim Shehata, MD (1982 to 1984)
M. Saad Abul Maaty, MD (1984 to 1985)
Abdel Mohsen el Hakim, MD (1985 to 1988)

Information System Project Director, Alexandria

Mohamed Ibrahim Shehata, MD (1982 to 1985)
Samir Diaey, MD (1985 to 1988)

Information Systems Department Director, Alexandria

Adib Tawfik Komy, MD (1985 to 1988)

Senior Project Technical Consultant, Alexandria

Magdy H. Nagy, PhD (1985 to 1988)

Contractor Organizations

Birch and Davis Associates, Inc.
Price Waterhouse
Price Waterhouse-Khattab
Sakrco

U.S. Agency for International Development, Cairo

Office of Health Director

William Oldham, MD, MPH (1980-86)
James E. Sarn, MD, MPH (1987-88)

Office of Health Project Manager

Emily Leonard (1980-82)
John W. Wiles (1982-88)

Alexandria USAID Coordination Office Manager

Nawal el Abd (1980-88)

Alexandria USAID Coordination Office Administrative Assistant

Gehan Saleh (1980-88)

Appendix B

Project Paper Amendment for Alexandria Sub-Projects (Amendment Number 2, June 1981)

IV. Alexandria Urban Health Sub-Project

The project purpose clearly includes the idea of ultimate expansion and replication in Cairo and other urban areas. No particular areas or phasing were established and no funding specifically provided in the Grant. This part of the project amendment would provide for expansion to the Alexandria metropolitan area at an estimated cost of \$3.14 million.

Alexandria, with a population of approximately 3 million people, has indicated a strong desire to become part of the Urban Health Project in order to upgrade its MOH health services. As in Cairo, the MOH system directly serves the lowest income segment of the population. The MOH primary and secondary delivery system there consists of:

- 1 large modern polyclinic
- 3 General Urban Health Centers (eventually 10)
- 11 MCH Clinics
- 18 School Health Bureaus
- 2 Rural Health Centers
- 15 Rural Health Units (eventually 20)
- 2 T. B. referral clinics
- 4 Health Bureaus
- 8 Specialized referral clinics

It is not necessary to duplicate the Urban Health Project staff and technical assistance de novo for Alexandria nor has the GOE requested such an individually tailored program. The approach currently being used in the two districts of Cairo (North and East Cairo) which were added to the original three project districts under the accelerated projects mission activity is more appropriate. Under this approach, MCH clinic renovation will be conducted using the functional programming guidelines already established and equipment repair, replacement and additions will follow the project equipment protocols wherever possible by simply increasing the number of items in each category of procurement where the standard inventories show a need. No special waivers are foreseen. No new construction is included beyond minor additions which enhance the MCH renovations. Educational materials and printed matter from the central project will be printed in sufficient volume to cover Alexandria also. Replication of specific interventions which prove successful in two pilot centers in Cairo will be replicated by the Ministry of Health with possibly outside technical assistance.

As a condition precedent for expenditures on renovations in Alexandria, the Undersecretary for Health of the Alexandria Governorate will establish a coordination office consisting of the following full-time personnel.

Director, Alexandria sub-project
 Procurement counterpart
 Intervention counterpart
 Accountant

and such clerks and support personnel which are considered necessary. Upon approval of the appointments by the Executive Director, UHDSP and A.I.D., the condition shall be considered fulfilled.

Insofar as possible, the current and future contracting for A & E work, equipment surveys, and technical assistance will be amended to include Alexandria to avoid increasing the multi-contract management burden of the MOH. It is anticipated that this will speed up the renovation phase to overlap with the Cairo work so procurement can be done in bulk without the Alexandria equipment sitting in storage for a long period.

V. Innovative Activities and Technology Transfer

The urban health delivery systems which serve Egypt's urban poor include numerous service providers which are licensed by the MOH or the MOH and Ministry of Social Affairs but which are independently or privately run. The existence of such centers or systems relieves the MOH system of pressure for services in particular areas. In the absence of such institutions the Ministry would have to lease or construct more buildings and pay more staff; a difficult addition to an already financially strained system.

Most of the changes the Urban Health Project is trying to bring about in the MOH centers are equally useful for non-MOH centers. Their need for health education and family planning materials and training how to use them is as great as that of the public system. Conversely, A.I.D. is familiar with several private and semi-private organizations which are approaching problems common to private and public delivers in innovative ways. Greater flexibility is provided by supporting and documenting their efforts for potential replication in the MOH system than to set up new "intervention" tests in the main pilot centers. In particular, innovative approaches in delivery and financing of health care being developed in the private and semi-private sectors (e.g., health insurance) appear to offer attractive alternatives in the delivery of health care to urban populations.

This part of the amendment would provide \$2.5 million to be used to support improvements in the urban health delivery system as a whole, including entities outside the formal MOH system, through the study,

support, and replication of activities which have shown promise for improving accessibility and quality of services for the poor.

Examples of potential uses: Development of a health and management information system in the Health Insurance Organization that would make possible expansion of insurance coverage to dependents of insured urban workers; linkage of pharmacists with centers for referrals; diayah training and participation; volunteer home visitor programs; youth involvement in family planning and health education activities; improved cross referral system (i.e. to social affairs, to community leaders); supervision of housekeeping staff; patient returned records; workshops, seminars, and publicity.

These are examples of activities for which A.I.D. has already been approached for funding or advice and are only illustrative. Since it is expected that the Health Insurance Organization will request around \$1.5 million of the \$2.5 million requested for innovative activities, a brief description of this activity is attached as Annex 5 for information purposes. This annex also includes reports concerning the HIO by Dr. Carl Stevens. The HIO will be required to submit a proposal as described below.

Proposed activities will be identified by either the MOH or other entities. Proposals will be submitted to the Executive Director, UHDS, for screening. The proposals will be required to be in the format used for PVO activities with the level of detail dependent on the size of the subgrant and the complexity of the activity. The proposal will have to clearly spell out how the activity will contribute to improving the accessibility and quality of services to the poor. In cases where the request is simply for materials developed by the project, the proposal can be briefer, focusing on the beneficiaries and the institutional capacity to utilize the materials. Because these requirements may prove difficult for many small groups, the project will hire a part-time coordinator as needed to help translate proposals into the AID PVO format. When the proposals are sufficiently developed and carefully costed, the Executive Director will submit them to A.I.D. for approval. If approved, they will be authorized as a sub-project activity through Project Implementation Letters.

A special unit will be set up in the UHDS headquarters to deal with the flow of vouchers and advances for these sub-projects and the Alexandria sub-project. The unit will be headed by a contract Egyptian accountant assisted by one clerk/typist funded with AID funds. The unit will be responsible for reviewing the monthly expenditure reports for each sub-project, verifying the totals and the presentation, estimating the advance requirements with the sub-project directors, and working with the subgrantees to resolve any problems. The accountant will deal directly with the AID Controller's Office in straightening out problems and will act as an information point for commodity and services procurement according to AID guidelines. This unit will submit all documents to AID through the Executive Director.

Appendix C

Report of the Special Project Evaluation

The following are excerpts from the Special Evaluation for the Urban Health Delivery Systems Project conducted in 1982. These are the sections which pertained to the work in Alexandria:

8.3 Alexandria MOH Activities and Inputs

MOH activities under the project in Alexandria should:

- o Be carried out under local direction and with local control of MOH incentive funds assigned to that part of the project.
- o Include (additional?) service improvement efforts, without awaiting Cairo UHDP progress. The director and staff of the Alexandria UHDP should develop a proposal to do this, for potential additional funding under the "innovative" activities project funds.
- o Continue to build on the ongoing training efforts of the Alexandria governorate MOH and to introduce new methods of training.
- o Have support from the UHDP Cairo staff, as needed and on request.
- o Have the full time services of fully qualified personnel for the four positions and support personnel which the MOH is committed to supply under the grant agreement. MOH should recertify this before AID releases funds for renovation contracts.
- o Develop and use basic project planning, tracking, and management tools (flow charts of critical events and their timing; periodic formal reviews of project status and of individual staff and work group performance; etc.). This could be done by Robert Emrey under his personal services contract, with assistance from the expatriate planner suggested to work for 3 to 6 months on the same tasks in Cairo and possibly with services within the Alexandria project of an Egyptian who could perform some of the functions performed by Gazebeiah under ECTOR's MOH contract.

8.3.1 Alexandria MOH Renovation and Equipment of 11 MCH Centers

Health facility renovations in Alexandria should take full advantage of the project's experiences in renovations in Cairo, in order to avoid, as possible, the legal, contractual, and procedural problems encountered and expected in Cairo, specifically:

- o Do not hire a consultant to supervise the A&E contractor.
- o Do create a new (intermediate level) position to give the Alexandria UHDP director necessary non-technical administrative support and monitoring for construction and renovation aspects of the project.
- o Do involve MCH center personnel in functional planning for renovations.
- o Do use USAID engineers to monitor progress and provide other engineering assistance on this component.
- o Do have permissions lined up from private owners before renovations begin.
- o Do not move clinic staff into temporary facilities until renovations are actually ready to begin (i.e., permissions obtained; contractors mobilized; etc.)
- o Do closely coordinate equipment needs with UHDP Cairo staff.
- o Do prepare justifications, schedules, utilization and maintenance plans, and administrative control procedures for vehicles required for the MCH clinics.

8.3.2 Alexandria MOH Service Improvement, Training, & T.A.

Keep the size of the Alexandria UHDP staff small. Emphasize use of present MOH officials and staff and of their knowledge and experience, within their present regular MOH positions, in developing and implementing the project's training and service improvement activities.

Project planning staff should exercise flexibility in determining which services and activities will be given priority in service improvements, in order to maximize health benefits of the services (e.g., in determining implementation priorities and schedules during and after renovations, and in adding or replacing activities in the light of added knowledge and experience later in the project)

Develop a plan and a definite schedule for activities to be carried out by health facility staffs while the facilities are being renovated (perhaps emphasizing outreach and community orientation activities, and introducing the priority activities to be carried out later in and through the renovated facilities).

8.4 Alexandria HIO Inputs and Activities (Computer and Information System Equipment, and Related Training and Technical Assistance)

Plans for the Alexandria HIO portion of the UHDP should include adequate provision for:

- o Ongoing analysis by HIO of their information needs and of HIO capacity to interpret and use the information system's outputs, with feedback into the system to add, delete, or modify content, procedures, and outputs.
- o Incentives adequate to permit development (or recruitment) and retention of personnel with adequate computer and information systems skills.

SOURCE: Eugene R. Boostrom, John W. Wiles, Robert Rucker, Robert Cook, & Nawal el Messiri Nadim. Report on the Special Evaluation of the MOH Urban Health Delivery Systems Project (UHDP), August 18 to September 24, 1982. Cairo: USAID/Cairo, October 1982, pp. 31-33.

Appendix D

**Schedule of Trip Visits for Technical Assistance
under Personal Services Contract, 1982 to 1988**

<u>Trip</u>	<u>Level of Effort</u>
Year 1	159 days
1. Work in Egypt under other Contract	
2. July 28 to October 14, 1982	
3. November 25 to December 23, 1982	
4. February 7 to March 26, 1983 (Trip January 29 to March 26, 1983)	
5. May 14 to June 9, 1983	
Year 2	108
6. August 12 to September 9, 1983	
7. November 20 to December 16, 1983	
8. February 27 to March 7, 1984 (Trip: January 27 to March 7, 1984)	
9. April 30 to May 30, 1984	
10. June 11 to 25, 1984	
Year 3	118
11. July 31 to September 15, 1984	
12. November 26 to December 19, 1984	
13. February 2 to March 15, 1985	
14. April 8 to 26, 1985	
Year 4	76
15. July 12 to August 7, 1985	
16. September 9 to 30, 1985	
17. November 17 to December 10, 1985	
18. March 15 to 20, 1986 (Trip: February 4 to March 20, 1986)	
19. May 18 to 30, 1986	
Year 5	25
20. August 3 to 14, 1986	
21. November 26 to December 3, 1986	
Year 6	51
22. August 5 to 23, 1987	
23. January 6 to 24, 1988	
24. May 20 to June 10, 1988	
<hr style="width: 20%; margin: 0 auto;"/> TOTAL	537 days

Appendix E

List of Documents

1. Project Design and Evaluation Documents

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