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FINAL EVALUATION OF THE U.S. - EGYPT COOPERATIVE HEALTH PROGRAM

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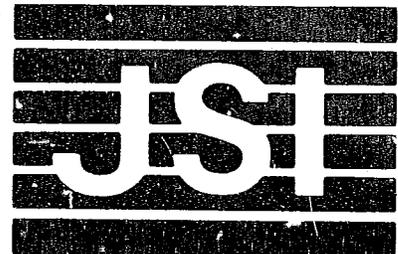


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ACRONYMS AND ABBREVIATIONS

ALL	Acute lymphocytic leukemia
ARI	Acute respiratory infection
BP	Blood Pressure
CDC	Centers for Disease Control and Prevention (U.S.) Communicable Disease Control (Egypt MOH)
CHP	Cooperative Health Project
CSP	Child Survival Project
DDM	Data for Decision Making
DHHS	Department of Health and Human Services
ENSTINET	Egyptian National Scientific and Technological Information Network
FDA	U.S. Food and Drug Administration
FETP	Field Epidemiology Training Program
GMP	Good Manufacturing Practices
GOE	Government of Egypt
HIS	Health Information System
LE	Egyptian pounds
LOP	Life of Project
MOH	Ministry of Health
MSU	Management Support Unit
NAMRU-3	U.S. Naval Medical Research Unit Number 3
NCI	National Cancer Institute (U.S. or Egypt)
NHLBI	National Heart, Lung and Blood Institute
NIH	National Institutes of Health, USPHS
NLM	U.S. National Library of Medicine
NODCAR	National Organization for Drug Control and Research (MOH)
OIH	Office of International Health, USPHS
PACD	Project Activity Completion Date
PASA	Participating Agencies Service Agreement
PC	Personal computer
PCR	Polymerase chain reaction
PHS	U.S. Public Health Service
PI	Principal investigator
PO	Project Officer (= USPO)
PP	Project Paper

RF	Rheumatic fever
RHD	Rheumatic heart disease
RVF	Rife Valley fever
STD	Sexually transmitted disease(s)
SOP	Standard Operating Procedure(s)
SOW	Scope of Work
TA	Technical assistance
TAG	Technical Advisory Group
USAID	U.S. Agency for International Development
USPHS	U.S. Public Health Service
USPO	U.S. project officer (= PO)
VACSERA	Organization for Biological Products and Vaccines, MOH, GOE

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1. Executive Summary

The Evaluation Team finds that collaboration among USAID, the U.S. Public Health Service and the Egyptian Ministry of Health (MOH) within the Cooperative Health Program has generally been quite successful. Collaboration between investigators from the U.S. and Egypt has been promoted, and significant research results have been generated that could improve health in Egypt. The PASA mechanism provides suitable access for the Ministry of Health and USAID, through the Office of International Health (OIH), to all agencies of the U.S. Public Health Service.

Much of the CHP involved technical assistance from collaborators and consultants from the United States. The TA provided has been of very high quality often involving the very best in the fields of interest. Capacity has been improved in the institutions of the Egyptian investigators. Laboratories and offices in the MOH and universities have been upgraded through equipment purchases. Several can now serve as reference laboratories in Egypt and for the region: for example, the MOH Central Laboratory can carry out independent analyses of toxic contaminants in food. At Ain Shams University the Medical Genetics Center and Arbovirus laboratory can serve as regional reference research centers.

Most groups received computers along with some training of personnel in data management. The ability to store and manipulate project data, do word processing for reports and manuscripts, and maintain financial and personnel records, provided a strong incentive for familiarity with the computers and was a great boost for all PIs. Procurement of computers has enhanced activities such as tracking systems for vaccine production at VACSERA, expanded services of the Pharmaco Information Center, and enabled model programs to improve the National Health Statistics System. In the service- and production- oriented projects, protocols and SOPs were standardized among collaborating institutions, and were brought up to internationally accepted norms.

Several groups (arbovirus, filariasis, hypertension, diabetes, injury) gained the capacity to evaluate potential public health problems through prevalence surveys in the community. In general, however, the duration of the program was too short to demonstrate a widespread increase in capacity to plan studies independently and to interpret and analyze results as a direct result of the CHP.

Although gains were achieved, as described, sustainability of the project activities is difficult to address in a program of 3 years duration that was not designed with sustainability as one of the objectives. Several investigators have expressed apprehension that the equipment and expertise gained may not be usefully employed in the near future. Nevertheless, some projects, such as the

Pharmaco Information system and Medical Equipment Repair, did make important advances toward long-term self-sufficiency.

The CHP was not designed as a traditional development program. Capacity for self-reliance, planning, analysis, and translation of findings to policy were not well addressed in this program. The participating USPHS agencies have primarily domestic mandates, and the U.S. POs know their technical subjects but are not experts in international development work. Efforts to develop institutional capacity were implicit as a part of technical assistance rather than development support per se. Nevertheless, all projects strengthened ties between Egyptian and U.S. professionals, and also among Egyptian scientists and administrators.

The CHP consisted of 17 diverse projects without any common theme. The range of concerns was extremely broad and the program lacked coherence. Some projects were oriented toward generation of data, some toward institutional capacity building, and others for laboratory or field investigations. Project investigators and U.S. project officers worked independently with insufficient knowledge of other program components. The Ministry of Health was not closely involved in some projects, and the impact of the CHP on the health of the Egyptian people was correspondingly diluted and diffused.

The MOH appeared to lack a sense of ownership of research findings, particularly when the studies were conducted by groups outside the Ministry. Although the MOH was involved in the early development and project selection for the CHP, the continued commitment of MOH personnel was variable. The essential, but missing link in the process was the translation of the findings of the projects into policy recommendations. Overall, the CHP had little impact on policy decisions by the MOH.

Groups that conducted epidemiologic and prevalence studies must develop the capacity to interpret and package the results of studies in a form that would help policy makers to take action. Inattention to this point may represent a deficiency in CHP training or technical assistance to epidemiological researchers.

Future collaborative efforts should ensure that the MOH is involved at all stages of the collaborative effort, thereby increasing the likelihood that project findings would be accepted and translated into policy decisions. The MOH must specify its research needs and identify areas in which the lack of information on which to base its program decisions. In the CHP information was collected primarily at the initiative of project investigators. The CHP program has in large part generated data without a consumer.

In future projects, technical assistance from PHS agencies would be more

appropriate if better targeted to specific issues clearly defined by USAID and the MOH.

Cost-effectiveness studies were not incorporated in the original design of the CHP, so it is difficult to determine whether the CHP has provided a positive return on the investment. No program is cost-effective if its findings are not disseminated and utilized. Where existing or potential health problems have been pointed out in CHP projects, an attempt should be made to estimate the extent of the epidemiologic and economic threat to the Egyptian people, and to determine whether a policy-based response is needed.

An in-country Management Support Unit (MSU) was established fairly late in the project at the insistence of USAID; its presence relieved the management burden on the Mission. The MSU provided oversight of logistic and administrative details and administered the local budget in Egyptian pounds. The unit reported to USAID and OIH, facilitated communication between U.S. and Egyptian investigators, and interfaced with officials of the MOH. The in-country MSU was considered critical to the success of the program.

Above and beyond the specific, project-level TA provided, the CHP suffered from lack of a similar level of overall technical oversight. OIH considered that the U.S. project officers provided this oversight independently while deeply involved in the projects themselves. No continuing Technical Support Unit was established, and the Technical Advisory Group consisted only of the mid-term evaluation team. In future programs technical oversight should be provided on a sustained basis to meet the laboratory, epidemiological, and data management needs of all projects.

The most pervasive problem for investigators and for the Management Support Unit was the issue of procurement. Complex procedures and lengthy delays in obtaining commodities and equipment plagued many projects and were responsible for delays in their progress. All parties agreed that the procurement system in place was inefficient and did not serve the needs of the projects.

Responsibility for Program management rested with the OIH. A coordinator is assigned to each participating federal agency: FDA, NIH, and CDC. The OIH performed well in managing, at a distance, a complex set of projects and people. The in-country MSU was crucial to the success of the program. The Evaluation Team felt that the USAID and the OIH were not in complete harmony regarding a shared vision about the essential nature of the program. OIH was not as responsive to the needs of the Mission as it might have been. On the other hand, the project has been relatively undermanaged by USAID. No linkages were made with associated USAID initiatives such as Child Survival or Data for Decision Making. In future collaborations between the OIH and USAID the terms of reference and expectations of each party should be clearly spelled out so that both agencies have a common understanding.

2. Listing of major findings, conclusions and recommendations

The Evaluation Team finds that collaboration among USAID, the U.S. Public Health Service and the Egyptian MOH within the Cooperative Health Program has been very successful. The PASA mechanism provides suitable access for the MOH and USAID, through OIH, to all agencies of the U.S. Public Health Service. However, some stresses were detected in relations between USAID and the OIH, owing in part to the lack of a shared vision about the essential nature of the program. OIH was not as responsive to the needs of the Mission as it might have been. On the other hand, the project has been undermanaged by USAID. Liaison between the OIH and USAID was relatively slack; for example, neither party knew which documents were kept by the other.

Recommendation: *In future collaborations between these two agencies the terms of reference and expectations of each should be clearly spelled out so that both sides have a common understanding and well-defined working relationship before an agreement is signed.*

While we were unable to reconstruct the way in which projects became included in the program, it was evident that the existing portfolio of projects had no common purpose or direction. The range of concern of the various projects was too broad and the Cooperative Health Program lacked coherence. Project investigators worked independently with insufficient knowledge of, or interest in, other program components.

Recommendation: *In future collaboration of this type a formal Project Paper should be prepared¹. USAID, OIH, and the MOH should link program components more closely to current MOH and USAID strategies and goals. The overall program should address the immediate needs of the Egyptian health care system, but should also identify emerging health issues important to the health of the Egyptian people. Future projects should be evaluated by a uniform, rigorous binational review process to avoid the inclusion of activities with shaky hypotheses or unrealistic objectives. Nevertheless, there should be room for innovative ideas and smaller, time-limited exploratory or feasibility studies on conditions of potential but undefined public health significance, innovative methods for community-based research or intervention, or similar subjects.*

The Ministry of Health was not intimately involved with some projects, and the impact of the CHP on the health of the Egyptian people was correspondingly

¹One team member disagreed with this sentence.

diluted and diffused. The absence of involvement of policy makers throughout all stages of a project impedes the utilization of project findings in MOH programs and policies.

Recommendation: *Programs should include a plan for close collaboration between project investigators and the MOH officials responsible for related programs and policies. Field surveys and prevalence studies of potentially important health problems should involve MOH policy makers from the beginning. In general, projects should be designed to facilitate the incorporation of their findings into MOH programs and policies.*

Egyptian investigators uniformly commended the technical assistance provided by U.S. Project Officers and their staffs. However, the POs worked independently on project-level problems and attention to general issues of developing capacity for self-reliance, planning, analysis, and translation of findings to policy were not well addressed. The U.S. POs know their technical subjects but some were not as experienced in international development work. The two parties to the PASA, USAID and OIH, did not provide sufficient guidance in this area.

Recommendation: *In future programs technical assistance should be clearly planned, targeted, and coordinated, with an ultimate goal of developing the capabilities of local individuals and institutions to carry on similar activities independently.*

The Management Support Unit, with an interested and capable full-time resident manager having close ties to the OIH and to the individual projects, was critical to the success of the CHP. However, as all of the projects contained a great deal of technical assistance, the Team felt the lack of a technical support unit to help facilitate and monitor the technical progress of the studies. Such a continuing presence in-country could be integrated with a technical advisory group (TAG) of knowledgeable and disinterested experts that would meet periodically to review the progress of the projects, with special attention to design and protocols, achievability of objectives, and quality of data and conclusions. The TAG could also provide back-up to the resident technical support unit.

Recommendation²: *Future programs that have a substantial amount of technical assistance should consider the establishment of an in-country technical support unit and a technical advisory group to facilitate, troubleshoot, monitor, and generally assist in assuring the quality and applicability of project findings. Consideration should be given to support of*

²One team member disagreed with the last sentence of this recommendation.

core facilities common to several projects, for example for statistical consultation and services, specific laboratory procedures, or for sharing of costly equipment.

The Evaluation Team feels that it is counter-productive to launch projects that require substantial procurement of equipment on a time frame that is too short for them to achieve their goals. The CHP was originally designed as a five-year program, which was soon changed to three years. For complex projects, three years is insufficient. In the case of the CHP the available time was further reduced by the advent of the Gulf War at the beginning of 1991. Although the PACD was postponed by a few months, some projects were not completed satisfactorily.

Recommendation: *Program duration should be made clear to all investigators and participants, and mileposts should be incorporated into each project proposal. Management and technical support groups should assist project staffs in staying on schedule. Projects should be allowed sufficient time to accomplish their goals.*

The most pervasive problem for investigators and for the Management Support Unit was the issue of procurement. Many projects in which commodities and equipment must be acquired cited delays in procurement of equipment and supplies as a key obstacle to completing their objectives. In some cases items were still on order during the Summation Conference in February, 1994.

Recommendation: *Future programs must be designed to overcome excessive delay in receiving equipment and supplies ordered from the United States. As the primary implementing agency, the OIH should assume responsibility for procurement, either by designating a procurement officer or contracting with a procurement agency; and coordinate closely with the in-country Management and Technical Support Units.*

In some projects, Project Officers (in the U.S.) or Principal Investigators (in Egypt) were senior officials with numerous other responsibilities. Consequently, these individuals could not devote sufficient time to the day-to-day work of the project.

Recommendation: *To maintain the momentum of the work, and to help develop the technical and management skills of mid-level and junior staff, we recommend that such individuals be identified and given more responsibility in the operation of project activities.*

The most important product of research projects is the knowledge and information that they have generated. In the CHP, several projects conducted national or international symposia and conferences, published journal articles, pamphlets or books, and sent investigators to participate in scientific meetings and conferences.

Such dissemination of information increases the value of the investment in the program, contributes to capacity building of local institutions, and is beneficial for the health of the Egyptian people and of mankind in general.

Recommendation: *Projects should have a plan for the dissemination of information in the form of publications, workshops, seminars, government briefings or other mechanisms to share the program's knowledge, its products and their application to the Egyptian health and health management problems.*

Considerable efforts and resources have been devoted to the projects of the CHP just ended. A substantial amount of physical and functional capacity has been built up in academic centers and MOH laboratories. Several investigators have expressed frustration about the termination of their projects, and apprehension that the equipment and expertise gained may not be usefully employed in the near future.

Recommendation: *The USAID and MOH should give priority, when appropriate, to utilizing laboratory and service capacities that have been strengthened through the CHP. For example, individuals or teams trained in community-based or household surveys of hypertension, diabetes, or infectious diseases could be employed with minimal retraining in child survival, maternal and child health or related projects in the future.*

Some projects have been in progress for many years, sometimes for decades. Such projects can develop a life of their own, in directions that are not necessarily in harmony with MOH policies and procedures. They may also be duplicative of other efforts and may not use resources to maximal efficiency.

Recommendation: *In future programs, funded projects should be integrated and coordinated so that the MOH can use their findings directly for planning, evaluation, surveillance, research, training, and communication.*

3. Main Report

Background and Overview

Collaboration in biomedical work between the United States and Egypt has been in progress for more than four decades. The Naval Medical Research Unit Number 3, established in 1952, has a distinguished history of research and service, primarily in infectious diseases. The PL 480 program supported many projects, including collaborative work in health, until the program ended about 1982. Subsequently, the first Participating Agencies Service Agreement (PASA) was arranged between the USAID and the U.S. Public Health Service, through the Office of International Health (OIH), which has international research authority for the PHS. That "interim" PASA remained in effect between 1985 and 1990.

The Cooperative Health Program has functioned under the current PASA. The originally planned life of project was from 1 December 1990 to 30 November 1993, with an initial obligation of U.S.\$5 million and LE 6 million and a obligation for LOP of U.S.\$7,399,999/LE 8,700,000. In addition the Government of Egypt was to contribute approximately LE 700,000 annually for the three years of the program. Owing to delays in implementation of the project because of the Gulf War in early 1991, the PACD was extended until 31 March, 1994.

Of the seventeen projects in the CHP, three have been in existence since the days of the PL 480 program. These are: 05 (Genetics), 08 (Lymphoma and Leukemia) and 15 (Statistics). Four were continued from the interim PASA: 04 (ARI vaccines), 07 (Equipment repair), 10 (Pharmaco information center); and 13 (Food safety). Project 17 (Injury) is continued in altered form from an interim PASA project in emergency medical services. The remainder of the projects are new with the current PASA, although some had earlier antecedents. For example, project 03 deals with urban filariasis but a previous USAID-supported project had dealt with rural filariasis. A complete list of projects, with brief history and list of major participants, is presented in the Appendix.

The stated purpose of the 1990-94 PASA was to establish an institutional relationship to ensure the availability of timely, qualified technical support to assist the MOH and the CHP in various research activities in Egypt. The stated purposes of the CHP were to improve the capacity of Egyptian and American institutions to provide improved health services, and to develop the biomedical research capabilities of existing medical research institutions to conduct operational, action-oriented research. The objectives were established to achieve the project purpose:

1. Enhance the scientific research capabilities in Egypt to uncover and address major health problems in collaboration with U.S. experts;
2. Collaborate with the MOH in studies and data collection necessary for the development of standards of service quality, facility staffing and equipment;
3. Establish a coordinated system of collaborative research within the MOH that facilitates the application of research knowledge at the service delivery level;
4. Establish institutional linkages between the U.S. and Egypt, sharing of information and research materials, utilization of technical assistance and consultants, conferences and training.

Under the terms of the PASA, the PHS would provide technical and administrative services in support of the CHP. Specific PHS input would be in the areas of project management and administration; development and implementation of collaborative research; training and institutional strengthening; procurement of equipment and supplies; and other support services such as identification of possible U.S. collaborators in U.S. institutions or universities.

The following pages present the Team's observations and conclusions concerning a series of "cross-cutting" issues common to all projects.

1. Capacity Building

A. Physical: equipment, commodities, refurbishing

Most projects have procured a substantial amount of supplies and equipment. The Egyptian Pound (LE) budget administered by the MSU included more than LE 2,800,000 for supplies and LE 1,700,000 for equipment. Some projects received little more than material support: for example, the STD project (E-14C), consisted essentially of the upgrading of a reference laboratory. In general, the upgrading of facilities improved the quality of the work conducted. However, the procurement process was so prolonged that some investigators have received important equipment only recently, and some still have items on order as the program comes to a close. Delays in receiving equipment were cited repeatedly as a major frustration of the Egyptian investigators. Another recurrent problem was difficulty in obtaining necessary reagents for performing some of the tests.

Both MOH and University laboratories have been upgraded through equipment purchases so that several laboratories can now serve as reference laboratories. For example, the MOH Central Laboratory can carry out independent analyses of toxic contaminants in food. Some laboratories, such as the Ain Shams Genetics Center, can serve as regional reference research centers.

Besides their laboratory apparatus, many investigators received computers along with some training of personnel in data management. The ability to store and process project data, in addition to word processing for reports and manuscripts, and maintenance of financial and personnel records, provided a strong incentive for familiarity with the computers and was a great boost for all PIs. Procurement of computers has enhanced activities such as tracking systems for vaccine production at VACSERA, expanded services of the Pharmaco Information Center, and enabled model programs to improve the National Health Statistics System. To further facilitate communications between the U.S. and Egyptian collaborators, fax machines were provided to most of the projects and were used extensively.

Two problems remain: 1) Several laboratories were upgraded but because of the brevity of the program they have not had the opportunity to establish a record of achievement and attract further funding; 2) no specific plans are in place for maintenance of the sophisticated equipment purchased through the program, to prevent its falling into disrepair.

B. Procedural: protocols, SOPs, methods

In those projects oriented toward production, protocols and Standard Operating Procedures (SOPs) were standardized in accordance with internationally accepted norms. VACSERA received FDA SOPs to improve vaccine production. The FDA prepared and transferred to Egypt extensive lists of SOPs and Good Manufacturing Practices (GMPs) for pharmaceutical production to upgrade a number of companies scheduled for privatization. In research-oriented projects such as rheumatic fever, arboviruses, and filariasis, laboratory diagnostic procedures based on immunologic or molecular procedures were introduced. Monoclonal antibodies, PCR, and hybridization probes were adapted to local use by Egyptian PIs in collaboration with their U.S. counterparts.

Many Egyptian investigators were pleased that epidemiologic research methodologies had been introduced to units that had not previously employed them. The hypertension project personnel (E-06-N) were impressed with the change in orientation of their research interests away from pure clinical research on hypertension and its cardiovascular complications. They gained the capacity to evaluate hypertension as a public health problem by carrying out a survey on the prevalence of hypertension and its complications in a limited adult population. In the diabetes project, confidence gained in a preliminary study has stimulated the research group to plan a nationwide survey to be conducted in the future. In general, however, the time was too short to demonstrate a generalized and widespread increase in capacity to plan studies independently and to interpret and analyze results as a direct result of the CHP.

A number of projects have relied on analyses carried out in U.S. reference laboratories, and on the regular visits of U.S. consultants for troubleshooting.

C. Conceptual: planning, interpreting, analyzing; new ways of thinking; ownership of concepts

Capacity for self-reliance, planning, analysis, and translation of findings to policy were not well addressed by this project. Although nominally under the flag of USAID, the CHP was not designed as a conventional development program. The implementing agencies of the USPHS operate under a domestic mandate, and the U.S. POs, while in firm command of their technical specialties, have for the most part little expertise in international development work. Such efforts as were made to develop institutional capacity were more implicit within overall TA rather than explicitly provided as development support. For several of the projects, as for example in pharmaceutical and vaccine production, specialized technical assistance was specifically called for, with capacity building focused on quality control. Other, more epidemiologically oriented projects required the capacity to plan and conduct community-based surveys. The policy implications inherent in such studies place different demands on the investigators and dictate a pattern of technical assistance that is more integrative and developmental in nature.

The Injury control project on first glance appears to have been driven by the U.S. Project Officers, as the majority of data analysis was conducted at CDC. However, eight Egyptian investigators traveled to Atlanta in May, 1993, to participate directly in this work. The Egyptian investigators have subsequently developed a surveillance line listing form for national reporting of injuries, prepared as a local initiative without CDC assistance. The Egyptian Injury Control Division intends to start a national surveillance system, demonstrating successful transfer of this important methodology.

One notable project for capacity building is the cancer project. Some earlier data had been collected on cancer treatment, but no analysis had taken place and the cancer unit did not know

success and failure rates of treatment. They had no way to evaluate current performance or how changing therapy would affect treatment outcome. The U.S. PO worked successfully with the cancer unit on data management and adherence to protocols. This was done in the context of the CHP project and has led to a fundamental change in the functioning of the cancer unit.

D. Collaborative: relationships within the institution and with other institutions.

Through the CHP every project has strengthened ties with U.S. collaborators and/or been introduced to new investigators in the United States.

The CHP did foster collaborations between U.S. Public Health Institutions and some academic centers and the Egyptian MOH and Universities. Professional relationships have been established or enhanced that will endure beyond the the end of this USAID funded project. Several Egyptian groups, notably the Hypertension project, have established ties with regional and international networks of their peers. A benefit of having many of the best in their fields as a source of TA is the opening of doors for Egyptian investigators to present their findings at international meetings. Moreover, the consultants providing TA helped in keeping their Egyptian counterparts informed of the recent technical development in their fields.

Not less significant is the development of an ongoing network with other individuals and institutions in the government and academic sectors within Egypt. Some projects, such as Arboviruses, ARI vaccines, and hypertension, facilitated collaboration between the Egyptian MOH and Universities. Nevertheless, several CHP projects pursuing similar goals or activities could have taken advantage of information, expertise or operational opportunities generated by other CHP projects. A general lack of collaboration was found among projects that appear to have natural overlap; e.g. diabetes and genetics, hypertension and genetics, cancer and genetics, and various projects with health information systems. The absence of a coordinating body contributed to this lack.

External to the CHP but within the USAID portfolio, various projects could have engaged in collaborative activities with the child survival and cost recovery projects. Similarly, the

Field Epidemiology Training Program (FETP) of the CDC could have been better integrated into relevant projects.

2. Health applications, impact, policy changes, dissemination

The practice of public health is an ongoing dynamic in which preventive and curative health services are balanced against the burden of illness or potential illness in the population. To perform its functions, the MOH must have information on which to base policies and actions. This information must be accurate, timely, and representative of the total population, or of the particular segment at risk. The production of relevant information, its transfer, analysis, and conversion into action are all parts of a continuous bidirectional process that binds the MOH closely to the population that it serves.

The rationale behind many of the research projects was to generate information on health problems in a form useful for making national-level program and policy decisions. For this purpose, appropriate data must be collected, processed, and interpreted to aid its translation into policy by the MOH.

Several projects have dealt with evaluating health problems in the community. There are inborn or acquired noninfectious chronic conditions, possibly latent but with potentially serious and costly consequences. Some of these have been considered in the Genetics, Hypertension, Cancer, and Diabetes projects. There are infections such as filariasis, arboviral, bacterial (respiratory and rheumatic) or sexually transmitted diseases, studied in those special projects. In each case, information has been gathered on occurrence by time and place, patient characteristics, and environmental factors, and an attempt has been made to evaluate the magnitude of the problem and to suggest some means to reduce illnesses and deaths. In the case of foodborne illness, both chronic and acute conditions have been highlighted. Injury is a pervasive hazard that may occur to any person at any time. All of these projects have dealt with the public side of the balance.

Other projects have focused on the information needs of health providers. These have dealt with improvements in the flow of knowledge, either on a global scale (Health Information) or in a narrower field (Pharmaco Information); with conduits for population-based data (Statistics); or with the development of a responsive stance by the MOH (Egyptian CDC).

So that relations between researchers and MOH officials function effectively, the research institutions, whether university or MOH, must have well trained staff and a supportive environment with suitable field and laboratory facilities. The MOH must have receptive officials who understand both the research process and the nuances and implications of policy-making.

The CHP represented an attempt to address both sides of this process. Its major contribution has been to strengthen the capacity of units in both the public and academic sectors to perform specific functions, and to utilize this capacity by undertaking real, population-based investigations. Research skills and capabilities were supported through the provision of material and technical assistance. Proficiency in epidemiology and the ascertainment of disease burden were the foci of the hypertension, diabetes, arbovirus, injury, STD and filariasis projects. Improved laboratory capabilities were the foci of the rheumatic heart disease, ARI vaccine, food quality, arbovirus and filariasis projects.

Other projects were oriented toward developing the capacity to apply research results without continued external assistance. For example, the creation of a national library capability would provide access to the world's medical literature; and a national health information system would improve decision-making and policy formulation by regional and national health authorities. Feasibility studies for an Egyptian CDC were similarly directed toward disease control by assessing needs and capabilities in human and physical resources.

The equipment maintenance project helped to develop local capacity to repair hospital equipment, reduce down-time and maintenance costs, and ensure the availability of equipment for patient care.

The vaccine development project aimed to upgrade vaccine production capabilities, increase the supply and reduce the cost of vaccines, and assure the provision of appropriate serotypes in ARI vaccines.

During the brief three year course of the CHP, valuable work was carried out in most of the areas mentioned above. The essential, but missing link in the process was the translation of the findings of the projects into policy recommendations. It is the feeling of the evaluation Team that there can be little impact on policy decisions in a three-year program. Work must continue on assembling a scientifically sound data base, as well as on developing the capacity to interpret and package the results of studies in a form that would help policy makers to take action. In addition, there is a need to strengthen policy-making capacity at the central level.

The evaluation Team noted that the MOH appeared to show less sense of ownership of research findings when the studies were conducted by groups outside the Ministry. Although the MOH was involved in the early development and project selection for the CHP, the continued commitment of MOH personnel was variable. Future collaborative efforts should ensure that the MOH is involved at all stages of the collaborative effort, thereby increasing the likelihood that project findings would be accepted and translated into policy decisions.

Potential impact on the health of the Egyptian population

The epidemiologically oriented projects and the infrastructural development projects have the greatest potential impact on the health of the Egyptian population. Theoretically the estimation of disease burden and the identification of high risk populations should facilitate targeted measures for prevention and control. For example, the finding that injuries are responsible for 20% of childhood mortality should lead to further studies to identify risk factors and plan appropriate measures to reduce morbidity and mortality due to injuries among Egyptian children. Similarly, the discovery that 26% of the adult population meet the criteria for hypertension should lead to the design of a hypertension control program. Once again, the

duration of the CHP did not permit such outcomes.

The arbovirus project improved the laboratory capabilities for identification of various viruses, including Rift Valley Fever (RVF). Although it was not planned for that function, the arbovirus project could have had greater potential impact if it had included a surveillance system to detect RVF activity, which is expected to become significant during the 1994 summer season. Despite the upgrading of its facilities through CHP, the arbovirus laboratory has not achieved the status of a national reference laboratory (although we were told that the group might become a WHO Collaborating Center in the near future). Therefore in the event of an RVF (or other arbovirus) epidemic this year, NAMRU-3 would continue to function as the primary arbovirus reference laboratory for the country as it has in the past.

The urban filariasis project has suggested the possibility of urban transmission of bancroftian filariasis, implying the need for follow-up by authorities within the greater Cairo area.

To assure that the MOH has timely and accurate information for its decision-making and policy-setting, capacities must be in place to assure the flow of relevant population-based health information from the periphery to the center, obtained from a) routine collection of vital and health statistics; b) ongoing surveillance for specified diseases and conditions; or c) specific surveys. The MOH, for its part, must be prepared to receive and evaluate this information and to mount appropriate responses ranging from immediate to long-term activities depending on the nature of the hazard. The time has arrived to deal with the health system as a whole, to identify and reinforce areas of relative weakness, and to assure insofar as possible that the health of the Egyptian people is protected and promoted. A CDC-like structure within the MOH appears appropriate for this function.

The rheumatic heart disease project would have contributed to policy and program recommendations if it had included a study on prevalence of RHD among school aged children to evaluate the effects of the ready availability of antibiotics during the past 25 years.

The food quality project identified high levels of lead in the environment and in certain

canned and fresh foods. The next step would be to determine blood lead levels in the population arising from dietary intake of lead. Such documentation should lead to policy recommendations to reduce the amount of lead in foods.

Converting findings into policy decisions at various levels in Egypt

The CHP has included various projects to generate data bases to evaluate certain disease burdens and problems. Some epidemiologic projects, such as diabetes, have been carried out by MOH personnel. In others, the university sector has conducted the research without active collaboration of the MOH. The general lack of involvement of MOH policy makers has been identified as a problem in the CHP. At the time of writing this report, none of the findings from CHP projects has been translated into MOH program recommendations or policy decisions. Although there may not have been sufficient time for such changes, the lack of utilization of information by the MOH may represent a weak link in the design and implementation of the CHP projects. The translation of research findings into policy decisions is the focus of the USAID Data for Decision Making (DDM) program.

When the outcome of epidemiologic studies is known, researchers should be recommending specific additional studies, if needed, or policy or program changes implied by the results of the studies. It may be that research findings are not suitably packaged for presentation to MOH program directors and policy makers, which may represent a weak point in CHP training or technical assistance to epidemiological researchers.

Program design and project selection in view of potential influence on policy changes

Of all CHP projects, those dealing with basic medical research were the most difficult to translate into policy changes. For example, the monoclonal antibody study to identify children at risk of rheumatic heart disease has few clear policy implications until the methodology is

applied in the field. A screening test to identify those children at high risk of RHD is very appealing. Nevertheless a study should be made to compare the cost of screening test with the cost of prophylactic antibiotic therapy of all cases of exudative pharyngitis.

3. Sustainability; continued needs in materials and training

Sustainability of the project activities is difficult to address in such a brief program that was not designed with sustainability as one of the objectives. In some cases, the time frame of three years was not long enough to train project staff in new techniques and procedures and to get equipment procured and set up.

Some projects, such as Genetics, Cancer, and Statistics, have been continuing since the days of PL480. In other cases, collaboration began at the start of the CHP in 1990. Most of the projects new to this PASA are just beginning to produce data. New laboratory capacities have been built but there was not enough time remaining in the PASA to institutionalize that capacity. Without continued support either from the MOH or from donors, several of these capacities will have been only fleeting opportunities.

A small number of projects achieved sustainability, or at least reached a natural hand-off point to the MOH. These projects were all funded under the previous PASA or PL480 funds. The Pharmaco Information Center successfully met its objective of achieving financial sustainability; the next two years of expenses are pre-paid by subscribers to the information systems. There is also good response to their training courses in counterfeit and substandard drug detection for which they are also charging fees. The retention of user fees requires a change in legislation which was still pending when the Team departed Egypt. U.S. POs for the arbovirus project have been working with WHO to make Ain Shams a Collaborating Center for arbovirus work. This seems likely to happen and will allow the activities started under the project to continue. The CHP helped build the capacity to test for the presence of arboviruses and this laboratory will potentially be used as a regional resource.

The most notable of the projects in terms of income generation was the equipment repair project. The equipment repair project achieved some success by changing legislation in the Giza Governorate to allow them to retain fees and pay incentives to their workers. In this way technicians and engineers remain in the public sector and do not leave for higher paying employment in the private sector or abroad. Retention of trained engineers is a serious problem in Egypt as many go and work in other Middle Eastern countries where the pay is higher. The equipment maintenance project appears to be successful in its area of operation (Giza). Given the demonstrated early successes of this project, support should be given to the expansion of this project into other Governorates of Egypt, but additional legislation will be required for such expansion.

One of the great successes of the Program was the collaborative relationships that were set up between Egyptian and U.S. investigators. The CHP effectively brought together Egyptian and U.S. investigators with shared interests in settings where both groups could benefit from the collaborations. In many cases these relationships will continue after the end of the CHP. Most, or perhaps all, of the Egyptian PIs desire to continue the activities included under the CHP. Some U.S. POs are seeking other sources of funding to cover the basic costs of continued collaboration. Egyptian investigators had many doors opened to them through the contacts of the U.S. POs. Professional contacts, collaborators and network links among individuals and institutions are likely to continue in the foreseeable future.

The OIH and the U.S. POs could have been more proactive in identifying funding and training resources to the Egyptian investigators. Few of the projects had plans to identify the financial resources necessary to continue the work. Many Egyptian PIs were unaware of the donor agencies and foundations the Team mentioned to them as possible funding sources. Most U.S. and Egyptian investigators seem to assume that future funding would come from USAID and it was not until very late in the project that they were convinced that funding for the projects was really going to end in March, 1994.

For a few of the projects major activities were carried out in the U.S.. Because of the

short duration of the program, time was not taken in many cases to do problem-solving in country. While this approach is expedient in producing data, it may not be the best way to build analytic capacity in Egypt. This approach builds a reliance on outside entities for planning and for analyzing data. Some laboratory projects relied on U.S. laboratories for a check on the quality control of the lab rather than building a reliance on local or regional resources.

The MOH must develop confidence in the quality of data generated by Egyptian investigators. The greater the reliance on outside sources for quality control of data the greater the reluctance of the MOH to accept data from solely Egyptian resources. One hopes for a time when a collaborative sentinel surveillance system is established so that the Ain Shams group could give the MOH an advance notice of a Rift Valley Fever outbreak and be the primary laboratory used for case confirmation. This could move the MOH away from a reliance on CDC and NAMRU-3.

Sustainability also speaks to the training of a cadre of junior investigators who will serve as replacements for the more senior investigators. Several of the Egyptian projects were run by senior staff with little junior staff involvement in planning and direction. U.S. POs recognized this problem in several cases but felt they could only make suggestions that often were not followed. Future projects should require the naming of a junior investigator along with a senior investigator.

It seems clear that without salary incentives many of the trained staff will not continue to work on the projects they have been trained for. There was a problem in retaining trained staff during the project that will only be increased with the ending of the CHP.

Several projects identified maintenance of equipment as a need for the future. Some of the projects did try to provide basic training in equipment upkeep and repair. Some acquired maintenance contracts, but these are costly and most projects will be unable to continue them without external funding. Because of procurement problems some equipment was just delivered and continuing TA for repair will not be available after March, 1994. New

capabilities will be lost as equipment breaks down and is not repaired. The equipment repair project could be used to fill in some of these gaps.

Many of the projects have logical identifiable future activities. In the epidemiological studies, an expansion from descriptive epidemiology to the implementation of national surveillance systems (injury, STDs, Hypertension) or sentinel surveillance systems (arboviruses, urban filariasis) appears logical. Other projects, such as rheumatic fever/rheumatic heart disease, can reasonably ascertain the prevalence of these conditions among school children. Likewise, the focus of projects should be shifted from description to intervention. For example, the hypertension project plans a larger survey of hypertension. While this could be useful for targeting interventions at high risk groups, determining successful interventions would assist policy makers more directly. The survey was necessary to establish the extent of the problem, but efforts should then move to a higher level. Another example is the cancer project which led to improvements in the treatment of childhood leukemia and lymphoma with a reduction in both morbidity and mortality. A suggested area for policy-linked research is an economic study aimed at cost-benefit and cost-effectiveness of the interventions.

Several projects have generated data potentially useful to other USAID and MOH programs and strategies. The CHP did not emphasize the provision of TA that would have helped projects to focus on these directions and to package their results in ways useful to policy makers.

Work should continue on improving local vaccine production as it may be more cost-effective to produce rather than to import vaccines. In addition, better competence in vaccine production is beneficial to the nation and could lead to the export of vaccines from Egypt to other countries in the region.

4. Cost-Effectiveness

Cost-effectiveness studies were not incorporated in the original design of the CHP, and the evaluation Team claims no special expertise or skill in medical economics. Nevertheless, a cross-cutting issue for the program and for all CHP projects is: will this activity lead to more cost-effective delivery of health care in Egypt?

Among the projects, the clearest example of direct cost savings is the Medical Equipment Repair and Maintenance project. Substantial savings have already been demonstrated when expensive apparatus such as isolettes for premature infants, laboratory equipment, or patient monitors is repaired in the project workshop far more inexpensively than could be done in the private sector. The Medical Equipment Repair and Maintenance project has been reported to have a positive cash flow so that it can be self-sustaining, with additional savings to the MOH budget. A second example of a self-sustaining project is Pharmaco Information, which has obtained permission to collect fees from users of its services and now operates with subscriptions from a number of pharmaceutical companies that cover certain costs of operation on a long-term basis.

The prevention of illnesses is a goal of many projects. Cost savings may be both direct, as in avoidance of expenditures for drugs and medical care for illnesses averted; or indirect, for example in the value of the patient's time lost from school or work, lost or reduced productivity, the mother's time to care for a sick child, transportation to a clinic, and other opportunity costs. The total costs of illness are difficult to calculate, and corresponding savings from preventive activities projected into the future are only rough estimates, even from professional health economists.

Primary prevention is a goal of several projects, most specifically those dealing with vaccines, and the Injury project. Efforts to improve production capability for vaccines aim to increase the volume and quality of domestically produced vaccines, which might lead to an immediate cost saving for Egypt depending on the price of vaccines in the international

market. An additional advantage is the capacity building and self-reliance gained in the transfer of the relevant technology. The Childhood Respiratory Disease vaccine project, while engaged in upstream research, could have a more distant payoff in reduced incidence of those illnesses. Savings from injury prevention are self-evident. Another aspect of primary prevention is Food Safety, in which a dangerously high degree of lead contamination has been documented in certain food samples. In a further example, the role of education in preventing Sexually Transmitted Diseases was the original theme of one project, whose objectives were changed after the death of the original Project Officer. Although no progress was made in the education work, the concept remains valid.

The Genetic Counseling and Genetic Disease Resources project is involved in analyzing risk factors to forecast the occurrence of genetic disease. Using "preventive genetics" the investigators can counsel prospective parents about the likelihood of a costly hereditary disease in their children, and methods to avoid an adverse outcome.

Regarding vector-borne diseases, the Filariasis and Arbovirus projects have attempted to evaluate risks from those agents in specific settings. While far more data is needed in both cases, that type of study can help to estimate the cost-benefit and cost-effectiveness of vector control activities, and could alert the health services to anticipated outbreaks.

Secondary prevention, or the avoidance of severe illness in those already affected, is featured in several projects. For example, The use of monoclonal antibodies to identify risk factors for Rheumatic Heart Disease is directed at finding those children at highest risk, and possibly providing them with antibiotic prophylaxis. The Hypertension and Diabetes projects are clearly aimed at uncovering individuals with silent or preclinical conditions, so that they might receive counseling, or perhaps specific treatment, to reduce existing risk factors for more serious and costly sequelae.

The main accomplishment of these projects is to focus attention on specific health conditions and provide authorities with an estimate of their magnitude. Many other conditions deserve similar surveillance or population-based survey information. The MOH must obtain

such data either from its own regular monitoring activities or from especially commissioned surveys to be carried out by its personnel or by other institutions such as universities. The CHP has facilitated such surveys by providing several groups in Egypt with relevant training, computers, and diagnostic equipment.

The aspect of the CHP most closely associated with treatment is the Lymphoma and Leukemia project. As therapy for these conditions is extremely expensive at best, an economic analysis must be made of the relative benefits of providing in-country treatment versus the decision to send patients abroad.

The Cooperative Health Program will not be cost-effective unless its findings are put to effective use wherever applicable. This does not mean that the outcome of every CHP project suggests an urgent need for new programs of prevention and control. It does mean that for each disease and condition studied, an attempt should be made to estimate the extent of the epidemiologic and economic threat to the Egyptian people, and to determine whether a policy-based response is needed. For example, in the case of urban filariasis it may be found less expensive to carry out passive case detection and physician education than to mount a community-wide control program; prevention of rheumatic fever may be best done by prompt antibiotic treatment of pharyngitis rather than by searching for genetic predisposition; the costly consequences of hypertension or diabetes may justify a public awareness campaign; and so forth. In each case the alternative courses of action should be systematically defined and considered so that the MOH has a clear indication of the costs and benefits of each. A beneficial impact on the cost of illness in Egypt will be realized only if the economic return from prevention or control activities is found to exceed that from doing nothing. Where a positive cost-benefit relation is found (as in the case of immunization) the GOE will save money by taking the appropriate action. If these analyses are not done, most of the time and resources invested in the CHP will have been wasted.

5. Technical Assistance

A very large proportion of the CHP consisted of technical assistance in the form of collaborators and consultants from the United States who came to Egypt to provide technical advice to the Egyptian investigators. The technical assistance accessed through the Public Health Service has been of very high quality often involving the very best in the field.

A printout was available showing planned Year 3 program-related travel from the U.S. to Egypt between 1 December 1992 and 1 March 1994. The plan shows 161 trips for a total of 1,776 days, or an average of 104 days per continuing project (including the MSU, and counting the drug and vaccine parts of Project 11 separately). The average number of days per trip was 11.03 (range, 4 to 30). Subtracting 2 days for estimated travel time, there was roughly nine days in country per trip. Neglecting the 17 trips to the MSU, there were 144 trips to 15 active projects, for an average of 9.6 trips to each. The number of TA visits was not evenly distributed among active projects, ranging from four to 18. It is not clear whether travel to attend the Summation Conference in February 1994 is included in these totals.

This rough breakdown of TA time does not include telephone calls, correspondence, faxes, or exchange of specimens and materials, and does not include TA given to Egyptian PIs or trainees in the United States. There is no record of informal TA from other U.S. colleagues and collaborators who did not travel to Egypt. Travel by U.S. POs was by necessity planned for when the U.S. investigators were available and did not always coincide with when the Egyptian project side needed, or was ready for the TA. This issue is integral to using PHS personnel for TA because they all have full time responsibilities with their agencies.

CHP was more a project of technical assistance and less a project of development. In future projects, utilization of TA from the PHS would be more appropriate in supplying specific assistance when the broader issue has been defined by USAID and the MOH. A prime example is with vaccine production at VACSERA. Vaccine supply in Egypt is a serious issue for the MOH. Just improving the GMP at VACSERA will not necessarily result in a better

vaccines in the needed quantities. USAID, WHO and UNICEF have articulated the need for a vaccine supply strategy. If the MOH approves an assessment can be done of VACSERA to identify not only the technical production and facility needs but also their management and regulatory problems. Under an overall strategy the FDA could be a valuable collaborator in specific defined topics.

U.S. collaborators often served as problem solvers for the projects and that capacity was not clearly built up through the TA. Again this is the nature of the technical assistance that can be accessed through the PHS. CDC, NIH and the FDA are not development agencies and most U.S. collaborators did not have the available time to help the Egyptian PIs and personnel to further develop their analytic capacities. The design of the project and the capabilities of the Egyptian investigators would be better indicators of the kind of TA that is needed by a project.

Nevertheless, the majority of Team members felt that the TA provided was generally appropriate despite the heavy focus on U.S. visitors to Egypt in contrast to Egyptian nationals visiting the U.S. institutions. Clearly, the studies were conducted in Egypt and it was reasonable to provide TA on site. Especially for field-based projects, the U.S. laboratory and research environment is not necessarily the most appropriate training ground. TA provided in-country must confront and overcome local constraints. In contrast, it is sometimes appropriate for Egyptian staff to attend training courses in the U.S., and a number of junior staff from the Arbovirus project did so. Eight senior and junior investigators from the injury project participated in data analysis at the CDC in Atlanta. It is also reasonable for senior Egyptian investigators to attend professional meetings and conferences that serve the added purpose of expanding the contacts and networking opportunities. The great majority of the 87 trips of Egyptians to the United States were in this category.

Every Egyptian PI whom we interviewed spoke highly of the TA received. Technical assistance was consistently available and was appropriate to the purposes and needs of the project. Many of the PIs had developed a close personal relationship with the U.S. Project Officer, which in many cases has continued from previous projects and extended for a period

of years.

A key question regarding TA is whether the technical advisor has contributed actively to capacity building in the host institution by transmitting rationales, values, and concepts that lead to thorough understanding and a true transfer of abilities. The intellectual, rather than procedural, content of TA concerns transmission of the ability to plan, interpret and analyze, and to incorporate new ways of thinking into work tasks without the need for ongoing specific assistance. The goal of such a technical advisor is to make his or her function redundant. Alternatively, an advisor may act merely as a repository of technical knowledge or enforcer of unexplained and therefore seemingly arbitrary standards or techniques.

The teaching element within TA is difficult to measure but is a critical part of capacity building, supporting true development and national self-reliance. It is difficult for the evaluation Team to gauge this aspect of the TA provided in the CHP. We were informed that many individuals from the PHS had received an area briefing before departure for Egypt.

Above and beyond the specific TA provided, the CHP suffered for lack of appropriate technical oversight of the projects. As mentioned in the following section, a prominent scientist had been identified to serve as a technical advisor to the whole CHP, but that the Ambassador vetoed his long-term residence in Cairo for reasons of security. Consequently, U.S. investigators were charged with providing this oversight even though they were deeply involved in the projects themselves. The high visibility and professional stature of many of the U.S. POs may have contributed to the difficulties experienced by OIH in providing technical oversight to the PASA. The PHS agencies, however, felt that OIH administrative structure could have provided more support to their TA efforts.

During the course of the CHP, skills of many levels of personnel employed within the health sector were upgraded through training conducted in-country as part of the projects. For example, the hypertension project trained physicians and nurses in blood pressure monitoring techniques. It also trained physicians in EKG, echocardiography, and diagnosis of peripheral vascular disease. Health care personnel in the diabetes project were similarly trained in the

diagnosis of complications of diabetes, especially retinopathy and peripheral vascular disease..

6. Program management

Management of 17 projects involving three USPHS agencies and several Egyptian universities and units of the MOH was not an easy task. The process of management evolved over the 3-year project into a system that would relieve USAID of direct oversight of project details and that would be reasonable for OIH to manage at a distance. The original design of the project created many management difficulties within the program as the amount of administrative support necessary to maintain 17 projects was overwhelming.

The Gulf War occurred during the startup of the program and delayed the implementation of projects that were already lacking sufficient time to accomplish their objectives. The original PACD of December 31, 1993 was extended to March 30, 1994 because of this delay, and a considerable amount of time was spent during the remainder of the project to make up for the lost time.

A Program Joint Steering Committee was called for in the PASA as the program's main policy entity with responsibility for joint monitoring and program development. The Committee was to be composed of representatives of MOH/GOE, HHS, and USAID, and utilize the advice of expert consultants as necessary. Several meetings of the Steering Committee have been held. The first met in Cairo at the beginning of the program to select among the proposals and finalize the content of the program. Another Steering Committee meeting was co-chaired by M. Ragheb Dawidar, then Minister of Health, and James O. Mason, then U. S. Assistant Secretary for Health, on Dec. 1-2, 1992. The resulting document emphasized the areas of prevention, health management and administration, and policy development as subjects for future collaboration.

Responsibility for Program management rests with the OIH. A coordinator is assigned to each participating federal agency: FDA, NIH, and CDC. An in-country Management Support

Unit (MSU) was established fairly late in the project at the insistence of USAID; its presence relieved the management burden on the Mission. The MSU helped to oversee logistic and administrative details and to administer the disbursement of the local budget of 8,700,000 Egyptian pounds, equivalent to approximately U.S.\$2.6 million. The unit was also responsible for reporting to USAID and OIH, facilitating communication between U.S. and Egyptian investigators, and interfacing with officials of the MOH. The Head of the MSU reported excellent interactions and near-daily communications with both the USAID Mission and the Undersecretary for Research of the MOH. The MSU also facilitated interactions among projects through periodic meetings on management and administrative issues, and through a workshop to assist Egyptian investigators in proposal development. The head of the MSU was praised by investigators from Egypt and the U.S. for his initiative, diligence, and interest in keeping all projects on track. The in-country MSU was critical to the functioning of the entire CHP.

The MSU in Cairo was intended as a collaborative effort to include administrative personnel and an executive secretary, with a counterpart from the MOH. Project No. 18, the PHS Management Support Services Project, has continued successfully throughout the CHP, with one full-time director and a secretary. Project No. 19, the Ministry of Health Management Control Project, was to include financial and administrative sections in office space adjacent to the PHS Management Unit, but resource limitations within the MOH prevented its establishment and it was merged during the first project year with the PHS Management Unit. No technical expert was included in this project. A representative was assigned by the MOH for day-to-day interaction with the MSU, which provided a focus for relations with the Ministry. This representative was particularly helpful in dealing with the GOE contribution of LE funds, used for salary incentives in all individual projects. Nevertheless, there was little involvement with the operation of the projects. The lack of an Egyptian counterpart was considered to be a loss to the program. As a result there was no natural advocate within the MOH to support the translation of research results into policy.

Instead, this responsibility landed on high-ranking MOH officials who already had many activities competing for their attention.

Liaison by the MSU with individual project Principal Investigators was carried out through frequent communications and personal visits. Several meetings were held with all Egyptian PIs, at which administrative matters were discussed, such as procedures for procurement and financial reporting. Financial reports were received monthly from each PI, entered on an MSU computer, and the printout returned to the PI for checking before forwarding to the OIH.

The most perplexing problem for the head of the MSU and for program management in general was the issue of procurement. Complex procedures and lengthy delays in obtaining commodities and equipment plagued many projects and were responsible for delays in the progress of the projects. The NIH system had such difficulty in handling the procurement needs of its affiliated projects that some projects were still receiving equipment during the Summation Conference one month before the revised PACD. Some U.S. POs were frustrated enough to say that they would not be involved with future projects of this type because they could not spare the time needed to follow up on procurement. In hindsight, OIH agrees that it would have been better to have all procurement centralized through OIH.

Despite the headaches with procurement, most U.S. POs were satisfied with the level of support provided by OIH. Those who had previous USAID experience seemed more sanguine about the reporting requirements. Many U.S. POs appeared to lack a sense of what was required of them, other than periodic reporting. Some had replaced the original designers of their projects, but were given little orientation to the program and their place in it. Many POs felt that OIH could have given them better information about the work of other projects, and several stated that the Summation Conference in February 1994 was the first time that they had a sense of being part of a larger effort. Some organized orientation, or even an annual meeting of those involved in the program would have been helpful for the POs to better understand

their roles.

In general the Team believes that OIH performed well in managing a very complex set of projects and people. The in-country MSU lessened the administrative load and USAID and was crucial to the success of the program. OIH was not as responsive to the needs of the Mission as it might have been, owing in part to the lack of a shared vision about the essential nature of the program. In addition, changes in personnel at the USAID, although unavoidable, impaired the continuity of program leadership. In future collaborations between the OIH and USAID the terms of reference and expectations of each party should be clearly spelled out so that both sides have a common understanding before an agreement is signed. A more traditional project design is indicated, with a detailed and mutually agreed description that delineates specific objectives and a process for achieving them.

Technical Oversight

The seventeen projects in the CHP have extremely diverse objectives, protocols, and methodologies. Nevertheless, the whole program might have been better served by having a technical unit in country in addition to the management unit. A technical unit could have provided interim support to investigators between visits from U.S. POs, made contacts and supplied information of a technical nature, and helped to maintain the scientific momentum of projects.

In fact, a senior U.S. investigator was sent to Cairo early in the project to serve as resident technical advisor. After his arrival in Egypt the Ambassador would not allow any more long-term resident advisors because of the security risks. Therefore this position became another casualty of the Gulf War and the program remained without a long-term technical advisor.

As called for under the PHS/MOH Health Agreement of May, 1989, a Technical Advisory Group of up to 12 members would be advisory to the CHP's designated officials (the

U.S. Assistant Secretary for Health and the Egyptian Minister of Health). This TAG would include members with expertise in epidemiology, vaccinology, research administration, and health systems administration, in addition to a coordinator. The MSU in Cairo and its OIH and MOH counterparts were to support the TAG. The Mid-Term Review Team of May-June 1992 functioned as the TAG for the Program. This team, composed of eight distinguished experts, four American and four Egyptian, was coordinated by the International Health Program Office of the CDC. The Mid-Term Review Team reviewed each project and the following cross-cutting issues: project leadership, project coordination, technical assistance and training, communication and dissemination, project staffing, procurement of supplies and equipment, project workplans, reporting and monitoring, and continued support.

The Mid-Term Review Team made many specific recommendations, which were communicated to the Egyptian PIs and the U.S. POs. There was no mechanism to coordinate or follow-up those recommendations because of the absence of an in-country technical advisor. In fact, most recommendations of the mid-term review were not implemented. The lax approach to a TAG left no mechanism for technical oversight of the program as a whole.

In lieu of an ongoing TAG, one or two senior OIH staff members came to Cairo several times a year to contribute to technical oversight of the Program. The Egyptian Principal Investigators were visited, together with a representative from USAID, from CDC, FDA, and/or NIH, as appropriate.

Technical oversight was provided within each project primarily by the respective U.S. Project Officer. From time to time there are meetings among the Project Officers at CDC and those at NIH. The head of the MSU in Cairo, on his own initiative, convened a conference of all PIs on the subject of proposal writing. Other than that meeting, no overall technical or scientific program oversight, such as joint meetings or workshops for investigators from different projects, has been evident.

The issue of technical oversight represents a clear difference between the perspective of USAID and that of OIH. In general, OIH and many POs saw the program as a vehicle to

provide research grants, in a manner analogous to the NIH extramural program, for collaboration between responsible U.S. and Egyptian investigators. In contrast, USAID considers the CHP primarily as a program of technical assistance and requires substantially more accountability from the projects that it funds. It expects adherence to predetermined goals and structures and a close fit with USAID and MOH strategies and objectives. Such a difference of approach reflects the composition, mission, and constraints of each agency. The brief PASA document provides few details about the program, and in the view of OIH the program underwent a shift in emphasis after the PASA was awarded. In part, this may be due to a change of staff at the Cairo Mission, to changes in political leadership in the United States and in the MOH, and to a focus on greater adherence to strategic objectives within the Mission.

Individual Project Descriptions and Recommendations

Project E-01-N

Development and Use of Monoclonal Antibodies to Identify Rheumatic Fever and Rheumatic Heart Disease Risk Factors

(New with CHP PASA)

<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
01 RF/RHD	384,908	176,416	5

US: Dr. Edward McSweegan, NIAID/NIH

Dr. Ernest Gray, Division of Infectious Diseases, University of Minnesota

Eg: Dr. Nabil Guirguis, Vaccine Department, Organization for Biological
Products and Vaccines

Description

The purpose of this project is to develop a diagnostic method to identify children at risk for Rheumatic Fever (RF) and Rheumatic Heart Disease (RHD). According to 1970 data, about 10/1,000 children aged 6-12 years in Egypt develop this disease. Post-streptococcal RF and RHD result from an altered immune response in affected children leading to cardiac valve damage. Certain individuals are more likely to develop RHD and this is thought to be genetic in nature. This research is directed toward identifying children more likely to get RF and RHD by use of monoclonal antibodies that react with blood cells from children having the specific genetic markers of susceptibility.

Rheumatic Fever and Rheumatic Heart Disease are considered serious public health problems in Egypt. The identification of children at risk is considered important in targeting interventions such as prompt initiation of antibiotic therapy for streptococcal infection or possible antibiotic prophylaxis may reduce the costs associated with this disease in Egypt and elsewhere. The onset of RF and RHD is always preceded by infection with group A beta-hemolytic streptococci. Prompt elimination of streptococcal antigens prevents rheumatic fever.

Accomplishments

The project has developed several monoclonal antibodies that, when used together, have the potential of identifying children at greater risk. Egyptian scientists have been trained in all relevant laboratory techniques. In terms of technology transfer and improvement in research and diagnostic capabilities, this project has been successful.

Recommendations

The 1970 survey suggests that RHD is a major problem among children in Egypt. Conditions have changed in the intervening 24 years. Antibiotics are now much more widespread and available. The prevalence of RF and RHD must be determined among school aged children in the present day. If found to be a serious public health threat, it appears reasonable to set up a program for early recognition and treatment of group A beta-hemolytic strep infections as part of ongoing ARI activities. The MOH is reported to have started an educational program among physicians to identify RF and RHD using a standard set of signs and symptoms.

Project E-02-N
Effect of Arboviruses on Childhood Health and Development in Egypt
(New with CHP PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
02	Arbovirus	317,309	515,440	8

US: Dr. James Meegan, NIAID/NIH

Dr. Robert Shope, Yale Arbovirus Research Unit, Yale University

Dr. Ann Schluderberg, NIAID/NIH

Eg: Dr. Medhat Darwish, Department of Microbiology and Immunology, Ain Shams University

Description

This project is based on the assumption that arbovirus infections may have adverse effects on the health and intellectual development of Egyptian children. Three villages have been identified as a field site near Belbeis. Household-based surveys will monitor seroconversion for five endemic arboviruses (West Nile, Sindbis, Sicilian, Naples, and Quaranfil). Data are also collected on fever episodes, nutritional and mental status, and physical development.

Accomplishments

Data have been obtained on the incidence of infection with certain viruses. Viruses have been isolated from patients with clinical disease, although fewer than expected. Evidence was obtained for the re-emergence of Rift Valley fever and the presence of a previously unknown hantavirus. Evidence was also obtained that rickettsial infections account for about 10% of undifferentiated fevers. Good working relationships have continued with NAMRU-3 and been established with the Yale arbovirus laboratory. Several staff members have gone to Yale for training in laboratory techniques. Much equipment has been obtained. Capacity building has been good. Publications are in press and in preparation.

Since the prevalence of arbovirus infection in this population is relatively low, too few patients were enrolled and the sample size too small to ascertain any effects on child development.

Recommendations

The Ain Shams arbovirus laboratory should be supported by the MOH and considered as a national reference laboratory. Efforts should be made to reduce dependence on NAMRU and Yale, while continuing to collaborate on field and laboratory studies. Because of the importance of RVF a program of sentinel surveillance for RVF activity is indicated. An increase in cases last year may indicate a large outbreak in early 1994. A future project could involve setting up a sentinel surveillance system that would pick up an outbreak at the early stage of the epidemiologic curve. The work on child development appears unproductive.

Project E-03-N
Urban Filariasis in Egypt

(New activity with CHP PASA. Previous work with rural filariasis under Trilateral Agreement)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
03	Filariasis	287,980	576,450	9

US: Dr. Robert Gwadz, NIAID/NIH

Eg: Dr. Rifki Faris, Faculty of Medicine, Ain Shams University

Dr. Adel Gad, Faculty of Medicine, Ain Shams University

Description

This is a continuation of studies on filariasis in rural areas, especially in the Nile Delta, funded under a Regional Project included in the Trilateral Agreement from 1985 to 1992. The discovery of endemic foci near Cairo stimulated the preparation of a proposal to NIH to study potential transmission of filariasis in Cairo.

Accomplishments

Staff members receive training in relevant aspects of field epidemiology, data and specimen collection. Laboratory workers are trained in immunological and molecular techniques. A total of six persons has been sent to the U.S. for training in immunodiagnosis, epidemiology, and molecular biology. Capacity building has been good. A considerable amount of equipment has been obtained through the current project and adequate laboratory facilities are in place. This will permit the unit at Ain Shams to carry out various types of diagnostic and research studies. Surveys have suggested that transmission may occur in greater Cairo although this has not been fully demonstrated. Eight lifelong residents of Cairo have been identified by ACD with proven microfilaremia. Work has proceeded by passive case detection (alerting hospitals and physicians to look for cases) and active case detection (surveys in schools and industrial workers).

Collaboration between the university sector and the MOH has been good. Field work involving human populations is done in close coordination with MOH staff. Some MOH senior personnel are also associated with this work. Several MOH physicians have been sent to the project for training. One of the Egyptian PIs, Dr. Rifki Faris, teaches regularly in the FETP. The investigators also collaborate with staff at NAMRU-3.

Sustainability of this work presents a problem. The U.S. Project Officer is fully occupied with malaria work elsewhere and will not be available to continue his oversight. No alternative funds have been secured. Approaches have been made to the European Community and University Programs for funding, and the investigators are considering applying for NIH funding as a regular (R01) research grant or perhaps under the ICIDR (International Collaboration in Infectious Diseases Research) program.

Recommendations

The possibility of filarial transmission in Cairo justifies increased awareness of local physicians and the general public. A sustainable surveillance system perhaps by house catches of *Culex pipiens* and DNA probes of large pooled batches, may be warranted. Such surveillance should be fully integrated with existing programs of the MOH and local health jurisdictions. Further validation of immunodiagnostic procedures is needed.

Project E-04-N
Etiology and Epidemiology Studies and
Diagnostic and Vaccine Development for Major Respiratory Childhood Illnesses in Egypt
(Continued from Interim PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
04	ARI vacc	217,346	452,552	10

US: Dr. David Klein, NIAID/NIH

Eg: Dr. Nabil Guirguis, Research Department, Organization for Biological Products and Vaccines

Description

Acute bacterial respiratory diseases remain a major hazard to child health in Egypt and elsewhere. This project supports the development of improved diagnostics and new vaccines against certain childhood respiratory diseases, particularly those caused by *Haemophilus influenzae* type b, *Streptococcus pneumoniae*, *Neisseria meningitidis*, and *Bordetella pertussis*. The project includes establishment of improved capability in molecular biology and immunology for studies of the pathogens, including specific serotypes of *Streptococcus pneumoniae* and *Haemophilus influenzae* that cause childhood respiratory disease in Egypt. This project represents an important step toward self-sufficiency in the epidemiology and control of major respiratory pathogens. It is based in one of Egypt's premier biomedical laboratories with excellent facilities and a trained and competent staff.

Accomplishments

Methods of modern biotechnology have been successfully transferred. Experiments have been done on conjugation of bacterial capsular polysaccharides to appropriate protein carriers. Many reagents have been generated. A series of monoclonal antibodies has been made that may prove useful in diagnosis. ELISA-based serodiagnostic methods have been established. *Bordetella pertussis*, the bacterium responsible for whooping cough, has been fractionated and components purified. Close collaboration has been established with many laboratories and researchers at academic and governmental institutions in the US and elsewhere.

Recommendations

Although the upstream research may not be appropriate for a USAID-funded follow-on activity, this laboratory represents an important national resource and should be supported. As an installation of the Ministry of Health it is particularly vital in providing scientific advice and backup laboratory capabilities to project E-11-F for production of vaccines, and its future programs. The work of this laboratory is also crucial to other projects of USAID and the MOH, particular those dealing with child survival, field epidemiology, and schistosomiasis control.

[The research unit is competent in various techniques associated with basic research and vaccine development, but one Team member believes that it is unlikely that VACSERA will have the capability to produce large quantities of standard EPI vaccines or any special vaccines that may be developed through this project.]

Project E-05-N
Genetic Counseling and Genetic Disease Resources in Egypt
 (Continued from PL 480 and Interim PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
05	Genetics	374,360	441,237	6

US: Dr. Sherri Bale, NIAMSD/NIH
 Dr. Dilys Parry, NCI/NIH
 Dr. Kenneth Rosenbaum, Children's Hospital, Children's National Medical Center

Eg: Dr. Nemat Hashem, Ain Shams University

Description

Late in 1962, the first human medical genetics unit in Egypt was established in the Pediatrics Department of Ain Shams Medical School. This unit gradually expanded to become the current Ain Shams Medical Genetics Center (ASMGC). The ASMGC is now one of the oldest and largest centers of its type in the world. The staff has collected and analyzed an impressive array of data and pedigree information on the human gene pool of Egypt. The center offers diagnostic, therapeutic and counselling services to members of over 17,000 registered index families in Egypt and the Middle East Region. This project has been implemented by the ASMGC in Egypt in collaboration with the Medical Genetics Program at Children's Hospital, Washington, D.C, U.S.A.

The project goal was to provide genetic counselling for families seeking medical services at ASMGC. To achieve this goal the project had three major objectives:

- 1- To modernize and computerize all data collected.
- 2- To develop five satellite counselling centers strategically located throughout Egypt and linked to the ASMGC.
- 3- To introduce modern molecular genetics techniques into the program at ASMGC.

Accomplishments

The project has successfully established a computerized database and is continuing to enter the pedigrees of the registered index families including summaries of each kindred pedigree. Several new computers have been added to those already at hand. Special programs

for pedigrees have been designed to assist in data retrieval. Tanta and Ismailia Genetic Counselling centers have been established and provide their services as satellite centers linked to ASMGC. A one-week training course on genetic counselling and early diagnosis of genetic problems was conducted three times for about 60 medical doctors from several governorates. Some private sector physicians participated in these courses after paying a fee. Some progress has been made in obtaining DNA from inbred offspring expressing recessive diseases autosomal or X-linked for the purpose of mapping the gene. The molecular genetics diagnostic services is in the preparatory stage for registered high risk patients seeking genetic counselling at ASMGC. The establishment of the Egyptian DNA bank by the ASMGC is also in progress. A computerized cytogenetic system (the AKS), the first of its kind in Egypt and the Middle East, was installed at ASMGC. The enhanced capability of this system made it possible to routinely obtain computer-generated karyotypes for all patients. The ASMGC made excellent use of the Technical Assistance provided to it under this project. In addition, The laboratory equipment and computing capabilities of the ASMGC were dramatically enhanced through this project. Several publications were produced and distributed by ASMGC.

Recommendations

Better communications with other researchers can yield considerable gains to all parties. Collaboration should be extended to established academic centers and MOH efforts in research areas such as diabetes, hypertension, and lymphomas and leukemias.

Efforts must be made to obtain more secure financial support. The ASMGC could charge a reasonable fee for its services to recover some of its recurrent cost. The ASMGC should play a more proactive role in seeking support from other donors at the national and international levels.

Projects involved in pure research can seek funding through regular channels such as NIH R-01 series research grants, rather than through USAID.

Project E-06-N
National Survey of Hypertension
(New with CHP PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
06	Hypert	835,421	929,452	2

US: Dr. Claude Lenfant, NHLBI/NIH

Dr. Ruth Hegyeli, NHLBI/NIH

Eg: Dr. M. Mohsen Ibrahim, Department of Cardiology, Cairo University

Description

Hypertension is a significant public health problem in most countries, including Egypt. The purpose of this project was to conduct a survey to determine the extent of hypertension in the Egyptian population.

Accomplishments

Five joint working meetings were held with the US collaborators and issues of design, implementation, staff training, and data analysis were worked out. Technical assistance was obtained both from the NIH and from Johns Hopkins University. Supplies and equipment were procured and electronic communication pathways were established. Pilot studies were done in two areas in 1991 and in six Governorates in a national survey in 1993. All adults were surveyed in 600 households in each study Governorate. Blood pressure was checked 4 times according to a predetermined protocol. Using the criterion of 140/90 for hypertension and statistical weighting to adjust for the entire population, 26.3% of Egyptians over age 25 were classified as hypertensive. In Cairo, 31% were hypertensive. Statistical analysis was carried out at Johns Hopkins University.

By-products of the study included the First Pan-Arab Conference on Hypertension held in CAIRO in December, 1993. About 1,000 persons from 14 countries attended. A permanent organization was established with plans for the next conference in Beirut in 1995. An Egyptian Hypertension League was founded within the Society of Cardiology. A permanent reference center was put in place at Cairo University with a clinic, laboratory, ultrasound and other equipment. A large number of medical staff was trained in five local courses in scientific methods, blood pressure techniques, vascular imaging, and other skills.

Recommendations

The organizational framework established through this project should be supported by the Egyptian government and by other donors.

Programs for hypertension education should be set up for Egyptian health professionals and for the general public

Future policy related research could involve 1) identifying interventions that are efficacious in Egypt; and 2) comparing the cost of the interventions to the hospital costs attributable to the complications of hypertension.

Additional analyses of the hypertension data can be important for maternal and child health. Gestational hypertension with eclampsia or preeclampsia are predisposing conditions for fetal loss and small-for-date babies. The research group is interested in continuing analyses but had to contract out statistical work. Hence funding is needed for continued contracting or for development of data processing skills within study group personnel.

Project E-07-N
Medical Sciences Equipment Repair and Maintenance
(Continued from Interim PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
07	Equipt	339,049	212,664	7

US: Mr. Howard Metz, Division of Research Services/NIH

Eg: Dr. Taha Abu Shusha, Governnorate of Giza
Dr. Mahmoud Abu Raya, Governorate of Giza
Engineer Shehata Attala

Description

The purpose of this project is to develop a prototype, self-supporting equipment maintenance center to maintain and repair biomedical equipment in MOH facilities. Such a capability would be cost-effective by keeping expensive imported medical equipment and apparatus in service, thereby improving patient care and the health of the Egyptian people and saving foreign exchange.

Antecedents of this project were started 10 years ago by USAID with payment of incentives for engineering staff to repair apparatus. The GOE disallowed this practice and the project stopped. The project was once again included in the CHP. Engineer Shehata Attala obtained a legal decree from the Governor of Giza to permit the bonus in that Governorate. The repair and maintenance project is now under way only at the Hamwamdia hospital in Giza.

Accomplishments

The prototype center has finally been established and is running efficiently. Several NIH equipment specialists have come to train project staff. Two project engineers went for training in the U.S. in May-June 1993. According to project staff, a self-sustaining prototype center has been established. Payments by hospitals are used to cover incentives to repair and maintenance personnel. If this system is permitted in other repair centers already established in Egypt it is stated that the entire program can become self-sustaining.

Collaboration with NIH personnel was reported as excellent. Numerous manuals and other printed materials have been provided by the NIH staff. Collaboration with the government of Giza has been very good. The project staff will request permission from

national authorities to pay incentives to maintenance and repair engineers in other regional centers.

Recommendations

The project should be supported by directing equipment repair and maintenance needs to the project whenever feasible.

The project should be expanded into other geographic areas of Egypt.

Project E-08-N

Epidemiological, Biological, and Clinical Studies of Leukemia and Lymphomas in Egypt

(Continued from PL 480 and Interim PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
08	Leuk/Lymph	994,057	1,956,736	1

US: Dr. Ian Magrath, NCI/NIH
Ms. Laurence Kuhar, NCI/NIH
Eg: Dr. N. El Bolkainy, NCI/MOH
Dr. Nazli Gad El Mawla, NCI/MOH

Description

Previous USAID-supported projects by these investigators showed that leukemias and lymphomas account for 90% of all childhood cancers, and 12% of all cancers, in Egypt. The PASA project is part of a multicenter study to assess the role of modern intensive treatment protocols in improving survival. The project was intended to improve capacity for diagnosis, tumor characterization, and data collection and analysis. A large training component was included. Epidemiologic information and virologic diagnosis was done for each patient. Cases were treated with a standard supportive care protocol and customized treatment protocol.

Accomplishments

Physicians were trained in relevant pathologic and hematologic techniques including laboratory bacteriologic culture methods. Two physicians and a medical statistician were trained in data collection and management. Six pathologists were trained in molecular characterization and diagnosis of cancer. A molecular biology laboratory was established in the National Cancer Institute in Cairo. Standardized treatment protocols were developed and tested. A symposium and conference was held in Cairo in November, 1993 to disseminate information from the project to oncologists and pathologists from Egypt and several other countries, and agreement was reached on sharing information and protocols in the future. As a result of the project there has been a reduction in morbidity and mortality due to treatment modalities as well as to the disease, thereby reducing the cost of treatment and its complications.

Recommendations

Cost benefit analyses should be carried out to compare the cost of treatment of lymphomas/leukemias in Egypt versus the present cost of treating patients abroad.

Project E-09-N
Improving Health Information Services in Egypt
(New two-year activity under CHP PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
09	H Info Sys	108,881	2,207	15

US: Dr. Donald A.B. Lindberg, NLM/NIH

Ms. Lois Ann Colaianni, NLM/NIH

Eg: Dr. Sobhy Abdel Rahim, MOH

Descripton

This was a new two-year project under the CHP. Startup was delayed by disputes between the MOH and the MOEducation. Newspaper articles falsely stated that the USAID was to construct a new medical library building and much time was lost in sorting out the various factions.

Accomplishments

Ms. Lois Ann Colaianni of the NLM made an extensive trip throughout Egypt in early 1992 to visit all academic, private, foreign, and government medical libraries. Visits were made also to the library school at Cairo University, ENSTINET, the Medical Education Technology Center, and other institutions. Ms. Colaianni observed collections, staffing, equipment, services, and communications Her report of April 1992, "An Assessment of Current Medical Library Resources" included many specific recommendations for an essential medical library system in Egypt.

Of the four stated objectives, only one has been achieved, the assessment of library resources. Little has been accomplished other than the report, which was useful in providing basic information and pointing out areas in need of improvement.

Relationships on a personal and professional level between the Project Officer and her local contacts were said to be excellent. Faculty and administrators were enthusiastic about upgrading of library facilities. However, the senior NLM official designated as U.S. counterpart to the responsible MOH Undersecretary was said never to be available, and apparently took no part in the project.

Recommendations

The non-availability of scientific literature is an impediment to research and other

academic activities. A modern health information system, including library, on-line and mass storage (CD-Rom) data retrieval capabilities would be extremely useful for planning and management within the MOH, for education in all biomedical fields, and for patient care. Ultimately such a system would improve efficient operation, policy considerations, and decision-making within the MOH and other health-related institutions in Egypt, and would benefit the health of the Egyptian people.

We recommend that the proposed Coordinating Council be established and that the project be implemented according to the Project Officer's plan.

Project E-10-F
Pharmaco Information Center
(Continued from Interim PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
10	Pharm Info	112,321	230,607	14

US: Ms. Lois Ann Beaver, International Affairs Staff/FDA
Eg: Dr. Samiha Samy Faltas, Pharmaco Information Centre
Dr. Mervad A. Salem, Pharmaceutical Affairs/MOH

Description

The Pharmaco Information Center began as a small library in 1981. Since that time it has expanded greatly both in the volume of services it offers and in the number and variety of clients that it serves. The purpose of the center is to provide both information and training concerning all aspects of pharmaceutical science to the MOH, universities, medical institutions and the pharmaceutical industry. The Center maintains current data bases as hard copy, on CD-ROM, microfiche, and other media.

Accomplishments

The objectives of the project were achieved during the time frame. Highlights of those accomplishments are:

Linkage of the Center databases to the Egyptian National Information Network (ENSTINET) which has greatly expanded access to the resources of the center.

Addition of databases of interest to industry and other users to the Center's resources.

Acquisition of capability and materials to provide training in Arabic, English and French on analytic methodologies for pharmaceutical quality assurance and research. This includes a capacity to train in the methodology for screening for counterfeit and sub-standard drugs. The Center director has presented training methodology at a WHO/International Federation of Pharmaceutical Manufacturers Association meeting on drug quality assurance and has approached WHO on becoming a collaborating center.

Development of means for self-support. Advance purchase and database subscriptions will cover at least the next two years of funding and legislation has been presented to the Minister of Health that would allow the Center to be paid for its services.

The Center belongs to the infrastructure of the health care system in Egypt and therefore its impact on health status will be indirect. Since Egypt produces much of its own pharmaceuticals, drug quality, and the regulation and assurance of that quality, are critical to health care at all levels of the health system. The Center provides access to, and the analysis of, information that can lead to better production, better regulation and better perscription of safe and appropriate pharmaceuticals.

The Center staff now has the capability to train Egyptian researchers and regulators in several analytic methods. The FDA trained the Center staff who are already holding training courses. Their first training course had participants from over 24 industries participating. The Center is now a sub-node on the ENSTINET system and staff were trained in Egypt on the use of the system.

Recommendations

The Center should be promoted as a regional resource for Africa and the Middle East. USAID Cairo may be able to facilitate the Centers becoming a WHO collaborating Center. USAID Cairo could also make Missions in the region and the Africa and Near East/Asia Bureaus aware of this resource for training and information.

The Center's training course for the detection of counterfeit and substandard drugs should be expanded. This is a pressing issue for the Middle East and especially for many African countries. USAID could inform its Missions in the region and the respective regional bureaus that this resource is available.

Project E-11-F
Improving Production Capability of Locally Produced Pharmaceuticals, Biologicals, and
Medical Devices
 (New with CHP PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
11	Prod P, V	184,713	180,583	11

US: Ms. Lois Ann Beaver, International Affairs Staff/FDA

Eg: Dr. Aly El Sharawy, Egyptian Drug Organization

Dr. Gamal Nour, Egyptian Drug Organization

Eg: Dr. Ragaa Hassan Ali, Director, VACSERA

Description

Although this project is new with the CHP, there is a long history of association between the FDA and VACSERA in a variety of consultative, advisory, regulatory, and technical roles. The project has been divided into two distinct activities, one for production of vaccines and the other for pharmaceuticals. The medical devices portion was never implemented. These projects are for infrastructure development, not research. Their objectives are to improving production and quality of products by improved quality control and adherence to Good Manufacturing Practices (GMP).

Accomplishments

The CHP has provided very useful technical assistance in achieving GMP standards in both the pharmaceutical and vaccine projects. The former has concerned eight parastatal drug manufacturers who have upgraded their procedures in preparation for forthcoming privatization. The vaccine project has been limited to VACSERA.

Teams of senior experts from the FDA in both drug and vaccine manufacture have visited and made specific technical recommendations. Interactions among FDA and Egyptian personnel at all levels were reported to be excellent.

Substantial improvements have been made in physical plant, methods and protocols, quality control and quality assurance procedures in the pharmaceutical production project. Considerable improvement is still needed in the vaccine production before consistent quality of the product can be assured.

Advances in GMP are likely to become standard operating procedures in both drug and vaccine sides. Prospects for sustainability in the short and medium term will depend largely on

ongoing open channels of communication with the FDA and continued consultation in these highly technical areas. Eventually, links will need to be strengthened with private industry in both the drug and vaccine areas.

Recommendations

As privatization proceeds in the pharmaceutical and perhaps even the vaccine production fields, USAID can help private sector contacts to maintain the progress already made in GMP and help assure further advances in the future.

Technical assistance from FDA experts should be continued. Consideration should be given to establishing a project in association with USAID Child Survival activities to improve production capability of biologics.

The organizations responsible for the production of products such as pharmaceuticals and vaccines should be clearly separated from the organizations responsible for their certification and regulation.

Project E-12-F
Strengthening Existing Safety and Quality Assurance in the Area of Food
(Continued from Interim PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
12	Food	479,205	233,056	4

US: Mr. Edgar de la Rocha, International Affairs Staff/FDA
Mr. Fred Fricke, National Forensic Chemistry Center/FDA
Mr. Donald Aronson, International Affairs Staff/FDA
Eg: Dr. Zeinab El Halem, Food Control Department/MOH
Dr. Magda Rakha, Central Health Laboratories/FDA

Description

The objective of this project was to improve the quality assurance system for food in Egypt by strengthening the capabilities of the MOH Central Public Health Laboratory in Cairo. Special attention was given to analyses of food samples for heavy metal contamination (lead and cadmium) and for microbiological contamination.

Accomplishments

A laboratory was furnished with modern equipment for elemental analysis of food samples. Technical assistance was provided to CHL personnel in the operation of the equipment, and a pilot study was carried out. High lead levels were detected in garden vegetables and in food products from cans with leaded seams. Other CHL staff members were trained in detection of pesticides and mycotoxins (aflatoxins), and in detection of *Listeria*, *Clostridium*, and *Campylobacter* in food products. Training was also given to food inspectors in sampling techniques and sanitary inspection methods.

Recommendations

The lead survey demonstrated that there are high levels of lead in several commonly consumed food stuffs. It is now important to determine the actual levels of lead in blood in a sample of community children and adults as a more direct indicator of health threat.

Project E-13-C
Diabetes in Egypt
(New with CHP PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
13	Diabetes	571,641	705,599	3

US: Dr. William Herman, CCDPHP/CDC

Eg: Dr. Edward Sous, Diabetes Institute/MOH

Dr. Abdel Monem Behairy, Central Health Laboratories/MOH

Description

This project was designed to collect information about the prevalence of diabetes and its complications in a sample of the Egyptian population, and to determine the socioeconomic impact of diabetes in Egyptian society. The project also intended to identify potentially modifiable risk factors for diabetes and for its complications.

Accomplishments

The project conducted a sample survey of individuals from various economic strata in and around Cairo. The study covered 6,000 households. In Cairo approximately 16% of persons over 20 years of age were found to have diabetes mellitus (DM) by WHO criteria. The commonly recognized risk factors such as family history and obesity were once again verified in this study.

This project provided the first comprehensive population-based estimates of the prevalence of DM and its complications and risk factors in the major urban/periurban area of Egypt. Many individuals were trained in epidemiologic techniques and in diagnosis.

Recommendations

Followup through an educational program for health professionals and the general public may be indicated. Data already obtained should be further analyzed to stratify by age and sex. Impact on pregnancy and fetal outcome may be studied.

Project E-14-C

Effect of Education Intervention on the Incidence of Sexually Transmitted Diseases in Egypt
(New with CHP PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
14	STDs	57,995	415,674	16

US: Dr. Stuart Berman, CPS/CDC

[Dr. Joseph Lossick, CDC (original PI; died 1991)]

Eg: Dr. Anwar Mobdy, Cairo Skin Hospital/MOH

Dr. Monem Behairy, Director, Central Laboratory, Cairo University Hospital

Description

This project was intended to standardize case definitions for STDs, to study the prevalence of STDs in selected patient populations, to develop an educational program tailored for the populations at risk, and to measure the effects of the educational message. With the death of the original US PO, the project was redesigned to develop the case definitions, develop a surveillance system based on those definitions, and to improve laboratory services. The educational component was eliminated.

Accomplishments

A survey conducted among the directors and staff of MOH STD clinics showed that STD patients were very few in number, and that practices differed widely from one clinic to another. A laboratory was prepared and equipped at Cairo Hospital, where staff are now able to perform Gram stains, RPR (syphilis) tests, to culture *Neisseria gonorrhoea*, and test isolates for beta-lactamase production and antibiotic sensitivity.

Recommendations

Attention should be given to the prevalence of STDs among women attending pre-natal clinics in urban areas. It is unclear whether low utilization represents a small number of STDs or lack of use of the clinics. Information needs are well identified in the original description of this project, but there is still a need to determine the magnitude of the STD problem in Egypt.

Project E-15-C
National Health Statistics System
(Continued from PL 480 and Interimn PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
15	Statistics	153,893	950,370	12

US: Mr. Robert Israel, NCHS/CDC
Dr. David Larson, NCHS/CDC

Eg: Dr. Nabil Nassar, MOH

Description

The National Health Statistics System project is a follow-on activity to previous work intended to address problems in the collection, analysis and interpretation of health statistics in Egypt. The earlier work was done in four governorates: Suez, Ismailia, Port Said and Damietta and resulted in successful demonstration of an automated system capable of producing governorate-level health statistics. The current project developed and tested a multi-model approach that could be used to establish a national health statistics system.

The main objectives of the project under the PASA were:

1. To increase the effectiveness of the national health services by upgrading the MOH capacity for acquiring, processing and interpreting of health statistics.
2. To strengthen the capacity at the central, provincial and peripheral levels for establishing, maintaining and developing of health statistics.
- 3- To implement in additional selected governorates and districts, a health statistical system and provide the required training.
- 4- To continue to upgrade the early developed automated health statistics system in four medium-sized governorates: Suez, Ismailia, Port Said and Damietta.
- 5- To approach national implementation through the further development and testing of appropriate models for automation in large and small governorates and for manual systems where automation is not required.

Accomplishments

The effectiveness of the Information and Documentation Center (IDC) MOH was increased by upgrading its computing resources through purchasing and installation of new computers. In addition, the project supported the training of the central MOH in operation, use and

maintenance of the equipment and software needed to construct an automated health data information system. At the governorate level, the project provided training to the directors of the districts on the new models and to the other staff members on data collection, analysis and the use of the new equipment furnished by the project.

The project staff prepared a standardized software package for the management of information system. The system could be used in all governorates: small (e.g. Suez) and large (e.g. Giza). The project succeeded in creating an awareness of the importance of the collection, analysis and use of data among MOH decision makers.

Project staff developed standardized system for data collection for births and deaths, Immunization and MCH activities. They had also created standardized measures for infant and child mortality, maternal mortality and fertility and immunization. The MOH's interest in data has increased several-fold since the inception of this project. The project resources were instrumental in the establishment of a training center at the MOH. The MOH is using the experience gained in this project to direct the implementation of the data management system for the Child survival project.

The project established strong ties with Cairo University and had used some of its staff to train the MOH staff in computer equipment and software packages. However, the project could have benefited from stronger links with some of the other projects funded by Cooperative Health Program and were conducting similar activities such as the Improving Health Information Services in Egypt (E-09-N) and the Feasibility Study for an Egyptian Center for Disease Control (E-16_C). The project gained a high level of support from the MOH.

Recommendations

A functioning statistics system is essential for MOH planning and program monitoring. It is important to support the continuation and extension of this system throughout Egypt. This should be a high priority project.

The health statistics system should be coordinated with epidemiologic surveillance activities and with the Egyptian CDC and national library systems when these are established.

Project E-16-C
Feasibility Study for an Egyptian Center for Disease Control
(Two year project New with CHP PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
16	Egypt CDC	32,192	24,751	17

US: Mr. Ross Cox, IHPO/CDC

Eg: Dr. Sobhy Abdel Rehim, MOH

Dr. Said Sharawi, Communicable Disease Department/MOH

Description

For over two decades, public health professionals from Egypt and the United States have collaborated on a broad range of short and long term projects without the benefit of an Egyptian organization within the MOH uniquely focused on national disease prevention and control. Informal discussions between scientists and public health professionals in both countries have long recognized the desirability of having the institutional capacity to retain the lessons learned from these projects and to apply them in a systematic way to emerging public health priorities. Simultaneously, under the auspices of the U.S.-Egypt Cooperative Health Project (CHP), the U.S. Centers for Diseases Control and Prevention (CDC) and the Egyptian Ministry of Health (MOH) conducted a general review of the organizational structure of disease prevention activities within Egypt. The objective of this project was to determine the ability of the Egyptian MOH to improve the performance in its disease prevention and control programs by creating an organizational unit with the lead responsibility for prevention.

Accomplishments

The review process identified a number of important components which could form the infrastructure of an Egyptian CDC (ECDC). These include the following Directorates General within the department of preventive affairs in the MOH: Infectious diseases, Food, Epidemic disease, Fever, Leprosy, Quarantine, The Central Laboratories, Vector control, Environmental sanitation, and Occupational health. All of these units are already within the scope of control of the First Undersecretary for the Preventive Sector and could be regrouped into one organization to create an Egyptian CDC.

Recommendations

A National Disease Prevention and Control Steering Committee (NDPCSC) should be established within the present structure of the MOH to focus attention in the value of prevention, improve planning and coordination, assess the appropriate integration of important donor supported programs, and direct formation of an Egyptian Centers for Disease Control. The process will assist decision makers in prioritizing the use of prevention resources in Egypt. The MOH should find a place to house the Egyptian CDC and assign the appropriate staff to it.

The recent start-up of a Field Epidemiology Training Program (FETP) is seen as an excellent step on the road to an ECDC. The FETP within the Child Survival Project provides training for Egyptian MOH staff and should be included in the Egyptian CDC. A cadre of trained field epidemiologists will be prepared to investigate disease outbreaks as well as ongoing health problems, and also draw upon laboratory, vector control, sanitation, and occupational health specialists for support in their work.

The Evaluation Team supports continued efforts toward development of an ECDC.

Project E-17-C
Injury Control Project

(New under CHP PASA; continuation of EMS under Interim PASA)

<u>#</u>	<u>Project</u>	<u>US Dollars</u>	<u>Egyptian L</u>	<u>Rank</u>
17	Injury	124,354	236,055	13

US: Dr. Philip Graitcer, NCIPD/CDC

Eg: Dr. Sobhy Fahmy, Emergency Medical Services/MOH

Dr. Adel Y. Mashaly, MOH

Dr. Zeinab M. Youssef, MOH

Description

Injuries are a significant cause of morbidity and mortality in Egypt. According to information supplied by the project, injuries are the fifth leading cause of hospitalization, and account for at least one-quarter of all outpatient visits. About 20% of all deaths in children age 1-5 years are attributed to injuries. The project activities grew from the work of the Egyptian Principal Investigator, who was responsible for the Emergency Medical Services (EMS) since 1974. At that time he began upgrading the EMS in Cairo and Alexandria with support from MOH. Another pilot project was begun in 1983 with WHO support to further upgrade Egyptian ambulance equipment and to provide technical training in EMS and life support services to specialists.

The proposed activities of this project were to:

Measure the impact of injuries

Publish a book "Injuries in Egypt"

Make recommendation for a national injury prevention and treatment program.

Accomplishments

In order to define the epidemiological details of the problem of injuries in Egypt and to provide material for the book the project carried out three types of studies:

Review and compilation of all previous studies and reports of injuries.

Data collection and analysis of 10,000 successive injuries seen in Emergency Room of four hospitals in Alexandria.

A verbal autopsy study for the cause of death was conducted in Ismailia.

In addition a Team from the project staff attended and presented data from the project at the World Injury Conference in May, 1993 in Atlanta, Georgia. Also, the project convened a

conference in December, 1993 to make plans to implement a national plan for injury control in Egypt.

The book "Injury in Egypt" was published in October, 1993 and includes facts about various sectors: traffic, home street, burns, occupational, poisoning as well as suicidal and homicidal attempts. Data, scientific reports and other reports were compiled from several ministries like MOH, Manpower and training, Social Security and Central Agency for Population Mobilization and Statistics.

The project is one of the first substantial programs on injury prevention in a developing country. The project Team is planning to complete a national plan for injury prevention and control by 1995. One outcome of the project is a plan by the MOH for a national surveillance system for injuries.

Recommendations

An Interdisciplinary National Safety Council should be established (INSC). This council should participate in the preparation and supervision of the national plan for injury prevention and control.

As with other projects, this project was a good step in the direction of generating sound data to evaluate the magnitude of a defined health problem. The next step is the translation of the findings into public health policy. A National Injury Surveillance System should be established to identify risk factors and develop prevention and awareness program activities.

EVALUATION TEAM CHRONOLOGY, CAIRO - February-March, 1994

[PB= Paul Basch; DH= Diaa Hammamy;
MM= Melinda Moree; MP= Marjorie Pollack]

<u>Date</u>	<u>Event</u>
5	PB arrived in Cairo
6	PB met with Richard Walling & Marlyn Kefauver, OIH, USPHS PB met with Carl Abdou Rahmaan and Mme Fawzia Tadros, USAID
7	PB met Ruth Hegyeli, NIH, Dr. Mohsen Ibrahim, Dr. Yasser Sharaf and Dr. Hossein Rizk at Cairo University Dept of Cardiology to discuss Hypertension project (06) PB met Dr. Stuart Berman of CDC to discuss STD project (14) PB attended Luncheon for Participants at Mena House Hotel, met informally with several participants to make appointments. MM arrived in Cairo.
8	PB and MM attended the Summation Conference at Mena House Oberoi Hotel. Appointments were made with several groups for conferences during the succeeding days. Met with Mar-Jan Ostrowski of the MSU about logistics for remainder of visit.
9	PB and MM met Carl Abdou Rahmaan at USAID. Went with Mme. Fawzia Tadros to see Dr. Nabil Nasser at the Ministry of Health. PB and MM met with Mar-Jan Ostrowski to discuss the project and work of MSU office in Cairo. PM and MM were taken by Donald Aronson (FDA) to the Central Health Laboratories in Cairo (Project 12). Met with Dr. Michel Dawood (Undersecretary of State for Health Laboratories), Dr. Zeinab El Haleim (PI, Director, Food Control Department), Dr. Magda Rakha (Co-Investigator), Dr. Abd El Azim Abd El Razek Said (Assistant to the Director, Food Control Department), Mr. Fred Fricke (FDA), Mr. Merrill Racke (FDA) and others. Discussed their program and toured the facilities.
10	PB and MM met at USAID with Robert Israel and David Larson to discuss the statistics project (15). PB and MM met at VACSERA with Dr. Mona Assaad and Dr. Ernest Gray to discuss

the rheumatic fever project (01). Then met with Dr. Mona Assaad and Dr. Moshera Helmy for preliminary discussions about the ARI vaccine project (04).

PB and MM met at NODCAR about Pharmaco Center project (10) with Ms. Lois Beaver (FDA), and Drs. Samiha Faltas, Mary Louise Farid, Elaf Khalil Kamel, and Demiana I. Nessim.

PB and MM met at VACSERA with Dr. Mashala Hosan Hosny, Director of VACSERA, Dr. Elaine Esber, Baoudoin Th. Houtart (clean room consultant), and Ms. Lois Beaver about vaccine production project (11V).

PB and MM met at NODCAR with Ms. Lois Beaver and Dr. Gamal Nour, Deputy Director, Egyptian Drug Holding Company, about the pharmaceutical production project (11P).

11 PB and MM met in the Semiramis Intercontinental Hotel with Mr Ross Cox (CDC) to discuss the Egyptian CDC project (16).

12 PB and MM met with Dr. Nabil Nassar, MOH. Also met with Chemist Dr. Saleh El Mallah, coordinator in the management unit to work with Mar-Jan Ostrowski. Met with Dr. Abdel Motaal Hussein, Undersecretary for Research. DH arrived in Cairo.

13 PB, DH, and MM met at USAID with Mme. Fawzia Tadros to discuss history of projects and request additional documents. Returned to hotel to discuss outline of report.

PB, DH, and MM met with Mar-Jan Ostrowski at the office of the Management Support Unit in the Institute of Nutrition building, to discuss management of the CHP.

14 PB, DH, and MM met to prepare outlines and discuss the report.

15 PB, DH, and MM met at MOH with Dr. Zeinab Youseff about injury project (17). Also present was Dr. Halah El Henawy. Also met at the MOH with Dr. Sobhy Abdel Rahim about his two projects, Information (Library) (09) and the Egyptian CDC (16), and visited his computer facility at the Communicable Disease Center. At MOH met with Dr. Samir Guirguis to discuss the Statistics project (15). Met briefly with Dr. Nabil Nasser, PI, to get a copy of the draft final report on the Statistics project.

16 PB, DH, and MM met at VACSERA with Drs. Nabil Guirguis, Mona Assaad, and Moshera Helmy to discuss ARI Vaccines. Toured laboratories. MM remained for

further discussions and PB and DH proceeded to the Diabetes Institute to meet with Drs. Mohammed Ahmed and Edward Sous. Also present were Drs. PB and DH met later with Mar-Jan Ostrowski and Dr. Saleh El Mallah at the MSU office to discuss administrative matters. PB proceeded to the USAID Mission where he spoke with Mme. Fawzia Tadros about the report and with Ms. Joy Riggs-Perla about report and the schedule for debriefing at the USAID Mission.

17 PB, DH, and MM went to Ain-Shams University Hospital Center to meet with Dr. Nemat Hashim, discuss the Genetics project, and tour the facilities. PB and MM proceeded to NAMRU-3 to meet Dr. Ray Arthur and discuss the Arbovirus project. MP arrived in Cairo.

18 Friday. PB, DH, MM, and MP meet all day to discuss the project and report.

19 PB, DH, and MP met at the Faculty of Medicine at Ain-Shams University with Dr. Medhat Darwish to discuss the arbovirus project. Then PB, DH, and MP went to the Faculty of Science to discuss the Urban Filariasis with Dr. Rifki Faris, Dr. Adel Gad, and Dr. Riya Ramzi.

PB, DH, and MP went to the Child Survival Project building to meet with Engineer Shehata Atalla to discuss the Equipment Repair project.

20 PB, DH, MM, and MP discuss the report

21 Team Met at USAID with Joy Riggs-Perla, Carl Abdou-Rahmaan, and Fawzia Tadros to discuss the project, the report, and the forthcoming debriefing. Then the Team met at the Nile Hilton to discuss the report.

22 DH, MM, and MP to the Child Survival project to meet Dr. Reginald Gibson, Chief of Party, Clark Atlanta University to discuss interactions between the CHP and the CS projects.

DH and MP met at the Ministry of Health with Dr. Anwar Abd Elmobdy Radwan, Director of Skin and Venereal Department to discuss the STD project.

DH, MM, and MP met at the Child Survival project with Dr. Douglas Hatch, CDC Advisor for the Field Epidemiology Training Program to discuss relations between the CHP and the FETP

PB met at USAID with Carl Abdou-Rahmaan to discuss the report and debriefing.

23 Analysis and report preparation

- 24 Team met at USAID for debriefing with Office of Health staff
- 25 PB departed Cairo
- 26 DH and MP met at the National Cancer Institute with Drs. Mohamed Nabil El-Bolkainy and Nazli Gad Al-Mawla to discuss the lymphomas and leukemia project.
MP met at the Diabetes Project with Dr. Mohamed Ali, Dr. Edward Sous, and Dr. Moustafa Habib
MP and DH met at the OIH MSU with Mr. MarJan Ostrowski
MM departed Cairo
- 27 MP met at the Child Survival Project with Dr. Esmat Monsoor
and at the FETP (Field Epidemiology Training Project) with Dr. Douglas Hatch
MP met at Vacsera Research with Dr. Mona Assaad to discuss the RHD and ARI projects
DH departed Cairo
- 28 MP met at the Health Information/Statistics Unit of the MOH with Dr. Samir Gurguis
and again at the OIH/MSU with Mr. MarJan Ostrowski

March

- 1 MP met with Dr. Mohsein Ibrahim at Cairo University to discuss the Hypertension project and at USAID with Ms. Joy Riggs-Perla, Mr. Carl Abdou Rahmaan, and Madame Fawzia Tadros
- 2 MP departed Cairo

IN ROCKVILLE, MARYLAND

- 3 DH and MM met with Ms. Marlyn Kefauver and Mr. Richard Walling to discuss the OIH role in the PASA program

IN ATLANTA, GEORGIA:

- 7 MP had telephone meeting with Ms. Marlyn Kefauver at the OIH in Rockville, Md.
MP and MM had a meeting and discussions
- 8 MP met at CDC to discuss the ECDC with Mr. Ross Cox and the Injury project with Dr. Phillip Graitcer

MP and MM had a meeting and discussions

**9 MP met at CDC to discuss the STD project with Dr. Stuart Berman
MP and MM had a meeting**

10 Meetings and discussions MP and MM

11 MP met at the CDC coordination unit with Ms. Elena Belansky

April

15 MP met with Dr. Joe Davis at the CDC International Health Program Office.

DOCUMENT LIST

Participating Agencies Service Agreement number 263-10102-P-HI-1013-00 under Technical Cooperation and Feasibility Studies and AID Activity Trust Account Cooperative Health Program, signed 1 Dec and 11 Dec, 1990

First Year Self-Assesment Reports and Second Year Work Plans, all projects

Third Year Work Plans, all projects

Financial reports, equipment purchases, travel lists, all projects.

Mid-Term Review of the U.S.-Egypt Cooperative Health Program, May 21-June 3, 1992

Program and Abstracts, CHP Summation Conference, Mena House Oberoi Hotel, Cairo, February 8, 1994

Additional Documents Provided by Project Investigators

Project
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Documents

- 01 Kamal S, Assaad M, El Ridi L, Guirguis N. 1992. Rheumatic heart disease-associated B cell antigen: Identification, using monoclonal antibodies. Journal of the Egyptian-German Society of Zoology 8A:159-167.
- 02 Darwish M, Hoogstraal H. 1981. Arboviruses infecting humans and lower animals in Egypt: A review of thirty years of research. Journal of the Egyptian Public Health Association 51:1-112.
- 03 Faris R, Ramzy RMR, Gad AM, Weil GJ, Buck AA. 1993. Community diagnosis of Bancroftian filariasis. Transactions of the Royal Society of Tropical Medicine and Hygiene 87:659-661.

Ramzy RMR, Hafez ON, Gad AM, Faris R, Harb M, Buck AA, Weil GJ.
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Text of project presentation, Summation Conference, Feb. 8, 1994. 7 pages.

05 Ain Shams University Medical Genetics Center. Case file form. 12 pages plus cover.

06 Rizk H, Ibrahim M, Helmy S, Kandil H, Appel L, Whelton P. 1993. How common is hypertension in Egypt? Preliminary results from pilot studies of the Egyptian National Hypertension Project (NHP). Manuscript, 12 p.

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Nagi HK, Rizk HH, Mahdi S, Ibrahim MM. 1993? Limited value of the electrocardiogram in detecting hypertensive left ventricular hypertrophy. Manuscript, 9 p.

07 Legal Department, Giza Governorate. Decree No. 510 / 1990. The Regulations for Operating the Project of Repairing and Maintaining Biomedical Equipment in Hamwamdia. Signed by Giza Governor Mohamed Omar Abd El Akher, April 10, 1990. 4 pages.

Final Report. 10 pages plus 3 figures.

08 El Bolkainy M, Gad El-Mawla N, Magrath I. 1994. Epidemiological, Immunological and Clinical Studies on Lymphoma and Leukemias in Egypt. Project Report. National Cancer Institute, Cairo University. 23 Pages.

11P NODCAR descriptive booklet
Followup to the Limited Advisory Good Manufacturing Practices Assessment of
Government Owned Pharmaceutical Manufacturing Establishments in Egypt. (5
p) -

Project
Number

Documents

- 11P Meyer GF, Beaver, LA. 1993. Report of an Assessment Visit of the Alexandria Company for Pharmaceuticals. (5 p)
Meyer GF, Layloff TP. 1993. Report of an Assesment Visit of the Arab Drug Company. (4 p)
Miscellaneous corespondence.
- 11V VACSERA Product List
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Wolnik KA et al. Elements in major raw agricultural products... 1. Cadmium and lead in lettuce, peanuts, potatoes, soybeans, sweet corn, and wheat. J. Agric Food Chem 31:1240-1244, 1983.

Wolnik KA et al. Elements in major raw agricultural products... 3. Cadmium, lead, and eleven other elements in carrots, field corn, onions, rice, spinach, and tomatoes. J. Agric Food Chem 33:807-811, 1985.
- 14 Abd Elmobdi Radwan, A. Sexually Transmitted Diseases Project 91-93. Effect of Educational Intervention on Incidence of STD in Cairo. Privately published. Cairo, 1994? 24 pages English plus 3 pages Arabic
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ACKNOWLEDGEMENTS

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We are grateful to the staff of the Office of Health of the USAID Mission in Cairo for their hearty collaboration, for making available to the team all records and documents, and for their candid discussions about the major issues of the Cooperative Health Program.

Finally, we thank the staff at John Snow, Incorporated for their logistical support and arrangements that made this evaluation possible.

To all, a heartfelt *shukran*.

APPENDIX I

CHP EVALUATION - EGYPT
1 February - 16 March
DRAFT REPORT SECTIONS FOR INCLUSION INTO TEAM REPORT
M P POLLACK, MD Consultant

A. GENERAL OBSERVATIONS FOR INCLUSION IN THE REPORT

1. Nature of the CHP in terms of traditional USAID projects

The Collaborative Health Program (CHP) does not fit the mold of a traditional USAID project with a Project Identification Paper (PIP) or Project Paper (PP). In the traditional USAID project, the Project paper contains a section referred to as the Logframe in which measurable objectives in terms of process and impact indicators are identified that can then be assessed for completion as part of a project evaluation.

The CHP was a process that allowed for collaboration of Egyptian scientists and professionals within the health sector with top US scientists and professionals within the US health sector through a series of 17 different projects. The 17 projects could be divided into sub-groupings as applied research, epidemiologic and infrastructural development/feasibility studies. Some of the applied research projects had easily identifiable expected outcomes in terms of programmatic and policy data, others did not but rather were efforts at increasing local capabilities to perform scientifically sound research with adequately equipped research facilities.

The collaborating institutions on the US side included the CDC, NIH and FDA as well as scientists from several US universities. The institutions on the Egyptian side included the MOH, and several of the Medical Universities. The process of selection of the collaborators was not clear to the evaluation team at the time of the evaluation.

2. Constraints of the Evaluation

It is important to highlight the constraints of the evaluation in terms of the timing of the evaluation. As the projects had not reached the completion dates, very few of the projects had the final reports with the presentation of the data from the studies available for review. Thus, much of the results presented in our report have been obtained during the course of the meetings and relate to single rates in the absence of presentation of the data analyses for the team members to review and thereby potentially critique, interpret and draw conclusions and recommendations.

In addition, given the nature of the projects there was a relative paucity of documents available for review. Documents that would have been of interest to the team to

review includes original research proposals and publications. As the duration of the project was three years, and results of many of the studies were just becoming available at the time of the closure meeting, future publications are to be expected with the passage of additional time.

Given the nature of the various projects, as well as the very short time frame of the projects (three years), many of the projects were not expected to have generated interim project finding reports that would facilitate an evaluative process.

It is important to highlight that the team felt the lack of institutional memory for the origin of the projects and the original development of the CHP to be a hindrance in understanding the objectives of USAID in the development of the CHP. This complicated interpretations of the outcomes of the various projects. Thus not understanding how the various projects were selected in terms of the subject matter, project design and selection of collaborators on both sides impedes an interpretation of the outcomes and findings, especially in terms of capacity building and translation of findings into policy and program recommendations.

Another serious constraint was the availability of the project personnel both on the Egyptian side as well as the US side. The timing of the evaluation coincided with the closure conference of the CHP. The US collaborators were present at the closure conference, but many were there only for the conference and therefore there was insufficient time to meet with the 17 different project officers as well as the support personnel in the PHS agencies (OIH, CDC, NIH, FDA). In addition, the time preceding the conference, the participants were concerned with final preparations for the conference. Thus, people were not available for meeting in the US prior to departure and were not all available for meetings while in Cairo and after return to the US.

Another constraint was the coincidence of the evaluation team's visit to Egypt during the Ramadan fasting month when the Egyptian institutions follow a vacation schedule. The general period during which time people are available for meetings is from 10 AM to 2 PM. This markedly shortened workday for an evaluation that is heavily dependent upon interviews for information gathering was a serious constraint.

3. Scope of work of the evaluation

While the SCW presented to the team addresses many of the cross cutting issues of concern to the USAID mission, The objectives presented in the original PABA were quite broad

and did not specify the cross cutting issues as defined in the SOW. Thus, while the team is addressing the cross cutting issues as mentioned in the SOW, it must be remembered that the projects were not originally designed to address them and therefore the findings should be viewed as an observation of lessons learned through this type of collaborative effort rather than as potential criticism on the part of the collaborators and OIH to meet some objectives that had not been identified at the outset.

4. Concerns about future activities

During the course of the evaluation it was learned that plans for future collaborative efforts will focus on planning exercises such as the "healthy population by the year 2000". One of the cross cutting issues addressed during the course of the evaluation is the translation of findings of research studies into program recommendations and policy decisions. The focus of the CHP has been directed at the generation of a sound data base to be fed into the decision making process within the MOH and the Government of the Islamic Republic of Egypt (GOIRE). It appears as though plans for the continuation of a collaborative effort will be focused on the planning process for MOH policy recommendations. There is concern that the future activities will be oriented towards strengthening the top of the decision making pyramid ("chiefs") without continued support at the base of the pyramid ("indians").

In some of the cases, the collaborative process has been ongoing for up to 20 or more years, in other cases, the collaborative process just began at the start of the CHP in 1990. A three year time frame is very short to expect sustainable transference of technologies and methodologies. Thus an important recommendation should be at the outset that there should be the continuation of a collaborative effort between the USPHS and the GOIRE and its research institutions to continue to process of strengthening the capacity to perform health related research.

B. SECTIONS OF THE REPORT AS DISCUSSED BY THE TEAM IN CAIRO (Cross Cutting Issues of the CHP)

1. Capacity Building

Physical: equipment, commodities, refurbishing

Many of the projects have included a large component of procurement of supplies and equipment. At the extreme, some projects just received material support. (According to the Egyptian PI for the STD project, the project provided money for the upgrading of a reference laboratory). A general observation is that the improvement of the facilities was beneficial in improving the quality of the work conducted.

One of the problems observed was the difficulties in obtaining necessary reagents for performing some of the tests that were part of the projects. In terms of the physical improvements of the facilities, some of the issues of the recurrent costs necessary to sustain the efforts were not addressed so that while the laboratories have been upgraded, the reagents necessary to continue the type of testing conducted as part of this project are not easily available.

In addition to the upgrading of the laboratory facilities, computers were provided along with some training of the personnel in data management was conducted to allow for on-site evaluation of data generated during the studies. To facilitate the communications between the POs in the US and the PIs in Egypt, fax machines were provided to most of the projects and were used extensively.

Procedural: protocols, SOPs, methods,

In some of the research oriented projects, protocols and SOPs were standardized between the two collaborating institutions. Research methodologies were in accordance with internationally accepted norms.

Discussions with some of the collaborators revealed satisfaction that epidemiologic research methodologies had been introduced into some units that had not previously employed them in data generation exercises. The HTN project personnel in Egypt were impressed with the change in orientation of their research interests from originally pure clinical research in the field of HTN and its cardiovascular complications to the identification of HTN as a public health problem through the implementation of a nationwide survey on the prevalence of HTN and its complications in the adult population.

Intellectual: ability to plan, interpret, analyze, new ways of thinking; ownership of concepts

The Injury control project on first glance appears to have been US driven, with the majority of the data analyses conducted at CDC. Discussions with the project staff revealed that they have developed a surveillance line listing form for national reporting of injuries. This was reportedly done as a local initiative without CDC assistance. The plans for future activities on the part of the Egyptian Injury Control Division are oriented towards the implementation of a national surveillance system. This is suggestive of success in the above field.

Collaborative: relationships within the institution and with other institutions. Development of ongoing network with individuals and institutions in Egypt and abroad

The collaborative efforts between the US PHS agencies and US university based researchers was excellent and was a strength of the CHP design. In most of the projects, the technical fields of interest of the PIs and POs were similar and thereby both sides of the collaboration benefited from the relationships developed and the studies conducted. In a number of the projects, there were pre-existing relationships that were further strengthened during the course of the CHP.

In the original design of the CHP, collaboration between the MOH and the research institutions (Universities) was included as an overall objective was to strengthen the MOH. Unfortunately this was not a uniform occurrence and in fact was identified as one of the weaknesses of the CHP in terms of outcomes.

Collaboration between the various projects was also noted to be a weakness. This was observed both with the various projects that comprised the CHP as well as with other USAID funded projects that worked in related fields of interest such as the Child Survival Project (CSP).

2. Health applications, impact, policy changes, dissemination

The rationale behind many of the research projects was to provide information on health problems that could then be used to formulate health program recommendations and national health policies. In order to have an impact on policy makers, appropriate data must be collected, then be processed and then interpreted in a manner that allows for the easy translation of the conclusions into health policy recommendations. A key component of this process is the receptivity of the policy makers to the receipt of new data and the interpretations of the scientific and technical communities.

Thus, an important component of the above process is the ability to conduct scientifically sound research on health issues including data management and data analyses, as well as the ability to translate the findings of such research into recommendations for health policies. Another crucial component of the above process is the presence of "receptive ears" to whom to present the findings of such research endeavors. For both sides of the equation to be present in a country, there is the need to develop strong research capabilities within existing institutions such as universities and the MOH. Strong research capabilities necessitate both well trained researchers as well as a well

equipped research environment with field and laboratory facilities.

The CHP was an attempt to address both sides of this equation. The research skills and capabilities were supported through the provision of technical assistance (for the long term goal of well trained researchers) and the development of well equipped research environments through the strengthening of laboratory capabilities and computer skills to improve upon data management and data processing. Thus, strong epidemiologic skills and approaches to disease burden ascertainment were the foci of the HTN, DM, arbovirus, injury, STD and filariasis projects. Strengthening laboratory capabilities were the foci of the RHD, ARI vaccine, food quality, arbovirus and filariasis projects.

The remaining projects were oriented towards the infrastructural development that would allow for the receptive environment necessary to impact policy change, as well as creating the favorable environment for applied research locally in the absence of external assistance. Thus, the creation of a national library capability analogous to the US National Library of Medicine would provide for national access to the medical literature base. The present situation in Egypt is that researchers are dependent upon their international colleagues to fax or mail recent articles of interest as they are not readily available in-country. Thus, there is the need to develop a locally available access to the scientific literature.

The feasibility of an Egyptian CDC (ECDC) project was oriented to assessing the institutional requirements within Egypt to develop a CDC-like structure to address disease control issues. This project reviewed the human resource development needs, and some infrastructural needs such as reference laboratories.

The equipment maintenance project was oriented towards developing local capacity to repair hospital equipment and thereby reduce maintenance costs as well as ensure availability of equipment and reduce time out-of-service due to malfunctioning.

The vaccine development project was oriented towards upgrading vaccine production capabilities to ultimately reduce the cost of vaccines to the country vaccination program as well as provision of appropriate serotype ARI vaccines.

Overall, the majority of the 17 projects within the CHP were oriented towards the acquisition of data on disease processes that were of potential import to the Egyptian population. Thus, information on the epidemiology of HTN.

DM, injuries and STDs, identification of bacterial serotypes responsible for ARIs, further definition of the magnitude of the problem of filariasis, arbovirus, and the health statistics projects were to provide sound baseline data that could be used by policy makers and for the development and/or improvement of disease control and prevention programs.

In discussing research objectives, within the domain of public health, the intent of research endeavors is to generate data bases that would then be translated into policy changes within MOHs. This program (CHP) attempted to generate such data bases in many of the project subcomponents.

The CHP was only three years in duration. During the course of the three years, much work was begun in most of the areas mentioned above. The missing link in the process was the translation of the findings of the projects into policy recommendations. It is the feeling of the evaluation team that this process will take longer than three years to have an impact on policy decisions. Continued work on the gathering of a scientifically solid data base is needed as well as further work on developing the capacity to interpret and package the results of studies in a format that would lead policy makers to take action. In addition, there is the well identified need to strengthen the policy making capacity at the central level.

The evaluation team noted that there was a sense of lack of ownership of many of the studies findings by the MOH when the studies were not conducted by the MOH units. While the MOH was involved in the initial stages of the CHP development and project selection, continued involvement of the MOH programmatic personnel during the course of the studies was variable and may have contributed to the lack of ownership of the results. Future collaborative efforts should ensure that the MOH is involved at all stages of the collaborative effort thereby increasing the probability that the results would be accepted and translated into policy decisions.

Potential impact on the health of the Egyptian population

The epidemiologically oriented projects and the infrastructural development projects have the most apparent potential impact on the health of the Egyptian population. Theoretically the identification of the disease burden and the high risk populations should facilitate the implementation of targeted control and preventive measures to reduce morbidity and mortality.

Thus the identification of injuries as responsible for 20% of childhood mortality is a significant finding that should lead to further studies to identify risk factors and subsequent control measures to reduce mortality due to injuries in the childhood population.

Likewise, the finding that 26% of the adult population meet the criteria for hypertension should lead to the development of HTN control program.

Not all of the projects actually achieved the above target. The arbovirus project could have had greater potential impact if activities were directed towards the development of a sentinel laboratory based surveillance system to detect RVF activity. In the spring of 1993 there was an RVF epidemic in Aswan Province. Based on the prior epidemiologic pattern of RVF in Egypt, a major nationwide epidemic of RVF is expected with the beginning of the summer season this year. The arbovirus project personnel did improve the laboratory capabilities for RVF identification but due to the high cost involved in the development of a sentinel surveillance system did not develop one. The evaluation team felt that in the event of another RVF epidemic this year, NAMRU-3 would continue to function as the primary arbovirus reference laboratory for the country as it has in the past. Thus, the CHP project activities have not arrived at the development of a national arbovirus reference laboratory.

The urban filariasis project could have a greater impact by conducting further studies in a large geographic area within the greater Cairo area. The epidemiology of filariasis in rural areas suggests a clustering phenomena with hyperendemic villages surrounded by low incidence villages. The low prevalence of microfilaria found in the urban zones in close proximity to endemic rural zones does not necessarily rule out the possibility of endemic zones in urban areas as a similar clustering effect may occur in urban areas. With the documentation of urban filariasis in India, and the documentation of the presence of the vector in the urban areas in Egypt, there is reason for concern re: the appearance of urban filariasis. Thus, there is definitely the need to study if there has been introduction into urban foci in addition to the development of an urban filariasis surveillance system.

The RHD project would have contributed to policy and program recommendations had it have also included a study on the prevalence of RHD among school aged children to see if the ready availability of antibiotics since the 70s has impacted on the prevalence.

The food quality project identified high levels of lead in the environment and in the food chain. The next step would

be to document if there are high blood lead levels among the population that is potentially attributable to the lead in the food chain. Documentation of high blood lead levels should lead to policy recommendations to reduce the amount of lead in the environment.

Process of converting findings into policy decisions at various levels in Egypt

This was the weak link at present in terms of the outcome of the CHP projects. While the projects under the CHP did develop data bases on selected diseases, at the time of the writing of this report, none of the findings has been translated into MOH program recommendations or MOH policy changes.

The bigger issue to be addressed falls within the domain of the DDM focus. The present stage of development is that there are numerous projects that are directed at the generation of data bases to identify disease burdens and problems. The next step will be to identify how to package the findings in an appropriate format for the environment and the final stage will be the identification of the appropriate decision policy makers for receipt of the data and technical recommendations. The potential impact of the recommendations of the data interpretations will have to be packaged in a manner that would influence the decision policy makers.

One of the problems identified in the existing CHP has been the lack of involvement of MOH policy makers in the process. In some of the projects (DM), the MOH has been an active participant of the project. In others, the university sector has conducted the research without collaboration of MOH program and policy level personnel (HTN, RVF, filariasis). A consequence of this is a natural lack of ownership of the findings of the studies thereby impeding the translation of findings into policy and program recommendations.

Another problem as stated above is the lack of appropriate packaging of the findings for presentation to the program directors and policy makers. Thus, once results of studies are known, a responsibility of the researchers is to include the recommended policy or program changes that could be inferred by the results of the studies. Or, to recommend the need for additional studies to address suggested policy changes.

The continued development of an ECDC should further the process of developing a national capacity to address disease problems and generate data that would be of use to the policy makers. The DDM project activities should also impact on the translation of the research findings into policy recommendations.

The recent start-up of the Field Epidemiology Training Program (FETP) was seen as an excellent step on the road to an ECDC. A cadre of trained field epidemiologists to investigate disease problems both in terms of acute epidemics and ongoing health problems also drawing upon laboratory, vector control, environmental sanitation and occupational health divisions within the MOH to support in studies thereby solidifying the linkages.

Program design and project selection in view of potential influence on policy changes

The basic medical research projects were the most difficult to attribute potential influence on policy changes as an outcome of the projects. As mentioned elsewhere, the MoAb study to identify children at risk of RHD is hard to interpret into policy recommendations without a better handle on the magnitude of the problem in the 90s post wider availability of antibiotics. Of additional note, while the availability of a screening test to identify those children at high risk of RHD is very appealing to target recommendations for prompt initiation of antibiotic for all cases of pharyngitis in this population identified as at risk, the comparative cost of the screening test vs. the cost of antibiotic therapy of all cases of exudative pharyngitis should be studied. 1/

The team has tried hard to determine the common threads in the selection of the projects. Some of the projects were directed towards the enhancement of local research capabilities, bringing laboratory procedures not previously well developed and standardized up to international standards. In other cases, the projects were directed at

1/ The original project design refers to the identification of population at risk of RF and RHD and for the antibiotic prophylaxis to prevent strep infections. Recent concerns are the emergence of resistant strains of streptococci. Resistance emerges frequently under conditions conducive to non-compliance. Long term chemoprophylaxis is associated with high rates of non-compliance. Hence, chloroquine, fansidar and now mefloquine resistance of plasmodium falciparum, whereas with quinine, which is not used for prophylaxis, resistance has not yet been documented. In the case of acute strep infections, non-compliance is avoidable through the use of long acting injectable single dose antibiotic versus 10 days of oral therapy.

furthering institutional capabilities of MOH related activities such as vaccine development, food safety, development of CDC-like structure to permit the monitoring of diseases in-country and timely following of changing disease patterns in-country.

In terms of the epidemiologically oriented studies, two were addressing known endemic vector-borne diseases to further define the magnitude of the problem in the country and follow the changing epidemiology of the diseases. Three of them were directed at determining the magnitude of the health problems in areas that are non-infectious disease related, those patterns traditionally thought of as "epidemiologic transition" from infectious diseases to chronic diseases and other non-infectious diseases such as environmentally induced.

The effect of the combination of the subcomponents of the CHP results in a project that is oriented towards a strengthening of the overall capacity of the health sector to identify and respond to health problems in Egypt.

3. Project evaluation in view of objectives and achievements

The stated purpose of the CHP was "to improve the capacity of Egyptian and American institutions to provide improved health services. The secondary purpose (is) to develop the biomedical research capabilities of existing medical research institutions to conduct operational, action oriented research."

In terms of the projects under the CHP, a number of them were designed towards the definition of health problems. This information should then lead to the better design of health programs aimed at reductions in disease related morbidity and mortality. Other projects were designed to improve institutional infrastructure which as an outcome would lead to improvement in health services available. Other projects in their design were addressing more research issues with immediate outcomes of the projects to be strengthening of biomedical research capabilities of existing medical research institutions.

The Objectives of the program were to:

"1. Enhance the scientific research capabilities in Egypt to uncover and address major health problems in collaboration with U.S. experts."

Many of the projects were designed to address this. As mentioned above, some addressed this through the upgrading of research laboratory skills, equipment and procedures. Others were designed to determine the magnitude of the

specified health problem, allowing for contributions of the research sector at the Universities to compliment the work of the MOH. Some of the projects were oriented towards the development of epidemiologic skills to define the epidemiology of health problems.

The HTN, DM, STD and Injury projects were designed to uncover and address major health problems. With the exception of the STD project, the objective of defining the order of magnitude of the health problems was addressed and achieved through the studies. The STD project, while designed to define the magnitude of the problem in the greater Cairo area, it did not achieve the stated objective.

The DM project was directed at identifying the magnitude of the problem of DM in the greater Cairo area. The next step would be a further identification of the magnitude of the problem nationwide.

The second part of this objective as stated is to address the health problems once defined. As of the writing of this report, none of the project findings have lead to MOH recommendations or policy changes to address the health problems in the country.

The pairing of top Egyptian scientists as the PIs with top US scientists as the POs was a strength in the program design.

Overall, this objective was successfully met in the majority of the 17 projects. Due to the short nature of the CHP, many of the projects were partially completed in terms of identification of the magnitude of the health problems in limited geographical areas.

"2. Collaborate with the MOH in studies and data collection necessary for the development of standards of service quality, facility staffing and equipment."

Several of the projects were designed with the above objective. The childhood lymphoma and leukemia project addresses this objective. The outcome of the project was to develop treatment norms and modalities that result in lowering the morbidity and mortality due to lymphomas and leukemia both directly and indirectly in terms of the complications of treatment regiments. This objective was achieved during the life of the project.

The equipment maintenance and repair project and the vacsera vaccine development project also addressed these issues directly. The equipment maintenance and repair project appears to have been very successful in the achievement of these objectives. In addition to the development of norms for repair and maintenance of hospital equipment, the

project is sustainable through a cost recovery program with differential charges for public versus private sector.

Other projects did address this objective in terms of the training of MOH personnel in the diagnosis of DM and HTN, and their complications. The DM project trained MOH personnel on physical examination, especially on fundoscopic (eye) exams and vascular studies. The HTN project trained MOH personnel on the correct taking of BPs and in echocardiography and EKGs. The STD project assisted in the development of an STD reference laboratory in the Cairo hospital.

"3. Establish a coordinated system of collaborative research within the MOH that facilitates the application of research knowledge at the service delivery level."

This is a missing link at present. The coordination between the MOH and the research institutions is tenuous at present. In the design stage, the CHP did address this issue through the selection of the projects as a joint effort between the US side and the MOH. Once the projects had been selected, the CHP components did not consistently address this issue.

Historically the MOH was involved in the selection of the research projects to be supported under the CHP. Theoretically each of the University programs was to have collaborated with the respective units within the MOH. This did not occur. In addition to the tenuous nature of the coordination between the MOH and the Universities, coordination within the MOH has not been the best. Hence, the HIS has not coordinated well with the other programs. Recently there has been coordination between the HIS and the CSP activities but documented products of the coordination have not been demonstrated. Many of the project topics should have coordinated with the HIS such as the filariasis and the arbovirus projects as well as the HTN, DM and the ARI serotype identification projects.

4. Establish institutional linkages between the U.S. and Egypt, sharing of information and research materials, utilization of technical assistance and consultants, conferences and training."

This is the strongest outcome of the CHP albeit in some cases the institutional linkages predated the CHP but rather the CHP helped to strengthen and to continue previously established relationships. The CHP was the first systematic linkage of the Egyptian health sector with the US FDA. Ongoing linkages between the Egyptian health sector and the CDC and the NIH predated the CHP, but different areas of expertise were drawn upon during the course of this program. The relationship between the NHLBI and the HTN study group

is new as well as the relationship between the Egyptian DM institute and the CDC.

All personnel interviewed in both countries were very optimistic with respect to the utilization of technical assistance and consultants. Some of the high profile measurable outcomes of the CHP effort were the organization of national and international conferences in Egypt. Thus, the first Pan-Arab conference on Hypertension was held in late 1993 with participation of the other Arabic states. The Injury project conducted a national injury conference with participation of the public health sector as well as the curative health sector. For the first time injuries were looked at as a public health problem instead of an Emergency room/curative care problem.

In terms of the CHP providing a means of access to selected US agencies and institutions of high caliber such as universities, CDC, NIH and FDA, the project was overwhelmingly successful. The evaluation team strongly supports a continued collaboration between the PHS agencies and the Egyptian scientific community.

Were projects properly designed? Were objectives feasible?

There was unanimous agreement of design flaws of the projects in terms of meeting some of the stated objectives. Among the criticisms voiced were the lack of coordination between the projects when there were obvious identifiable areas for coordination. The HIS (statistics) project theoretically is a cross cutting project for the others in terms of development of an epidemiological data base on the disease burden of the Egyptian population. This project should have been coordinating with the other projects that were designed to develop information on the epidemiology of diseases in Egypt (HTN, DM, filariasis, arbovirus, injury and STDs).

In addition, there should have been regular coordination with the CSP as the data on EPI coverages and disease incidences as well as ARI information were of mutual interest. This coordination did not occur. Recently there has been the concerted effort of the CSP to coordinate with the HIS project to ensure uniformity of data collection to meet the needs of the operative programs as well as the HIS unit.

This overall lack of coordination was observed by both US investigators as well as the Egyptian investigators and MOH personnel. While theoretically the projects were designed with the collaboration of the MOH research unit, there did not appear to be an actual sense of ownership of the results to be used by the MOH programs. The evaluation team feels strongly a need for the MOH to be involved at all phases or development of research efforts that would result in information that would be of use to ongoing MOH programs.

During the course of program evaluations, evaluators often make the recommendation of the need to have donor coordinating meetings, preferably chaired by the MOH/program office involved in order to ensure that efforts are coordinated and thereby reduce the likelihood of duplication of efforts. In the case of the CHP, the 17 projects often functioned as 17 different donor activities, with lack of coordination between the projects. A recommendation made by one of the Egyptian collaborators on a USAID funded project was the need for USAID to have a project coordinating meeting/process to ensure a coordination between each of the many funded projects and prevent duplication of efforts as well as conflicting findings, conclusions and recommendations.

One good example of the lack of coordination is the definition of HTN used by the HTN project versus that used by the DM project. HTN has been identified as one of the co-factors/ complications of DM in Egypt. The HTN project defined HTN as a BP greater than 140/90, the definition used for HTN by the NHLBI in the US and accepted by the American College of Physicians and the American College of Cardiology. 2/ The DM project defined HTN as a BP greater than 160/95, the criteria used by the WHO. The need for coordination for presentation of data, interpretation of data and recommendations is obvious.

The projects were not all designed to foster collaboration between the universities and MOH. Thus, the filariasis and arbovirus projects were addressing baseline information needs of interest to MOH endemic disease units to define the epidemiology and transmission patterns of the diseases. To the objective external observer, one would have expected the improvement of laboratory skills in the field of arboviruses to have lead to the development of a sentinel surveillance system for RVF under the leadership of the arbovirus group at Ains Shams University in collaboration with the MOH. This did not occur. One has the impression that the MOH is

2/ The medical literature supports the need to treat HTN with BPs greater than 140/90 to prevent the long term complications of HTN such as vascular accidents and hypertensive heart disease.

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still very much dependent upon NAMRU-3 as a reference laboratory for RVF.

Project accomplishments

Major accomplishments can be identified for most of the projects. Uniformly, laboratory skills and research skills were further developed and supported under the CHP. Laboratories were upgraded with provision of modern equipment. Research skills were supported and many of the projects have published manuscripts as part of the outcome of the studies. Other projects are in the process of preparation of manuscripts for publication in national and international journals.

Most of the collaborative relationships formed during the CHP will continue. Many of the projects are trying to identify additional funding to continue some of the studies begun as well as further analyze the data or expand the studies to wider geographic areas.

4. Sustainability, continued needs in materials and training

Sustainability of the project activities is difficult to address in a program that is of three years duration and was not designed with sustainability as one of the objectives.

Of note is that a collaborative effort between Egyptian MOH and research institutions and the US DHHS agencies and universities has been ongoing for more than 20 years. While the nature of the funding of the collaboration has changed during the course of the 20 years and will continue to change in the immediate future, it does not appear that the collaboration will terminate at the end of the CHP.

Details of any efforts at income generation

The most notable of the projects in terms of income generation were the equipment and supplies maintenance project and the Pharnaco Information Center. The former project (equipment and supplies maintenance) appears to be sustainable in the geographic areas where it is operational through a differential pricing policy for public vs. private institutions and through a personnel incentive component thereby reducing the prior observed phenomenon of training equipment and supply repair technicians in the public sector who then leave and set up shop in the private sector.

Specific plans for continuation of all or part of the project

This subtopic can be approached in two different ways. One is the desire of the Egyptian PIs to continue the activities that have been begun under the CHP and their demonstrated activities towards the securement of funding. The other is the evaluation team's identification of future activities for support felt to be justifiable based on the subject areas and/or the findings of the projects and felt to be concordant within the present USAID health sector strategy for Egypt.

Many of the projects have logical identifiable future activities. In terms of some of the epidemiological studies, the expansion from descriptive epidemiology of the diseases to the implementation of national surveillance systems (injury, STDs, HTN) or sentinel surveillance systems (RVF, urban filariasis). The basic research project under the heading of RHD identified that in 1970, the prevalence of RHD among school children was 10/1000. Data on the prevalence of RHD among school children in the early '90s since the widespread availability of antibiotics is not known. This suggests there is the need for ascertaining the prevalence of RHD among school children.

The equipment maintenance project appears to be highly successful in its area of operation (Giza). Given the demonstrated success of this project, support should be given to the expansion of this project into other geographic areas.

The improvement in the treatment modalities for childhood leukemia and lymphoma with a reduction in both morbidity and mortality due to the diseases and their treatment was a success attributable to the CHP effort. A suggested area for continued research is an economic study aimed at cost benefit of the intervention as well as a study to identify via economic means to support the intervention.

Continued work on the development of local vaccine production are indicated. Given the size of the population, theoretically it is more cost effective to support local vaccine production than to import vaccines. In addition, given the large population, further development of vaccine production capabilities could lead to Egypt serving as a major vaccine supplier for the Arab nations.

Retention of trained staff and material benefits from this project

Maintenance of equipment

The equipment repair and maintenance project was success in the development of a model that lead to a reduction in the "local brain drain". Traditionally, public health programs have trained skilled technicians that once well trained leave the public sector to earn more money in the private sector. This project developed a way to supplement the salaries of the skilled workers and thereby maintain them as employees in the public sector while commanding private sector wages.

Updating training capabilities

During the course of the CHP, skills of many levels of personnel employed within the health sector were upgraded with the development of training courses conducted in-country as part of the projects. The HTN project trained physicians and nurses in appropriate BP monitoring techniques. It also trained physicians in EKG skills and echocardiography as well as peripheral vascular diagnostic skills. Similarly, the health care personnel were trained in diagnosis of complications of DM during the course of the project.

Significant progress in the development of epidemiological skills were gained during the course of the CHP. Most of the projects had a strong computer training component.

Maintaining contacts, collaborators, and networking

With respect to the contacts, collaborators and networking, the obvious links between academic institutions tend to continue.

5. TA: consistency, appropriateness

Did TA relationship lead to independence; was the collaborator a consultant or a teacher

It appears as though the TA provided was appropriate in most cases. The major question that arose with respect to the TA was the heavy focus on US visitors to Egypt in contrast to Egyptian nationals visiting the US institutions. Some of this can be explained/justified by the nature of the assistance in terms of development of local capacity with the studies conducted in Egypt and therefore more appropriately reviewed and assisted in situ.

In addition, the US laboratory/research environment is not always appropriate training ground for appropriate technology. At times, TA provided in-country, even in the applied research field is more "valuable" since it occurs in the natural environment with the local constraints to be addressed and to overcome.

In contrast, at times there are appropriate training courses in the US for nationals to attend that serve the added purpose of expanding the contacts and networking opportunities.

One of the debates with respect to the type of project assistance provided in the CHP surrounds the definition of technical assistance in the context of "development". In some schools of thought, technical assistance is a separate entity from development and therefore the CHP, as a more TA oriented endeavor is considered questionable as a development activity. In other schools of thought, technical assistance is the ideal route for technical capacity building. In this latter framework, the provision of good, appropriate TA over an extended period of time (either in periodic encounters or a prolonged encounter) will result in transference of technical know-how and skills, thereby fulfilling the criteria of a development oriented activity. Under this viewpoint, the CHP is seen as a highly successful endeavor in terms of a development activity.

6. Cost-effectiveness

This was not a part of the original design of the CHP nor does the evaluation team composition allow for an appropriate cost-effectiveness assessment of the various projects.

One issue that was raised during the course of the evaluation was the justification of the childhood lymphoma/leukemia project in terms of its cost effectiveness, providing in-country availability of treatment modalities thereby eliminating the need for international medical evacuation of the affected population. As this is all based on anecdotal information. One possible future activity would be to do a cost-benefit analysis of local management of childhood leukemia and lymphoma cases. Such a study would highlight the importance of this through factoring in the medical evaluation costs plus the economic impact of loss of productivity through early deaths. Such a study would highlight the importance of this through factoring in the medical evaluation costs plus the economic impact of loss of productivity through early deaths. Such a study would highlight the importance of this through factoring in the medical evaluation costs plus the economic impact of loss of productivity through early deaths.

7. Lessons learned and recommendations

Key lessons learned:

Strong need for technical oversight of projects. Managerial oversight provided was excellent and crucial to the implementation of activities with respect to disbursement of funds. The technical oversight as originally called for by the PASA in the form of a Program Joint Steering Committee to "utilize as necessary expert consultants to provide technical review and oversight of the collaborative activities to ensure that they address the program's purposes and objectives" did not occur.

In the initial planning stages of the CHP, a technical advisor was identified but the US mission environment would not support an additional long-term advisor in-country at that time. Unfortunately, once the environment had changed it was not deemed necessary to send a long term technical advisor as it was felt the midterm review would serve as a technical advisory group.

Need for identification of mid-level to junior US and Egyptian counterparts to collaborate on the day to day implementation of activities. A number of the projects noted a desire to have more direct TA time not available by the nature of the more senior project officers. One example of trouble shooting that might have occurred was the STD project. Thus, a more in-depth participation/ collaboration of TA might have identified the constraints to implementation of the activities not feasible during one week visits of senior PO.

Recommendations for future activities:

While many of the projects have identifiable future activities that are generated through the results of the initial work done, some of them could be addressed as activities under other ongoing USAID project assistance such as the CSP, the FETP, and the cost recovery project to name a few. In some of the instances, the team feels the activities begun (or continued) under the CHP are critical to continue as part of the continued strengthening of the health sector in Egypt and may be best addressed as separate large traditional type projects.

E-01-N RHD - prevalence of RHD among school aged children. If found to be at same as 1970 (10/1000), development of "early recognition and treatment of strep infections" as part of ARI activities.

E-02-N Arbovirus - development of sentinel surveillance for RVF activity. Strengthening the laboratory to serve as a national reference laboratory.

E-03-N Filariasis - prevalence of filariasis in urban areas and development of sentinel surveillance system for introduction of filariasis into urban areas.

E-04-N Vaccine Development for ARI - continued work on monitoring the serotypes of ARI organisms for appropriate vaccine development as well as monitoring the antibiograms of the ARI organisms to feed into national recommendations for treatment modalities.

E-05-N Genetic Counseling

E-06-N HTN - continued analyses of the data base to identify the HTN complication rate in women of the childbearing age with recommendations for management during pregnancy.

E-07-N Equipment Repair and Maintenance - expansion to other governorates.

E-08-N Lymphomas and Leukemias - cost benefit analysis of treatment of lymphomas/leukemias in-country vs. present cost of medical evacuation. Study to identify cost recovery mechanisms.

E-09-N Health Information Services - CD-ROM capabilities with network access nationally. Development of a national electronic information network that would allow access to databases.

E-10-F Pharmaco Information Center

E-11-F Production Capability of biologics - upgrading of local production of biologics. Should probably be continued in terms of providing PHS TA. Consideration should be given to the development of a separate "umbrella" project under Child Survival activities for the development of production capability of biologics. This would require TA in terms of development of production capabilities and TA in terms of development of regulatory capabilities; May have role for private sector TA if privatization of Vacsera

E-12-F Food Quality Assurance - serosurvey to determine blood lead levels in the childhood population with the objective being information leading to the development of a national environmental monitoring and pollutant reduction campaign.

E-13-C Diabetes - continued studies to identify the prevalence of DM nationwide. Additional data analyses of the initial data set to identify the DM disease burden among women of the childbearing age group and prevalence of gestational DM as a contributing factor for high risk pregnancies.

E-14-C STD - prevalence of STDs among women attending pre-natal clinics in urban areas.

E-15-C National Health Statistics System - Coordination with epidemiologic surveillance activities. Implementation of a national statistical system that is timely and coordinated the data collected through other programs within the MOH. Need to develop a feedback system so that the data reporters are receiving information on the analyses of the information they have reported into the system. This may be better addressed through a separate traditional type of USAID financed project with long term technical assistance in-country.

E-16-C Feasibility of ECDC - assistance in strengthening institutional capacity to lead to the infrastructure necessary to develop an Egyptian CDC. This is best supported through the continuation of the activities begun under the CSP in the FETP (Field Epidemiology Training Program).

E-17-C Injury - Establishment of National surveillance system; risk factor identification and development of prevention activities/awareness program activities.

Project design in context of existing MOH and AID strategies

USAID strategies have a strong focus on MCH related problems in the health sector. Many of the CHP projects have potential implications on MCH. USAID has a strong commitment to capacity building and most of the CHP projects were oriented towards capacity building either structural capacity for research capabilities as well as technical capacity.

8. Project management

Major identified need was technical oversight. The project management in terms of administrative support was reportedly excellent. Difficulties inherent in the technical oversight of the projects as there was no TAG or steering committee to review project workplans and activities. An example is a justification of the heavy weighting of US travel to Egypt. Were all the individuals who traveled to Egypt justifiable on technical expertise grounds? Where was the mechanism for oversight.

Future activities in terms of collaborative exchanges between PHS agencies and universities should have technical oversight as part of the design.

ABBREVIATIONS USED IN CHP EVALUATION REPORT

ARI	Acute Respiratory Infections
ASP	Antibiotic Susceptibility Pattern
BCP	Birth Control Pills
BP	Blood Pressure
CCCD	Combatting Communicable Childhood Diseases
CDC	Centers for Disease Control and Prevention
CHP	Collaborative Health Program
CSP	Child Survival Project
DDM	Data for Decision Making
DHHS	Department of Health and Human Services
DM	Diabetes Mellitus
ECDC	Egyptian Center for Disease Control
EKG	Electrocardiogram
EPI	Expanded Program on Immunizations
FDA	Food and Drug Administration
FETP	Field Epidemiology Training Program
FP	Family Planning
GOIRE	Government of the Islamic Republic of Egypt
HIS	Health Information System
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
HTN	Hypertension
LOP	Life of Project
MCH	Maternal and Child Health

MoAB Monoclonal Antibodies
MOH Ministry of Health
MSU Management Support Unit
NHLBI National Heart, Lung and Blood Institute
NIH National Institutes for Health
OIH Office of International Health
PIP Project Identification Paper
PHS Public Health Service
PI Principal Investigator
PO Project Officer
PP Project Paper
RF Rheumatic Fever
RHD Rheumatic Heart Disease
RVF Rift Valley Fever
SOP Standard Operating Procedures
SOW Scope of Work
STD Sexually Transmitted Diseases
TA Technical Assistance
TAG Technical Advisory Group
US United States
USAID United States Agency for International Development
WCA Women of Childbearing Age
WHO World Health Organization

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ADDITIONAL MEETINGS AS PART OF CHP EVALUATION
(MPP attended)

CAIRO, EGYPT:

13 February 1994

Briefing meeting PB and MP

19 February 1994

Arbovirus - Dr. Medhat A. Darwish
MP, DH, PB

Filariasis - Dr. Gad
MP, DH, PB

Equipment repair - Engineer Shehata A Atalla
MP, DH, PB

20 February 1994

Team meeting, PB, MM, DH and MP

21 February 1994

USAID - Ms. Joy Riggs-Perla, Mr. Carl Abdoul Rahman,
Madame Fawsia
MP, MM, PB, DH

Injury Control - Dr. Saleh Mallah, Dr. Zenab Youssef,
Hala Al Hennawy
MP and DH

Team meeting, PB, MM, DH and MP

22 February 1994

CSP - Dr. Reggie Gibson
MP, MM and DH

STD - Dr. Mobdy
MP and DH

FETP - Dr. Douglas Hatch
MP, MM and DH

23 February 1994

Team meetings, PB, MM, DH and MP

24 February 1994

USAID debriefing, team and USAID staff

26 February 1994

Cancer Institute - Dr. Nabil and Dr Nazli Gad El Mawna
MP and DH

Diabetes Project - Dr. Mohamed Ali, Dr. Edward Sous,
Dr. Moustafa Habib
MP

OIH MSU - Mr. MarJan Ostroewski
MP and DH

27 February 1994

CSP - Dr. Esmat Monsoor
MP

FETP - Dr. Douglas Hatch
MP

Vaccera Research/RHD and ARI - Dr. Mona Assaad
MP

28 February 1994

HIS/Statistics Unit - Dr. Samir Gurguis
MP

OIH/MSU - Mr. MarJan Ostroewski
MP

1 March 1994

Hypertension - Dr. Ibrahim
MP

USAID - Ms. Joy Riggs-Perla, Mr. Carl Abdoul Rahman,
Madame Fawsia
MP

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ATLANTA, GEORGIA:

7 March 1994

OIH - Ms. Marlyn Kefauver - telephone meeting
MP

Meeting and discussions, MP and MM

8 March 1994

ECDC - Mr. Ross Cox
MP

Injury - Dr. Phillip Graitcer
MP

Discussions MP and MM

9 March 1994

STD - Dr. Stuart Berman

Discussions MP and MM

10 March 1994

Meetings and discussions MP and MM

11 March 1994

CDC coordination unit - Ms. Elena Belansky
MP

15 April 1994

CDC International Health Program Office - Dr. Joe Davis

Attempted to arrange meetings with Dr. Ken Hermann of Diabetes but he was out of town on annual leave for the week. Dr. Ron Aubert was called but was not available to take the call. Will attempt a phone communication with Dr. Ken Hermann during the coming week

I was unable to meet with Dr. Larson from NCHS as he has relocated to the Washington DC area with NCHS.

MISCELLANEOUS OBSERVATIONS FROM ABOVE MEETINGS

Meetings at CDC:

The meeting with Elena Belansky from CDC was interesting in defining the difficulties inherent in the OIH to CDC PASA arrangement. CDC has developed experience in working with USAID financed projects most extensively and most recently with the CCCD project. As an outcome of the prior experiences, CDC is cognizant of USAID reporting and administrative needs both in terms of technical progress and financial accounting. During the course of the PASA there were occasions when OIH had direct contact with the CDC project officers to address some of the financial and other reporting. These contacts were not conducted through the CDC coordinator's office and at times resulted in duplication of effort.

CDC acknowledges that the OIH relationship in terms of approval of international travel of PHS staff was smooth throughout the life of the project. In addition, while they feel they would prefer to deal directly with USAID and eliminate the middle man, there is an understanding that it reduces the burden on USAID to deal with one spokesperson for the PHS rather than each of the PHS agencies (CDC, NIH and FDA). Hence, the recommendation for future efforts would be to ensure that the CDC coordinating office was the interface with OIH rather than directly with the projects.

Another concern raised by the CDC coordinating office was the inability to have more site visits to see the projects during the life of the project. Ms. Belansky had only one visit to Egypt during the three years and felt there was a lack of understanding of the local conditions of the projects that would have been facilitated had she have been there other times.

While I approached the issue of overhead, the answer was not clear. Discussions with Ms. Marlyn Kefauver/OIH revealed that CDC did have an overhead agreement with OIH which at times was waived by CDC. While lack of overhead was vocalized as a problem by some of the NIH project officers (according to MM), CDC did not feel this to be an issue. Procurement of supplies for the CDC project components were predominantly done locally in Egypt with the help of the MSU (MarJan).

With respect to technical oversight, according to Elena, all of the CDC projects were subjected to the CDC peer review process prior to submission of the proposals. She feels strongly that the presence of Doug Hatch (FETP) now would have provided more of the on-the-ground technical oversight

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that was compromised by the distance between POs and PIs (US to Egypt) and the inability to have more frequent and longer in-country visits on the part of the project staff.

One of the issues is the time frame for the projects. When the PASA was in process, they had the understanding that the projects were to be 3-5 years in duration with probable continuation of funding past the original life of project (LOP). Many of the projects were not felt to be do-able in three years which was then effectively cut to two years due to the Gulf War.

CDC was interested to know what types of future collaborative efforts would be of interest to the Egyptians and to USAID.

In the meeting with Ross Cox, unsolicited he praised the relationship with OIH and their assistance. He found them to be very supportive both through the MSU (MarJan) and in the Washington office. He expressed an observation that OIH was instrumental in tying together all the projects. This was relevant to his component as the ECDC feasibility study looked at the projects and how they tied into the development of a CDC-like structure. This required meetings with the various projects and receipt of information on the various projects and the MOH. A process that Ross felt was greatly facilitated by OIH.

The feeling is that the FETP will be one of the key activities pre-requisite to the development of an ECDC. The need for the establishment of a permanent home for the FETP (it is presently "housed" in the CSP) should drive the development of the ECDC as the natural home for the FETP would be the ECDC.

Ross mentioned one of the greatest liabilities was inheriting a project that was designed by someone else. In his case, the original project design was done by the deputy director for international health (Dr. Joe Davis) in conjunction with Drs. Jim Sarns and Mike White. Extrapolating this to other projects, this was also seen by the STD.

The meeting with Stu Berman of STD was helpful in learning about the chronology of the project and the multiple project revisions. According to Stu, the project he inherited from Joe Lossick was overly ambitious and they immediately decided to scale down the project to meet with the two year time frame left. The concern and frustration was the continuation of funding of the project with the obvious lack of interest of the Egyptian PI and the lack of progress in implementation of activities each time he would leave the country.

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An interesting response was when questioned if he would be willing to return to Egypt to continue activities if additional funding were to become available, he was willing with the proviso that there was demonstrated commitment on the part of the MOH for the activities.

The meeting with Phil Graitcer revealed a frustration for the lack of commitment on the part of the MOH for the activities. Phil was surprised to learn that the Egyptians had developed a line-listing surveillance form and were interested in developing a national injury surveillance system. A general observation he made was that from the CDC perspective the collaborative effort was beneficial. The focus of the project was to development an awareness of injuries as a major contributor to the health problems in Egypt. This was accomplished with additional training in injury epidemiology, data processing and analysis.

APPENDIX II

**Cooperative Health Program Final Evaluation
Draft Report for Inclusion in Final Report
Melinda Moree, Ph.D.
AAAS Fellow, USAID Office of Health**

Report Methodology:

The original PASA agreement has four objectives:

1. Enhance the scientific research capabilities in Egypt to uncover and address major health problems in collaboration with U.S. experts;
2. Collaborate with the MOH in studies and data collection necessary for the development of standards of service quality, facility staffing and equipment;
3. Establish a coordinated system of collaborative research within the MOH that facilitates the application of research knowledge at the service delivery level;
4. Establish institutional linkages between the U.S. and Egypt, sharing of information and research materials, utilization of technical assistance and consultants, conferences and training.

The team was asked to prepare a final evaluation of the CHP. The SOW given to the team did not, however, directly relate to the original objectives of the PASA. In the report the team attempts to distinguish between what was originally asked of OIH for implementation, and what is being examined in this evaluation scope. The cross-cutting issues identified in the SOW are important factors, however, in assessing what type of activity, if any, will follow after the CHP.

There were several limitations to accomplishing the evaluation. Final reports were not available to the team as the project did not officially end until after the evaluation was completed. Thus it was difficult to evaluate the scientific quality of the work that was done as the data were not available. The team arrived and left Egypt at various times and the overlap for team activity was short. Adequate documentation of the project was not available to the team. Objectives for several of the sub-projects had changed over time and we did not have the original proposals for comparison. Thus it is difficult to fully assess whether the projects were properly designed and fulfilled the original objectives.

General Comments:

The long collaboration between the PHS and the GoE has been successful in strengthening the capacity to do health research in Egypt and it should be continued. This collaboration has benefited Egypt and has also benefited the U.S. through the results of the research.

There was much discussion among the team as to how one can best ensure that the results of research will be incorporated into policy. There are different ways to approach this, some dealing with the generators of data (FETP project) and others aimed primarily at the consumers of the data (Data for Decision Making). Both the "bottom-up" and "top-down" approaches are essential for the creation of a data culture within a MOH. The Mission has achieved a balance between these activities and is encouraged to maintain that balance in future activities. The CHP project has succeeded in strengthening the generation of good data within Egypt.

Comments on Cross-cutting issues: (Compilation of my comments and team discussion)

1. Capacity Building

Physical

Laboratory capacity has been built in Egypt through the CHP project. Both MOH and University laboratories have been upgraded through equipment purchases and several laboratories can now serve as reference laboratories for health problems such as acute respiratory infections and toxic contaminants in food. Procurement of computers has enhanced the data gathering and analytic capabilities of the MOH and Universities for activities such as tracking systems for vaccine production at VACSERA, expanded services of the Pharmaco Information Center and more access to those services, model programs to improve the National Health Statistics System, etc.

Several of the projects were still receiving equipment during the team's visit to Egypt. A three year cycle was too short for projects that relied heavily on procurement of equipment. The CHP built capabilities that are just now set up to produce results.

Procedural

New methodologies have been transferred to several of the projects. The Central Health Laboratories can test for several contaminants in food that could previously not be tested for in Egypt, VACSERA received FDA Standard Operating Procedures to improve vaccine production, eight pharmaceutical companies received and implemented GMP procedures prepared by the FDA and procedures for diagnosing tropical and infectious diseases were transferred to laboratories in Egypt.

Intellectual

Through the technical assistance many techniques and methodologies were transferred through training in the U.S. and the process of collaboration. There exists little evidence, however, that there is an increased capacity to plan studies and to interpret and analyze

results. There is a pattern of analyses being done in the U.S., testing of specimens in U.S. laboratories (some were done by Egyptian project personnel), troubleshooting done by regular visits of U.S. consultants and a reliance on the MSU for communication and logistics. This is not to say that the Egyptian research groups did not have this capacity at the start of the project but that there is no obvious demonstration of an increase in that capacity as a result of the CHP.

The CHP did foster collaborations between U.S. Public Health Institutions and the Egyptian MOH and Universities. Professional relationships have been established that we believe will last after the end of a USAID funded project. Several Egyptian groups have established ties with regional and international networks of their peers. A benefit of having many of the best in their fields as a source of TA is the opening of doors for Egyptian investigators to present their findings at international meetings.

Conclusion

Much capacity has been built through this project in terms of improving the physical and procedural capacity. A less well developed aspect has been intellectual capacity building. Issues such as self-reliance, planning, analysis, etc. could have been better addressed by this project. This is, however, what is to be expected with a project of this kind which has attracted technical assistance from agencies with a primarily domestic mandate. For several of the studies, technical assistance was what was needed and the TA facilitated the study. In other cases the work was really developmental in nature. Neither type of assistance is inherently right or wrong, it should just be applied selectively to the appropriate situations.

2. Health applications, impact, policy changes, dissemination

Most of the projects of the CHP did not have a direct impact on the health of the Egyptian people nor were they intended to. CHP is not a service delivery project and was designed with very different objectives in mind. The team instead chose to address the impact of CHP projects on health policy and the potential impact of CHP projects on health status.

Infrastructure projects have the potential to impact on the quality of vaccines and pharmaceuticals; better collection of, and improved access to, data needed to set policy and procedures; and the improvement to the infrastructure necessary for the delivery of health services. Epidemiology projects focused on emerging health problems and attempted to define whether the disease groups are a problem or not in Egypt. This is essential information for planning and programming. Applied research projects usually have a longer term pay-off in terms of impact on health status, but often work to develop tools necessary for future policy developments.

Five of the six epidemiology projects provided disease prevalence

data that could be used by policy makers. Studies have pointed to the importance of two chronic diseases hypertension and diabetes in Egypt. Sampling for filariasis in urban areas suggests that the conditions are right for transmission (although none has occurred) and a low level of surveillance may be warranted given the high levels of rural filariasis and rates of immigration into Cairo. Injuries have emerged as an important cause of mortality and morbidity in children and adults and the surveillance defined some of the high risk groups and activities that could be targeted for intervention. These projects were necessary but not sufficient for policy development. They provide a framework, however, through which future studies can be directed.

Results from the infrastructure development projects are more mixed. In some cases the technical assistance exceeded the management and legislative capacity to absorb it. A capacity to repair and maintain medical sciences equipment has been developed and this is vital for cost containment and quality of the delivery of health services. Changes in policy on fee recovery must be made, however, for this program to realize its potential success. Major progress has been made in upgrading eight pharmaceutical manufacturers in GMP and thus enhancing their opportunities for privatization. The capacity to detect additional toxic contaminants in food has been developed which resulted in the rejection of imported foods containing contaminants and the identification of possible food sources of lead. The identification of sources of contamination is key to changing policies (food packaging, lead in the gasoline, etc.) which could result in the reduction in exposure and the adverse health consequences. A health information system which both collects and disseminates key health data is vital to establishing program priorities, following disease trends, evaluating program performance, etc. The National Health Statistics System project did not operationalize itself in a way, however, that would lead to enhanced data use by policy makers. Quality, low cost vaccines are essential to publicly funded immunization programs. Ineffective or dangerous vaccines can harm the public's cooperation and support for immunization. The goal of upgrading VACSERA was not fully realized under the CHP because of the management issues present at VACSERA. The technical assistance on GMP and QC needed to be part of a larger effort encompassing management and regulatory change.

Most of the projects presented their findings to the Minister of Health both at the CHP summation conference and through personal meetings with him. Few of the projects, however, involved key policy makers in their research results until the very end of the project.

The sub-projects were not designed in a way that could result in an immediate impact on policy. The epidemiological studies are descriptive and none attempted to look at the effects of an intervention. Studies on prevalence must, however, precede studies on interventions. Diabetes, hypertension, and injuries have been identified as health issues of importance in Egypt. The filariasis

study indicates that urban transmission is not occurring yet but that conditions for transmission exist.

Several of these projects described the health situation for several diseases. Future studies on the same disease issues could be designed to look at issues such as cost-effectiveness of prevention versus curative care, design and evaluation of the efficacy of intervention programs, etc.

An often overlooked aspect to policy linkage are the disease specific advocacy groups. The U.S. model suggests that government policy often lags behind public sentiment. Advocacy groups are able to enhance and channel this sentiment into policy changes in a very effective way. Several of the projects disseminated their findings through regional conferences which garnered quite a bit of attention and press. This is not the traditional route of going through the government but it is a legitimate route in a civil society and is often more effective.

3. Program evaluation in view of objectives and achievements

(See accomplishments of individual projects in the main report)

4. Sustainability

Sustainability could not realistically be addressed in this project of only three years duration. This time frame was about long enough to train project staff in new techniques and procedures and to get equipment procured and set-up. Most of the projects new to this PASA are just beginning to produce data. New laboratory capacities have been built but there was not enough time remaining in the PASA to institutionalize that capacity. Without continued support either from the MOH or from donors, several of these capacities will have only been fleeting opportunities.

A small number of projects achieved sustainability, or at least reached a natural hand-off point to the MOH. These projects were all funded under the previous PASA or P.L. 480 funds. The Pharmacology Information Center successfully met its objective of achieving financial sustainability; the next two years of expenses are pre-paid by subscribers to the information systems. There is good response to their training courses in counterfeit and substandard drug detection for which they are also charging fees. The retention of users fees requires a change in legislation which was still pending when the team departed Egypt. US POs for the arboviruses project have been working with WHO to make Ain Shams a collaborating center for Arbovirus work. This seems likely to happen and will allow the activities started under the project to continue. The CHP project helped to build the capacity to test for the presence of arboviruses and this laboratory will potentially be used as a regional resource. The equipment repair project achieved some success by changing legislation in the Giza Governate to allow

them to retain fees and pay a percentage to the workers as bonuses. Retention of trained engineers is a serious problem in Egypt as most go and work in other Middle Eastern countries where the pay is higher. Additional changes in legislation will be required for expansion of the project, however.

One of the great successes of the CHP project was the collaborative relationships that were set up between Egyptian and US investigators. The CHP effectively brought together Egyptian and US investigators with shared interests in settings where both groups could benefit from the collaborations. In most cases these relationships will continue after the end of the CHP. Some US POs are seeking out other sources of funding that would cover the basic costs of continued collaboration. Egyptian investigators had many doors opened to them through the contacts of the US POs.

OIH and the US POs could have been more proactive in pointing out funding and training resources to the Egyptian investigators. Few of the projects had plans for how they would find the financial resources necessary to continue the work. Many Egyptian PIs were unaware of the donor agencies and foundations the team mentioned to them as possible funding sources. Most US and Egyptian investigators seem to assume that future funding would come from USAID and it was not until very late in the project that they were convinced that funding for the project was really going to end in March 1994.

For a few of the projects major activities were carried out in the US. Because of the short duration of the project, time was not taken in many cases to do problem solving in-country. While this approach is expedient in producing data, it may not be the best way to build analytic capacity in Egypt. This approach builds a reliance on outside entities for planning and for analyzing data. Some laboratory projects relied on US laboratories for a check on the quality control of the lab instead of simultaneously building a reliance on local resources. Some projects did use local resources when it was appropriate and these projects are included in the group mentioned above as having reached a level of sustainability. This reliance on U.S. capabilities also feeds into the issue of the use of data generated in Egypt. The MOH needs to have confidence in data generated by Egyptian investigators. The greater the reliance on outside sources for quality control of data, however, the greater the reluctance of the MOH to accept data from solely Egyptian resources. One hopes for a time when the Ain Shams group could give the MOH an advance notice on a Rift Valley Fever outbreak and be the primary laboratory used for case confirmation. This could move the MOH away from a reliance on CDC and NAMRU-3.

Sustainability also speaks to the training of a cadre of junior investigators who will serve as the replacements to the more senior investigators. This was an element missing in the CHP program. Several of the Egyptian projects were run by senior investigators with little involvement of junior staff in the planning and

direction of the project. US POs recognized this problem in several of the cases but felt they could only make suggestions that often were not followed. Future projects should require the naming of a junior investigator along with a senior investigator.

It seems clear that without pay incentives many of the trained staff will not continue to work on the projects they have been trained for. There was a problem in retaining trained staff during the project that will only be increased with the ending of the CHP.

Several projects identified maintenance of equipment as a need for the future. Some of the projects did try to provide training in equipment upkeep and repair. Some of the projects acquired maintenance contracts but they are costly and many projects will be unable to keep these. Because of procurement problems, some equipment was just delivered and continuing TA for repair will not be available after March 1, 1994. New capabilities will be lost as equipment breaks down and is not repaired. The equipment repair project could be used to fill in some of these gaps.

5. Technical Assistance

The TA received through the CHP was of very high quality. PHS experts in their respective fields were accessed through the project. The U.S. POs were very involved in the work and in most cases developed a very collaborative method of technical assistance. In three short years, there are many accomplishments from the projects. These accomplishments are largely due to the sheer hard work and dedication of the Egyptian and U.S. investigators.

There are some limitations, however, to using personnel from agencies with domestic mandates for international development work. For many of the U.S. POs, their work with the CHP was in addition to their full-time responsibilities. In most of the PHS agencies, international work is given a lower priority than domestic work. This caused trips to be planned based primarily on the availability of the U.S. POs which did not always coincide with when the Egyptian project side needed, or was ready for, the TA. This probably also accounts for the reliance on U.S. resources rather than in building up reliance on local or regional resources for collaboration, trouble shooting and quality control. This is a time consuming process.

For some of the projects, utilization of TA from the PHS would be more appropriate in supplying specific assistance when the broader issue has been defined. A prime example is with vaccine production at VACSERA. Vaccine supply in Egypt is a serious issue for the MOH. Just improving the GMP at VACSERA will not necessarily result in better vaccines in the needed quantities. USAID, WHO and UNICEF have articulated the need for a vaccine supply strategy. If the MOH approves, an assessment can be done of VACSERA to identify not only the technical production and facility needs but also their

management and regulatory needs. Under an overall strategy the FDA could be a valuable collaborator in specific defined topics.

CHP was more a project of technical assistance and collaboration. There was a two way process which benefited the U.S. researchers as well as the Egyptian researchers. This made the project slightly different than the more traditional development projects. This was a great strength of the project which allowed innovative research to be done on topics which usually receive little attention in LDCs such as food quality and chronic diseases.

6. Cost-effectiveness

The composition of the team did not allow for an evaluation of cost-effectiveness nor did any of the projects examine this issue.

7. Lessons learned and recommendations

Lessons learned:

Strong technical oversight and in-country logistical support is necessary for a project of this type. The in-country management unit was critical to the success of the project. The lack of an Egyptian counterpart to this unit was, however, a loss to the project. Strong technical oversight is necessary to keep the projects on track. The U.S. POs are too deeply involved in the substance of the project to be able to provide oversight to the work. The mid-term review had no mechanism for follow-up on the recommendations so many were not acted upon.

Innovative research is important for strengthening existing health programs. For example, research on hypertension and diabetes demonstrated a large prevalence of each disease in Egypt. We know that chronic diseases are more expensive to treat and that many can be prevented by behavioral changes. This information alone has not directly changed MOH policy, but it does add impetus to the argument that Egypt must move the focus of health programs from curative care to preventive care in order to control rising health care costs. Another example is the injury control project. Results of the epidemiologic research indicate that injuries are an important cause of maternal and child morbidity and mortality in Egypt. This information suggests that injury control may be an important, but not well explored, aspect to improving maternal health and child survival.

Recommendations:

Rheumatic Heart Disease (RHD)

A 1970 study of RHD demonstrated that there is a high prevalence in Egypt. While there is a feeling among many physicians that RHD is still a serious child health problem in Egypt there is no current data to support that. The MOH has begun a program of physician education on the signs and symptoms of RHD. A current RHD

prevalence study would be useful to the MOH for planning and targeting intervention strategies and education programs.

Arboviruses

The base of a national reference laboratory for arboviruses has been established at Ain Shams University. Connecting this capacity with a sentinel surveillance system for Rift Valley Fever would allow Egypt to predict the location and magnitude of epidemics and to take early steps at preventing large outbreaks. This could lessen the reliance on NAMRU and CDC.

Filariasis

Filariasis is very important health problem in rural Egypt. This project demonstrated that conditions exist in Cairo for the transmission of filariasis in urban settings although they did not document such transmission. Due to the serious nature of the disease, a low level surveillance is called for so that appropriate interventions can be made early if filariasis moves into urban settings.

Vaccine Development for ARI

The work of the VACSERA research group on serotyping of organisms that cause ARI and antibiotic resistance of those organisms is important for future vaccine policy issues. The MOH will need this information in deciding which new vaccines will be most useful within Egypt. The work on production of new vaccines seems to be far ahead of the production side of VACSERA. While the work is of high quality it is not clear how this work will benefit the availability of new vaccines until the production capacity is upgraded.

Hypertension

This project identified the high prevalence of hypertension in Egypt. The next step would be to do further research to determine preventive interventions that will work in Egypt.

VACSERA production of biologics

Vaccine supply is an issue of critical importance to the MOH. Goals for immunization and, in some cases, eradication will be difficult to meet without upgrading the production capacity of VACSERA. In part, the work by the FDA demonstrated the larger issues that must be addressed in the future. The FDA can be a valuable contributor to a larger project that addresses the production, management and regulatory issues at VACSERA.

Food Quality Assurance

A valuable laboratory capacity has been built for the detection of toxic and biological contaminants in food. This lab could be used to conduct a serosurvey of lead levels in the population.

Diabetes

The project demonstrated high prevalence of diabetes. Further studies could determine the effect of diabetes on maternal morbidity and mortality and determine interventions and case

management for the preventions of complications.

Egyptian CDC

A focal area for prevention should be established within the MOH.

Injury Control

This project established the prevalence of injuries and also identified some groups to target for intervention. Further work on identifying risk factors should be conducted to better plan intervention strategies.

These activities have the greatest potential for impacting policies and programs in Egypt and fit within the strategies of USAID and the MOH. Most could be folded into existing or planned projects.

8. Project management

Management of 17 sub-projects involving three different US Public Health Service agencies and several Egyptian Universities and MOH departments was not an easy task. The process of management evolved over the 3 year project into a system that would relieve USAID of direct oversight of project details and that would be reasonable for OIH to manage at a distance. The original design of the project created many management difficulties within the program as the amount of administrative support necessary to maintain 17 projects was overwhelming. The Gulf War occurred during the start-up of the program and delayed the implementation of projects that were already underbudgeted for time. A considerable amount of time was spent in the duration of the program catching up for this lost time.

One aspect of the management evolution was the establishment of an in-country management unit to oversee administrative and logistical details of the program. The head of the management unit was praised by investigators from Egypt and the US for his assistance in keeping the projects going. The management unit was responsible for reporting to USAID, facilitating communication between the US and Egyptian investigators, overseeing the Egyptian Pound project budget and interfacing with MOH officials. This unit also facilitated interaction between the sub-projects by having periodic meetings on management and administrative issues and also for a proposal development workshop. This unit was established fairly late in the project at the insistence of USAID and its presence relieved the management burden on the Mission. OIH originally planned to have a long-term advisor in Egypt but those plans were derailed due to the Gulf War. Having an in-country presence for administration and logistics was critical to the functioning of the program.

The most often cited problem was that of procurement. The NIH system was not able to handle the procurement necessary for the

projects. A few projects were receiving equipment at the summation conference just one month before the project ended. Some POs were frustrated enough to say that they would not be involved with future projects because they could not spare the time that was necessary to follow up on the procurement. This situation had a deleterious effect on several projects. In hindsight, OIH agrees that it would have worked better to have all procurement done through OIH

Despite the major problem with procurement, most US POs were satisfied with the level of support provided by OIH. Those who had previous USAID experience seemed more sanguine about the reporting requirements. Many POs did feel, however, that OIH could have better informed them of the work of the other sub-projects. Several stated that the February 1994 summation conference was the first time they had a sense of being part of a larger effort. The US POs did not seem to have a good sense of what was required of them other than for the required reporting. A few had taken over from colleagues and had not been well oriented to the program. An orientation or even yearly meetings of those involved in the program would have been helpful to the POs in better understanding their roles.

Given the many of layers of bureaucracy of this project it is amazing that most of the project objectives were achieved. USAID wants to have access to all of the PHS Agencies and has compelling reasons for working through OIH rather than directly with each Agency. Both CDC and FDA, however, have experience working with USAID and are aware of the administrative requirements associated with USAID agreements. Both Agencies saw OIH management as an unnecessary step to providing assistance directly to USAID. These two Agencies were not opposed to working through OIH, but they saw no advantage to their institutions and projects with this arrangement. In fact, administrative duplication had occurred when OIH had requested the same information from the Agency coordinator and from the project. Clear communication guidelines were not established and this caused some confusion. All agencies agreed, however, that the PASA arrangement created less management issues for USAID than a PASA with each agency would create.

Project 19, the Egyptian management unit, was to include financial and administrative sections that would work with the OIH management unit but, the unit was never established. The MOH did appoint one person to oversee the MOH pound budget but there was little involvement with the projects. The lack of an Egyptian counterpart was a serious impediment to the ultimate success of the program. While most Egyptian investigators had a sense of ownership of their projects the MOH as a whole did not seem to. As a result there was not a natural advocate within the MOH to try to advance research results into policy. Instead this responsibility landed on high ranking MOH officials with many activities competing for their attention.

Technical Oversight

The OIH/MOH agreement called for a technical advisory group (TAG) of up to 12 members who would advise OIH and the MOH on the technical aspects of the projects. Instead of an ongoing TAG, the mid-term review team served as the TAG for the program. They evaluated the projects in 1992 and made extensive comments and recommendations for each. The comments were provided to the Egyptian PIs and the US POs but there is no evidence of follow-up to ensure that the recommendations were implemented. This approach to a TAG also left no mechanism for oversight of the program as a whole.

In addition to a management unit the project would have been better served by having a technical unit in country as well. This would have provided interim support to the investigators in between visits from the US project officers and served to keep the projects technically on track. A few of the projects veered from their objectives and there existed no mechanism to refocus these projects.

The issue of technical oversight demonstrates a clear difference between the perspective of USAID and the perspective of OIH. OIH and many of the project officers saw the CHP as a program of collaboration. OIH saw the program more as a small grants program similar to the NIH grants process. USAID, however, requires more accountability from the projects that it funds. It rarely gives out funds without strings attached regarding the accomplishments of the programs and the fit with existing strategies. OIH refers to the project as one of technical cooperation while USAID refers to the project as a program of technical assistance. In part, this is due to a change of staff in the Mission and to the need for greater adherence to Mission strategic objectives (focus and concentrate). OIH feels as though the nature of the project changed after the awarding of the PASA. The CHP PASA is very sparse and is quite short on the details of the program. All government agencies have constraints that they must work within and better understanding on both sides could result in more fruitful collaborations. In future collaborations between OIH and USAID the terms of what is expected from each group should be clearly spelled out before the agreement is signed. Flexibility in the arrangement could still be preserved, but the roles of the agencies could be better clarified.

In general the team believes that OIH did a fine job of managing a very complex set of projects and people. This arrangement is clearly dependent on an in-country management unit. Having OIH and the in-country management unit manage the projects did lessen the administrative load on USAID. OIH was not as responsive to the needs of the Mission as they could have been which may stem from the fact that there is not a shared vision between OIH and USAID of what the program should consist of. In designing future USAID projects with the U.S. PHS, the starting point should be a shared set of objectives and of a process for achieving those objectives.