

THE FAMILY HEALTH CARE REPORT :

Health Manpower and Health Services
In the Syrian Arab Republic

ISSUES, ANALYSES AND RECOMMENDATIONS

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I. EXECUTIVE SUMMARY

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I. EXECUTIVE SUMMARY

I.1. INTRODUCTION

The charge of the Family Health Care (FHC) team focused on, but was not limited to, a broad assessment of health manpower in Syria. In particular, the team was asked to review the current manpower training programs and facilities of the Ministry of Health, especially the paraprofessional health workers at the National Health Technical Institute. Prior to addressing these tasks and to making any recommendations, the team felt it was both appropriate and necessary to gain some understanding of the health problems of the people and of the public and private systems for delivering health care in Syria.

The FHC team arrived in Syria on April 20 and departed on May 12, 1976. In order to accomplish the above tasks, team members met with the Minister of Health, two of the three Vice Ministers of Health, other senior staff members of the Ministry in Damascus, the Director of USAID/Damascus, and staff members of the Ministry in the Mohafazats (provinces) of Damascus, Aleppo, Latakia, Al-Sweida, Deir-ez-Zor, and Al-Rakka. Other interviews by FHC included: community residents; agricultural field workers; private physicians and pharmacists in private hospitals in rural and urban settings; public physicians, dentists, and laboratory

technicians in Ministry of Health hospitals and health centers; the Director and instructors of the National Health Technical Institute; senior faculty members at the Damascus and Aleppo medical schools, and faculty associated with the Aleppo Intermediate Medical Institute; the resident WHO Bilharzia expert and the WHO Educational Adviser; the UNICEF Liaison Officer in Damascus; three present or past presidents of local Medical Syndicates in Aleppo, Latakia, and Deir-ez-Zor; a member of the Executive Council of Local Government in Deir-ez-Zor (whose responsibility included health); senior members of the Ministries of Plan, and Local Affairs and Labour; and patients in public and private hospitals wherever the team traveled.

Through these interviews with representatives of consumers and providers of health services in the public and private sectors, FHC gained an extraordinary impression of Syria's contemporary capacity to deliver health services to its people. Wherever team members traveled, they were received with warmth and hospitality. The ease of discussions with Syrians, coupled with open, full, and frank answers to all questions, were especially helpful to the team in the preparation of this report.

FHC wishes to extend a special expression of gratitude to Mrs. Mawiya Shoura, and Dr. Abdullah Kanawati of the Ministry of Health, and to Dr. M. Keilany of the Malaria

Eradication Program. They spared no effort in assisting the team in every aspect of its work in Syria. In addition, the team is appreciative of the support received from Mr. Alan Fairbank, Research Analyst in FHC's Washington office, who assisted in the preparation of materials and data for the final report.

The Family Health Care report is divided into six sections:

- I. Executive Summary
- II. A Listing of Individuals and Institutions Interviewed
- III. Conclusions and Findings
- IV. The Health Sector and Syria's Development
- V. Issues and Program Recommendations
 1. Manpower Development
 2. Strengthening of Planning and Management
 3. Reduction of Preventable Morbidity and Mortality
- VI. Appendix
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 5. Bibliography
 6. Memoranda to the File (AID/Washington copies)

The FHC team assigned to this study was:

William J. Bicknell, M.D., M.P.H. (former Commissioner of Public Health for the Commonwealth of Massachusetts), Professional Associate, FHC, Team Leader

Jeremiah Norris, Director, International Division, FHC - Health Policy

I.2. APPROACH

FHC feels that a critical step in any planning or program development process is the specification and clear articulation of a set of goals and objectives which have a clear relationship to program needs. Sound health planning and, derivitively, program development require clear answers to very specific questions of needs, services, costs and delivery modalities. The outputs necessary to meet the needs of the intended beneficiaries in the health system must be specified.

Thus, an early step in any analysis should be the identification of qualitative, and if possible, quantitative needs of the intended beneficiaries (e.g., infants, agricultural workers, women of child-bearing age, members of the armed forces). Once this is accomplished, a list of needs or problems can be related to specific populations. It is then possible to categorize needs based on the numbers of people affected, the impact of inaction, the cost of action, and the probability that action will reasonably meet need.

An initial setting of priorities for action may change as the costs and alternative means for meeting need are considered. For instance, costs may be too great or there may be antecedent activities necessary before a certain problem can be effectively addressed. However, a fundamental approach to sound program planning in health should include

the following steps:

1. Identify the populations at risk and in need of health programs.
2. Specify program output or performance objectives that will, in whole or in part, meet the needs of specific segments of the population.
3. Consider alternative program formulations that can provide the outputs required (e.g., combinations of inputs or resources--what different types of people trained to do what specific tasks working in what organizational framework financed at what specific level and in what manner with what types of antecedent or concurrent capital investment).
4. Choose the input mix (basically money, people, and facilities) judged most likely to work after considering the existing system, costs (both start-up and operating), and the relevant local, socioeconomic, and cultural variables likely to significantly influence program success.
5. Decide if the proposed program is worth the cost by weighing the expected benefits of the program against the benefits of other quite different investments in the health sector and, as appropriate, of non-health investments.

The most important requirement of this approach is that the identification of need and the determination of service outputs necessary to meet that need precede the structuring and application of inputs, i.e., the construction of facilities, training of personnel, staffing, etc.

It is in this context of output-oriented planning that the Family Health Care team approached its tasks, which included analyzing mid-level health manpower needs and making recommendations regarding the training of mid-level health

manpower. In order to make responsible and relevant recommendations regarding such manpower, the team felt it necessary to gain a reasonable understanding of the present functions and dynamics of the overall health sector. In the course of the analysis, FHC determined that the training of health technicians, such as is done at the National Health Technical Institute and the Aleppo Intermediate Medical Institute, was very important. In fact, certain functions should be strengthened. However, the team also found that there were high priority antecedent tasks to be accomplished prior to the initiation of major interventions at the Health Technical Institute. Further, during the course of its analysis, FHC identified other health priorities, many with manpower training implications.

In summary, the specific manpower and service recommendations made in this report were arrived at after the team had gained some understanding of the dynamics of the existing Syrian health sector and of the needs of the population. This kind of approach is of particular importance because the USAID assistance program in health is just beginning in Syria. Paradoxically, it is at just this juncture in health program development that errors are most easily made and most easily avoided.

I.3. RECOMMENDATIONS IN BRIEF

The team proposes to USAID and the Syrian government a balanced mix of thirteen possible programs in three major emphasis areas (see Section IV, Chart I, Program and Budget Summary):

1. Manpower Development
2. Strengthening of Planning and Management
3. Reduction of Preventable Morbidity and Mortality

The fundamental strategy is to address preventable morbidity and mortality through strengthening basic curative and preventive services in the context of a sound health systems planning and management framework. The recommendations are drawn from the team's analysis of the population's health needs and of the current processes of care. In FHC's judgment, each specific program recommendation can reasonably be expected to change and improve the current health outcomes with the aggregate effect of more cost-effective health programs.

There is a very real and legitimate need for each program recommended, and the team directs the reader's attention to the following specific programs:

- A. Priority Recommendations for USAID Support
 1. Schistosomiasis Control - \$832,600
 2. Mohafazat Management and Central Ministry of Health Planning System - \$125,000
 3. Maternal and Child Health Service Improvement - \$96,000

4. Long-range Planning for Improving Environmental and Public Health Protection - \$25,000
- B. Priorities Recommended for Syrian Arab Republic Government Action with or without USAID Support
1. Establish an Effective Interministerial National (public and private) Health Resource Allocation and Planning Mechanism
 2. Establish a Syrian Public Health Service Authority

The proposed health program initiatives in total will contribute to a balanced development of rural preventive and public health services, and will particularly complement the Syrian government's priority concern with the development of agriculture and industry along the Euphrates, Balikh, and Khabour river valleys.

(N.B.: All the place-names used throughout this report have been taken from the Statistical Abstract 1974, Syrian Arab Republic, for consistency. The exchange rate employed for 1976 in all tables is S£ 3.70 to U.S. \$1.00. However, as this rate fluctuated widely from S£ 3.65-3.95 during preparation of Program Recommendations (Section V) while the team was in Damascus, the reader may note a variance when reviewing dollar costs against Syrian pound costs from one program recommendation to another. And, Appendix III should be reviewed as it lists current donor activity through United Nations agencies to the health sector in Syria. In two cases, the FHC recommendations complement WHO-funded projects: the Bilharzia control program in the Euphrates area; and the National Health Technical Institute in Damascus.)

II. A LISTING OF INDIVIDUALS AND INSTITUTIONS
INTERVIEWED BY FAMILY HEALTH CARE, INC.

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BY FAMILY HEALTH CARE, INCORPORATED

1. Mr. George Abed, Economist, International Monetary Fund, Washington, D.C.
2. Mr. John Alden, NE Bureau, AID, Washington, D.C.
3. Dr. Adnar Alwan, Administrator, Trachoma Program, Deir-ez-Zor
4. Dr. Adnan Ammar, Health Director, Al-Rakka Mohafazat
5. Anesthesia Technicians, Ministry of Health hospitals in Nebc, Deir-ez-Zor, and Latakia
6. Agricultural Economist, AID Agriculture Team
7. Agricultural field workers, Deir-ez-Zor Mohafazat
8. Dr. Mustafa Baath, Secretary General for Administration and Pharmacology, Vice Minister, Ministry of Health
9. Dr. Hussein Berakdah, Director of Health Services, Ministry of Health
10. Dr. J. R. Bhatia, WHO Educational Adviser, Damascus
11. Dr. Mouinir Bitar, Dean, Faculty of Medicine, University of Damascus
12. Mr. Basil K. I. Al-Bustany, Country Economist for Syria, EMENA, World Bank, Washington, D.C.
13. Mr. Dennis Chandler, Program Officer, USAID, Damascus
14. Chief Surgeon, Surgical Hospital, Deir-ez-Zor (and Director of Medical Syndicate, Deir-ez-Zor)
15. Dr. Farid Daher, Resident in Internal Medicine, Latakia Hospital
16. Dr. Joe Davis, Health Economist, Technical Assistance Bureau, Health, AID/Washington
17. Director, Health Center, Nebc
18. Director, Integrated Health and Social Services Center, Afrine

19. Director of Public Relations, Ministry of Dam, Euphrates River Basin
20. Dr. Ziab Dourwich, Vice Dean, Faculty of Medicine, University of Damascus
21. Egyptian Surgeons, Ministry of Health hospitals in Nebc and Al-Rakka
22. Miss Fahmieh Essadi, Nursing/Midwifery Manpower Specialist, Ministry of Health
23. Dr. Nazmi Fallot, Secretary General for Finance, Planning and Supply and Research; Vice Minister, Ministry of Health
24. Female Nursing Students, Al-Rakka, Deir-ez-Zor, Latakia, and Aleppo
25. Dr. H. Kigonda Githaiga, Malacologist, WHO, Bilharzia Control Project, Deir-ez-Zor
26. Dr. Mohammad El Hafez, Member, Executive Council of the Local Government, Deir-ez-Zor
27. Miss Asmahan Hajbakri, Administrator, School of Nursing, Latakia
28. Dr. Halag, Professor of Public Health and Preventive Medicine, Faculty of Medicine, University of Aleppo
29. Dr. Siham Hammoud, Anesthesiologist, Ministry of Health Hospital, Latakia
30. Dr. Michael Hanna, Medical Director, Huron Road Hospital, Cleveland, Ohio (Syrian emigre visiting Syria from the U.S.)
31. Mr. Nassib Hemaïdan, USAID, Damascus
32. Dr. Abdul Izzak Huneidi, Ophthalmologist, Euphrates Hospital, Deir-ez-Zor
33. Dr. Adnan Haj Hussein, Director, Public Health Laboratory, Deir-ez-Zor
34. Mr. Isaad, Administrator, Syrian Hospital, Latakia
35. Dr. Ibihim Abdul Izzak, Director, Euphrates Hospital, Deir-ez-Zor

36. Instructors, National Health Technical Institute, Damascus
37. Dr. Kady, Chairman, Department of Physiology, Faculty of Medicine, University of Aleppo
38. Dr. Abdullah Kanawati, Ministry of Health
39. M. Keilany, Ph.D., Malaria Eradication Program, Damascus
40. Dr. Abdul Razak Al-Khatib, Chief, Medical Department of Social Insurance, Ministry of Social Affairs and Labour
41. His Excellency Dr. Madani El-Khiyam, Minister of Health, Ministry of Health
42. Laboratory Technicians, Ministry of Health hospitals and health centers in Nebc, Al-Sweida, Latakia, Deir-ez-Zor, and Al-Rakka
43. Ms. Emily Leonard, Health Economist, NE Bureau, AID/Washington
44. Male Nursing Students, Nebc
45. Mr. Allah Masrine, Administrative Director, Latakia Hospital
46. Mr. Matar, Vice Dean, Faculty of Medicine, University of Aleppo
47. Mr. Soubhi Mayal, English Instructor, School of Nursing, Aleppo
48. Dr. Wassin Miftah, Director of Preventive Medicine and Director of the National Health Technical Institute, Ministry of Health
49. Mr. Mohammad Jalal Mourad, Director of Population and Manpower Planning, Ministry of Plan
50. Dr. Ramzi Nouri, Secretary General for Preventive Services and Laboratory; Vice Minister, Ministry of Health
51. Patients, Ministry of Health hospitals in Nebc, Latakia, Deir-ez-Zor, and Al-Rakka
52. Patients, private hospitals in Aleppo, Latakia Mohafazat
53. Pharmacist, Al-Harre, Latakia Mohafazat
54. Pharmacy Technicians, Ministry of Health hospitals in Nebc and Latakia
55. Physician, Ministry of Health Hospital, Mayadine

56. Physician, Ministry of Health Polyclinic, Tabqa
57. Mr. Gordon Ramsey, Director, USAID, Damascus
58. Dr. Razzak, Chief, Ministry of Health Hospital, Deir-ez-Zor
59. Mr. Mahwan Sakati, Administrator of Health Services, Ministry of Health
60. Mr. Raif Savas, Agricultural Education Specialist, World Bank, Washington, D.C.
61. Mr. George Sayegh, Deputy Health Director, Latakia Mohafazat
62. Dr. Tarel Al-Shiekh, Health Director, Deir-ez-Zor Mohafazat
63. Mrs. Mawiya Shoura, Personal Secretary to the Minister, Ministry of Health
64. Nabir Siam, Vice Director of Nurses, Latakia Hospital
65. Dr. Waled Siraj, Director (Dentist), School of Nursing, Deir-ez-Zor
66. Dr. Joseph Syegh, Professor of Internal Medicine, Faculty of Medicine, University of Damascus
67. Dr. Farmid Tahir, Director of Administration, Ministry of Health Hospital, Latakia
68. Dr. Foud Tajour, Director, Al-Haffe Health Center, Latakia Mohafazat
69. Dr. Abdul Mulek Tatari, Chief of Personnel Affairs, Ministry of Health Hospital, Latakia
70. Mr. Mohammad Tayyarah, Liaison Officer, UNICEF, Damascus
71. Dr. Abdul Ujaili, General Practitioner, Al-Rakka
72. Veterinarians, Integrated Health and Social Services Center, Afrine
73. Fs. Farisa Weiss, Administrator, School of Nursing, Aleppo
74. Dr. Aref El Yafid, Director, Office of International Health, Ministry of Health

75. Dr. Abdel Karim Nadra Yazigi, Professor Agregé in General and Urologic Surgery (Paris), and Chief of Surgery, Syrian Hospital, Latakia
76. Dr. Zaim, Director, School of Nursing, Aleppo .

III. CONCLUSIONS AND MAJOR FINDINGS

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III. CONCLUSIONS AND MAJOR FINDINGS

III.1. INTRODUCTION

The FHC team was impressed with the multiplicity and ingenuity of the Syrian government's efforts to extend and make available more health services to its people. In particular, the effort to achieve a redistribution of physician manpower is an exemplary demonstration of public policy initiative on the part of the government toward this end, and it is representative of their interest and commitment to the extension of health care services to wider segments of the population.

The conclusions and findings listed below are stated with full appreciation by the team of the tremendous progress made over the past decade in the provision of health services to the public and private marketplaces. The findings, therefore, are formulated in a manner which is intended to assist the government continue these advances towards a more equitable and cost-effective distribution of health manpower and services. FHC viewed the predominate issues in the Syrian health sector as falling into four major areas: Public Policy and the Allocation of Health Resources; Health Manpower; Health Services Delivery Capacity; and, Preventable Morbidity and Mortality.

III.2. PUBLIC POLICY AND THE ALLOCATION OF HEALTH RESOURCES

A. Conclusion

There is little evidence of an overall government health strategy to guide the magnitude of public and private investments to extend health services, nor is there a mechanism established for the adequate planning, management, and evaluation of publicly operated and financed health care services. The multiplicity of public and private financing mechanisms for health, combined with the large number of ministries and quasi-governmental agencies (port authorities, tobacco monopoly, etc.) engaged in financing or providing direct services, makes it difficult to quantify accurately either the cost or amount of medical services purchased in Syria.

B. Findings

1. FHC estimates that total health expenditures in 1976 (excluding military health services, public capital expenditures, and foreign donor contributions) is 3.3 percent of GNP and growing. Of this figure, 77 percent of the total amount spent on health services is in the private sector. This year, Syrians will spend \$21.80 per capita (SL 80.63) on health care in the private sector, and \$6.60 per capita (SL 24.40) will be spent through the public sector (see Table 5, Section IV).
2. This percentage GNP devoted to health care is sufficient to provide acceptable, basic preventive and limited curative services to all the people. However, the structure and operation of public and private programs is such that it precludes the actual provision of adequate preventive and curative care services to many people.
3. Incremental additions to the current patterns of public and private systems of care are certain to increase costs with little or no increase in the health care benefits delivered.
4. Evolving patterns in medical education, service delivery organization, and payment mechanisms for financing health care are

such that within five to fifteen years these services will be substantially more costly on a per capita basis than they are now.

5. The current concentration of services and manpower in urban areas is likely to continue and to grow.
6. There is very little exchange of information and virtually no coordination among the various governmental bodies involved in the various aspects of health manpower education and health care delivery.
7. The government fee schedule has remained static during the past three years of high inflation (average: 16 percent). Government physicians with afterhours practices (which includes almost all of them) have an economic incentive to divert patients from public facilities to their private practices and to overtreat them.
 - a. Holders of health cards, which entitle the holder to free medical care at government facilities, appear (1) to include those who have higher incomes than the theoretical upper limit permitted by the government, and (2) to be very willing to use their limited resources to purchase private health care services (in addition to using the health card).
 - b. Almost without exception, all physicians in Ministry of Health facilities have private practices. It is quite possible that there will be needless and unexpected conflict between the public and private systems of health care in the future. Conflict between these two entities not only can be avoided, but can be converted, with appropriate national planning, into cost-effective cooperation.
8. In the near future, the Ministry of Social Affairs and Labour will have a growing role in purchasing and providing health services;

and may well acquire a de facto role in national health policy formulation.

- a. The Ministry of Social Affairs and Labour is constructing two hospitals for its covered employees: a 400-bed hospital in Damascus, and a 200-bed hospital in Aleppo. Currently, outpatient health services are delivered at Ministry offices.
 - b. Approximately 400,000 workers are now covered by compulsory health insurance laws and the premiums are paid by the employer.
 - c. A new health insurance law is being debated before the Parliament, calling for the employer, employee, and government to share the cost of medical insurance. In addition to prepaid costs, users will be asked to pay a token fee for each service provided. While this law will initially cover only workers, it is planned to cover their dependents also at a later date.
 - d. As Syria continues its rapid development efforts, large numbers of employees will be added to this segment of the economy.
 - e. Employees covered under the compulsory medical insurance laws can seek services in the private sector. At the present time, employers contract directly with private physicians and private hospitals for medical services.
 - f. It is estimated by the Ministry of Social Affairs and Labour that each covered worker in 1975 consumed SL 150 per capita, for a total expenditure of SL 60,000,000 (400,000 covered workers). The rate and the number of workers covered are apparently increasing: in 1972, the Ministry estimated that the expenditure was SL 100 per capita, or SL 30,000,000 (300,000 covered workers).
9. The current Ministry of Health system is dependent upon physicians--virtually all

part-time--for the planning, management, and administration of MOH programs.

10. In the Ministry of Health, Damascus, and in other ministry offices throughout the country, there is a severe lack of trained non-physician, senior and mid-level administrative and management staff.
11. Data and information vital for management, program planning, and evaluation by the Ministry of Health is often either absent or very inaccurate. These inadequacies extend to basic public and private health resources data (number of facilities, types of services, utilization, and program budget information) and to the most basic demographic data--particularly accurate birth and death records.
12. The Ministry of Health's central reference collection of texts and journals in basic medicine, public health, and preventive medicine is inadequate for its needs.
13. Health cuts across many ministerial boundaries in the Syrian public sector; no single ministry appears to have sufficient authority or capacity to appreciate or to interpret the intended effects of interventions to national policy-makers in a cohesive manner:
 - a. The Ministry of Health has limited capability to staff and coordinate an adequate program of health services; the Ministry of Local Affairs shares control of Mohafazat health budgets.
 - b. The Ministry of Health has the responsibility for training nurses, but since there is such an acute shortage, the Ministry of Higher Education, in addition to its school in Damascus, has recently initiated a second nursing school at its teaching hospital in Aleppo.

- c. Health vital statistics and epidemiological reporting is in the Ministry of Economics and Foreign Trade.*
- d. The Ministry of Social Affairs and Labour administers compulsory medical insurance for workers, has its own outpatient clinics, and is building hospitals.
- e. Three types of mid-level health technicians are trained for the same functions in both the National Health Technical Institute in Damascus (operated by the Ministry of Health), and at the Intermediate Health Institute at Aleppo (under the Ministry of Higher Education).
- f. The Ministry of Higher Education trains physicians, dentists, and pharmacists; yet there appears to be no mechanism for coordinating the production of health professionals with the health needs and problems of the country.
- g. The annual process of developing operating budgets, and the responsibilities for implementing new and for managing ongoing programs, are substantially decentralized to the MOH Mohafazat level. The Mohafazat Health Director (a MOH employee) initiates the budget development process. Coordination with other Mohafazat programs is made possible by the requirement for first review and approval by the Mohafazat government (Ministry of Local Affairs). Although final review and approval of the health budget is central and involves several ministries, it is the team's impression that for operating (not capital) budgets the key decisions are made at the Mohafazat level and are largely approved in the central review process.

* Weissman, Julie. Health Background Paper: Syria. Mimeographed. (Washington, D.C.: Division of Program Analysis, Office of International Health, Department of Health, Education, and Welfare, November, 1975).

14. As expenditures for private health services far exceed those for public services (see Table 5), there is substantial evidence to support the assumptions that:
 - a. An implicit national policy choice has been made which favors curative, private fee-for-service practice as the dominant delivery mode.
 - b. The Syrian people prefer and will pay for private services even though less expensive government services are readily available.
 - c. As the government continues to increase the production of physicians, these physicians will saturate the private marketplace.
 - d. And, as national planning and resource mechanisms are tenuously coordinated between ministries with health responsibilities, the magnitude and the long-term impact of private sector investments will continue to go unrecognized.
 - e. In effect, uncontrolled growth in the health sector may inhibit needed public investments in other sectors.

15. The Fourth Five-Year Plan calls for the construction of large numbers of hospital beds. In the absence of central management and administrative capability which forecasts long-term costs against expected benefits, the following consequences may be experienced:
 - a. Capital and operating funds will be diverted from the development of ambulatory and preventive services.
 - b. There will be a cost escalation in hospital services which will be difficult to control.
 - c. As a corollary to the above, the continued construction of hospital beds will contribute to an over-emphasis in physician education on hospital-based curative services.

III.3. HEALTH MANPOWER

A. Conclusion

The mix of health care service providers now available and projected to be trained during the next decade is inappropriate to the needs of the population (see Tables 6 & 7). More physicians will be trained than are presently needed, and their training, if unchanged, will continue to give them an orientation toward hospital-based curative services. Non-physician providers of primary care are virtually unknown; there are no programs for training them and there is little understanding in the medical community of the beneficial role they could play in the development of primary care services, particularly in rural areas. Expansion or change in the training of health technicians (National Health Technical Institute, Damascus, and Intermediate Medical Institute, Aleppo) is not now warranted because capacity is either roughly adequate (laboratory and anesthesia technicians) or because specific programs and specific tasks must first be redefined (environmental sanitarians and pharmacy technicians). X-ray technicians' training should be augmented.

B. Findings

1. Health Manpower Policy: The production of physicians is substantially unrelated to the health needs of the population. Neither the medical school faculties nor the Ministry of Health appears to have any significant input into or influence over decisions about the number of physicians to be produced within Syria. Specifically, medical school class size is growing larger in direct response to a government policy which guarantees all baccalaureate graduates admission to a university or technical institute. Medicine is viewed as a prestigious and remunerative career; therefore, the applicant pressure has been increasing and class size has greatly expanded. Medical faculties feel the quality of applicants has not declined since the applicant pool is large and medical schools can and do select "the best and the brightest". The shortage of preclinical and

clinical faculties of medicine is severe. At Damascus the reported section size--the smallest teaching unit--is one instructor to 60 students.

2. Public Health Physicians: There is a near absolute lack of physicians who are trained in preventive medicine or in public health systems management. Not only are training opportunities within Syria very limited, but there is currently no satisfactory method for paying physicians who specialize in preventive medicine or public health at a rate which even begins to approach the total earnings which can be made in private practice. This strong economic disincentive must be remedied if Syria wishes to have a minimum necessary number of physicians in the public health and preventive medicine specialties. For instance:
 - a. Physicians working as clinical staff in the teaching hospitals are permitted private practices in the university's hospital facilities. The fees earned are shared equally between the practicing physician and the university. In addition, the clinical teaching physician earns a 200% bonus as a supplement to his regular government salary. In this manner, private fee-for-service patients gain access to the best physicians and the most sophisticated facilities in medicine--all subsidized by the public sector.
 - b. Physicians in teaching hospitals who are specialists in preventive medicine, i.e., Professors of Community Medicine, are considered to be teachers in "basic science", and therefore not offered the bonus program mentioned in (a) above.
3. The Distribution of Physician Manpower: Almost all physicians in government service have private practices. These physicians may earn as much in three to five work days in their private offices as they do for one

month in government service. The policy of expecting physicians and dentists in full- and part-time government employment to have private practices (including those doing their rural obligation) may easily result in limited services to public patients (see Finding 7, p.16). The physician's government salary amounts to a subsidy of his/her private practice with little accountability of the physician for the level and quality of public patient care services provided; this is particularly true in rural areas where the physician must act both as on-site manager/administrator and as health care provider in government health centers. Thus, the Ministry of Health should concern itself with the following questions:

- a. Does the publicly employed physician, pharmacist, or dentist actually hold hours in the government health center or hospital?
 - b. Does the health professional see and treat patients when he/she is on government duty in the morning hours?
 - c. Is the professional competent?
 - d. Is the professional supervised? Is the physician supervising non-physician personnel?
 - e. Is the health center or hospital well-managed and administered?
 - f. Is the health professional giving public patients service of a quality equivalent to that he/she gives to private patients during afternoon hours?
4. The Training of Physician Manpower: The Faculties of Medicine are projected to be graduating 1,000-1,2000 physicians annually by 1982. The consequences of these numbers, trained mainly in curative medicine, as providers of medical services may well be:
- a. A greater concentration of physicians in urban settings.

- b. A demand by physicians for more hospital beds to support their practice needs.
 - c. An increase in specialty training and practice.
5. Nurses: Nursing education, is poorly related to nursing services in general, and to hospital nursing service requirements in particular. Furthermore, nursing as a profession is embryonic in Syria and is not adequately respected by physicians, by administrators, or by the nurses themselves. There is a critical need for large increases in the number of nursing personnel, particularly those educated for, and willing to work in inpatient hospital settings.

After graduation, nurses prefer to work in government health centers rather than hospitals. When questioned about this preference, nurses and physicians stated that a health center assignment required little "hands on" activity with patients, and that the work was much easier. The reverse was apparently the case when assigned to government hospitals. However, this preference on the part of nurses may say more about their training and their acceptance within the Syrian health team than it does about their acquired attitude to avoid "hands-on" patient care. Nursing schools are usually directed by part-time physicians and dentists. A more appropriate leadership role model for student nurses should be sought outside the ranks of male physicians and dentists. Further, the management and educational demands of the schools are such that full-time directors are warranted.

6. Medical Assistants (Non-Physician Providers of Care): There is no support among medical care providers and administrators in the public and private sectors for the establishment of a role for non-physician providers of primary care within the health care delivery system. No evidence was found during the visit that this type of health auxiliary was being trained or utilized within Syria, or planned for in Syria.

7. Health Technicians: Physical plant capacity for training health technicians--the National Health Technical Institute (Damascus) and the Aleppo Intermediate Medical Institute--is adequate to train the numbers of various technicians needed. Adjustments to the numbers currently being trained, additions of new categories of technicians, and major changes in the curricula for existing categories of technicians, however, are needed. Decisions in these areas should await, and derive from, a redefinition of service programs and job descriptions which recognize the following findings:
 - a. Roughly adequate numbers of laboratory and anesthesia technicians can be provided with the training resources available.
 - b. There are presently not enough qualified teachers available to train the numbers of x-ray technicians needed to fill the critical shortage of them throughout the country.
 - c. The need for and appropriateness of pharmacy technicians as currently trained is questionable.
 - d. Environmental sanitarian is a conceptually valid job category. However, the field programs employing these workers are so nebulous in both program and management structure that curriculum modification or expansion of training should await clarification of the actual job to be done.
 - e. Initiating curriculum development and training for health visitors--whether or not it includes a midwifery curriculum component and whether it adopts a ninth grade or a twelfth grade entry level--is not warranted until there is adequate, realistic, and achievable maternal and child health program and management structure defined in the Ministry of Health. Specifically, any new health visitor curriculum should derive from a job description for health visitors. This must follow from an analysis of tasks to be

accomplished in the field. The analysis would be based on the outputs required to initiate and maintain a basic maternal and child health program.

8. Health Administrators and Hospital Administrators: Throughout the entire field assessment, the team did not encounter any formally trained health administrator or hospital administrator. Only one hospital administrator, who was trained in the United States, was mentioned by officials, and this person was no longer working in his career field. Hospital administration is performed under the supervision of physicians or directly by physicians, and the on-site administration and management of health centers is left to physicians. There appears to be a lack of trained professionals, either as program managers or as on-site managers, for Syria's health delivery system.

III.4. HEALTH SERVICES DELIVERY CAPACITY

A. Conclusion

The vast majority of ambulatory health care services available throughout the country are curative in nature and are delivered by physicians and, to a lesser extent, by pharmacists in private practices. Clinical medical and probably public health laboratory services are inadequate both in capacity and in scope. In places where these services are available they often appear to be inappropriately utilized. More often than not, the hospital services provided by the Ministry of Health are effectively and efficiently delivered.

B. Findings

1. Government-operated ambulatory health care services sponsored through various Ministry of Health clinics, dispensaries, and health centers offer fragmented services which are utilized at extremely low rates by the intended population. The following list appears to be the reason for this state of affairs.

- a. Physicians and dentists working in government ambulatory centers are in direct competition with their own after-noon private practices. This conflict leads physicians to provide minimum curative services through government facilities and to offer them on a for-pay basis outside government hours in their private clinics.
- b. The program structure, management support, and supervision of ambulatory facilities is inadequate or absent.
- c. Pharmaceutical supplies in ambulatory clinics (in contrast to hospital pharmaceutical supplies) are often inadequate both in type and in amount of drugs available.
- d. X-ray equipment in ambulatory settings (if available) is old, often inoperative, and probably dangerous, e.g., unshielded, simple fluoroscopes, without provision for image amplification and without provision for taking films. Additionally, x-ray technicians are not available to operate the equipment, and physicians, appropriately, do not seem anxious to utilize potentially dangerous equipment.
- e. Laboratory equipment needed in an ambulatory setting tends to be absent. The capacity to do white blood counts, urinalyses, hematocrits, or hemoglobins, and to collect specimens for bacteriologic analyses or to perform microscopic examinations of blood, pus, urine, or stools is usually unavailable. Thus, there is often an inability to conduct the most basic laboratory studies.
- f. It was reported that UNICEF assisted in the construction of 50 health centers, which were to be staffed by the Syrian government. However, when construction was completed, they could be staffed only at the 50% level as of May 1976. There is currently discussion within the MOH of a program to build subcenters around the existing health centers. As far as FHC

could determine from the donor and from Ministry officials, no demand and utilization study has been done either for the 50 new centers or for those sub-centers now being contemplated.

2. The MOH actual hospital occupancy rates and lengths of stay were higher and longer, respectively, than reported in the national Statistical Abstract 1975.
 - a. Variation in occupancy rates was found. High occupancy rates (80-95 percent) appeared to correlate with well-administered hospitals providing a relatively broad range of services in attractive settings, particularly where there was an associated relative or absolute lack of reasonably accessible private hospital beds.
 - b. Low occupancy rates (25-35 percent) in well-managed institutions did correlate with low occupancy rates in nearby private hospitals. Low occupancy in these cases appeared to reflect patient preference to avoid hospitalization, particularly elective and semielective hospitalization, during peak work times in the agricultural seasons, and willingness to travel long distances to hospitals in the major cities.
 - c. Length of stay in government hospitals was significantly greater than the average five days reported nationally. On the basis of hospital visits and interviews, FHC estimates that a conservative range for length of stay would have a lower bound of eight days and an upper bound of twelve to fourteen days.
 - d. Underreporting of lengths of stay and percent occupancy rates in government hospitals is unexplained, but probably relates to inadequacies in the definition, collection, and analysis of data.

3. Hospital construction is proceeding faster than the government's capacity to staff. For example, the team visited a new 350-bed hospital in Al-Rakka that would be completed within the next few months. A new nursing school, also under construction, is to be associated with this hospital. FHC was told that the prospects for opening the hospital were presently quite poor because so few staff had been recruited. A similar situation was outlined to the team for a new hospital which had opened recently in Al-Hasakeh. There is as critical a problem in recruiting administrative staff as in recruiting clinical staff.
4. The team visited small (15-35 bed), private, surgical hospitals in Aleppo, Latakia, and Deir-ez-Zor. These observations are offered:
 - a. They are well-managed and adequately staffed.
 - b. They provide a level of medical care and nursing service which on cursory review, appears superior to that usually available in Ministry of Health hospitals.
 - c. Although they were by no means luxurious, patient amenities available in private hospitals were distinctly more appealing than those available in most Ministry of Health hospitals visited.
 - d. Private hospitals appeared to serve a surprisingly large but undetermined number of relatively low-income patients.
 - e. Private hospitals appeared to have lengths of stay ranging from five to seven days, with occupancy rates often in the 65-85 percent range--substantially higher than those reported in the government Statistical Abstract 1975.
 - f. Underreporting of private hospital utilization was attributed by some people to a desire of the physician-owner to minimize their tax liability.

5. Physicians in Syria have demonstrated that they are more willing to settle in relatively rural areas than is usually the case in other countries. This phenomenon appears to be due in part to the desire of many physicians to practice near their place of rearing and near the homes of their extended families. Other incentives which reinforce the rural settlement of physicians are:
 - a. The reputed economic rewards for some forms of rural practice. In remote agricultural villages, those people interviewed by FHC indicated a preference for seeking services in the private marketplace even though public health services were readily available. This preference characterizes even those villagers at low levels of disposable income.
 - b. The somewhat professionally hostile and competitive economic climate in the major urban centers of Damascus and Aleppo.
 - c. Government obligatory service programs, for example:
 - Physicians (who do not go into specialty training), pharmacists and dentists must complete two years of obligatory government service in rural areas,* and;
 - This year, for the first time, at the request of the Minister of Health, military physicians were seconded to Ministry of Health rural centers. Their salaries are paid by the Ministry of Defense. In addition, at the discretion of base commanders, military physicians throughout the country may hold private practice hours off-base.
6. Although pharmacists are required to do obligatory rural service following graduation,

* During the in-country assessment, various rural service requirements were quoted to FHC. These ranged from 1-2.5 years, but the most common figure was two years and this has been used throughout the narrative of this study.

they are permitted to fulfill this requirement in a private setting, both in terms of facility and time, as long as it is in a geographic area designated by the government. That is, the pharmacist can open a pharmacy in a small town and fill prescriptions at prevailing private market prices. The pharmacy is a proprietary enterprise. The government policy, therefore, provides a pharmacist to an underserved rural area at no cost to the public purse.

III.5. PREVENTABLE MORBIDITY AND MORTALITY

A. Conclusion

The preventive component of ambulatory care services, both public and private, is very small. Government preventive health services do not effectively complement private curative ambulatory services.

B. Findings

1. The environmental health component of government health programs was, with notable exception, inactive or inappropriate.
 - a. Schistosomiasis is already common along the Balikh and Khabour Rivers (tributaries of the Euphrates River) and is said to be present along parts of the Euphrates. The likelihood is great that there will be increases in morbidity and mortality due to the disease, caused by an expected increase in vector population (snails) breeding in canals of an expanding irrigation network. The danger posed in the Euphrates River basin is particularly great, because vast expansion of the basin's irrigation network is currently underway following completion of the dam.
 - b. Some well-intended activities, such as the frequent (every three months) cursory examination of food handlers, appear to be time-consuming and relatively valueless; examination of food handlers, for example, is generally limited to a short interview

by a physician, without laboratory or physical diagnostic evaluation.

- c. The widespread, but not accurately quantified, occurrence of waterborne diseases in areas fully served by public water supplies, and a limited public health laboratory service, strongly suggest that drinking water surveillance and protection programs are inadequate!
 - d. Sewage disposal is visibly absent in urban areas undergoing rapid population growth.
2. Risk assessment and the consideration of control strategies to minimize the adverse effects of industrialization is not known to occur.
 3. The very high incidence of trauma secondary to vehicle accidents suggests that preventive interventions could be undertaken that could include:
 - a. Improved highway design.
 - b. Enforcement of traffic laws.
 - c. Driver education.
 - d. Periodic inspection and certification for vehicles for minimum safety equipment, particularly brakes, lights, and steering.
 4. The most serious deficiencies in the preventive component of ambulatory care are in the area of maternal and child health care services.
 - a. Family planning efforts undertaken in Syria are limited in scope and are intended to improve the health of mothers and children. It is not currently the policy of the government to attempt to reduce population growth. However, there is growing unofficial recognition that population planning will be necessary to preserve the gains for economic growth and to maximize the benefits of development.

- b. Maternal and child health services are designed and managed in a manner that precludes either effective or adequate coverage of the population at risk and in need of such services.
- c. About 60% of all deliveries are attended by a trained nurse/midwife or by a health visitor. Physicians attend only those deliveries in which some complication arises. The remainder of deliveries take place in the home, are not preceded by effective prenatal care, and are attended, if at all, by a female friend or family elder.
- d. Postnatal care for both mothers and children is not organized; there is no systematic or comprehensive way to reach those in need of such care.
- e. The private practice of midwifery by both midwives and health visitors is a potentially serious obstacle to the development of effective, comprehensive maternal and child health services. Though it is conceptually possible to design maternal and child health services which include midwives and health visitors, it will be difficult to effectively manage such a program and to assure the delivery of appropriate prenatal and postnatal services to mother and child.
- f. Most practicing physicians thought that the effectiveness of preschool immunization was very low; this view is supported by evidence of the common occurrence of immunizable diseases and by an analysis of actual immunization practices. Almost certainly fewer than 50 percent, and perhaps fewer than 20 percent, of the preschool population receive basic immunizations.

IV. THE HEALTH SECTOR AND SYRIA'S DEVELOPMENT

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IV. THE HEALTH SECTOR AND SYRIA'S DEVELOPMENT

IV.1. SOCIO-ECONOMIC AND DEMOGRAPHIC CONTEXT

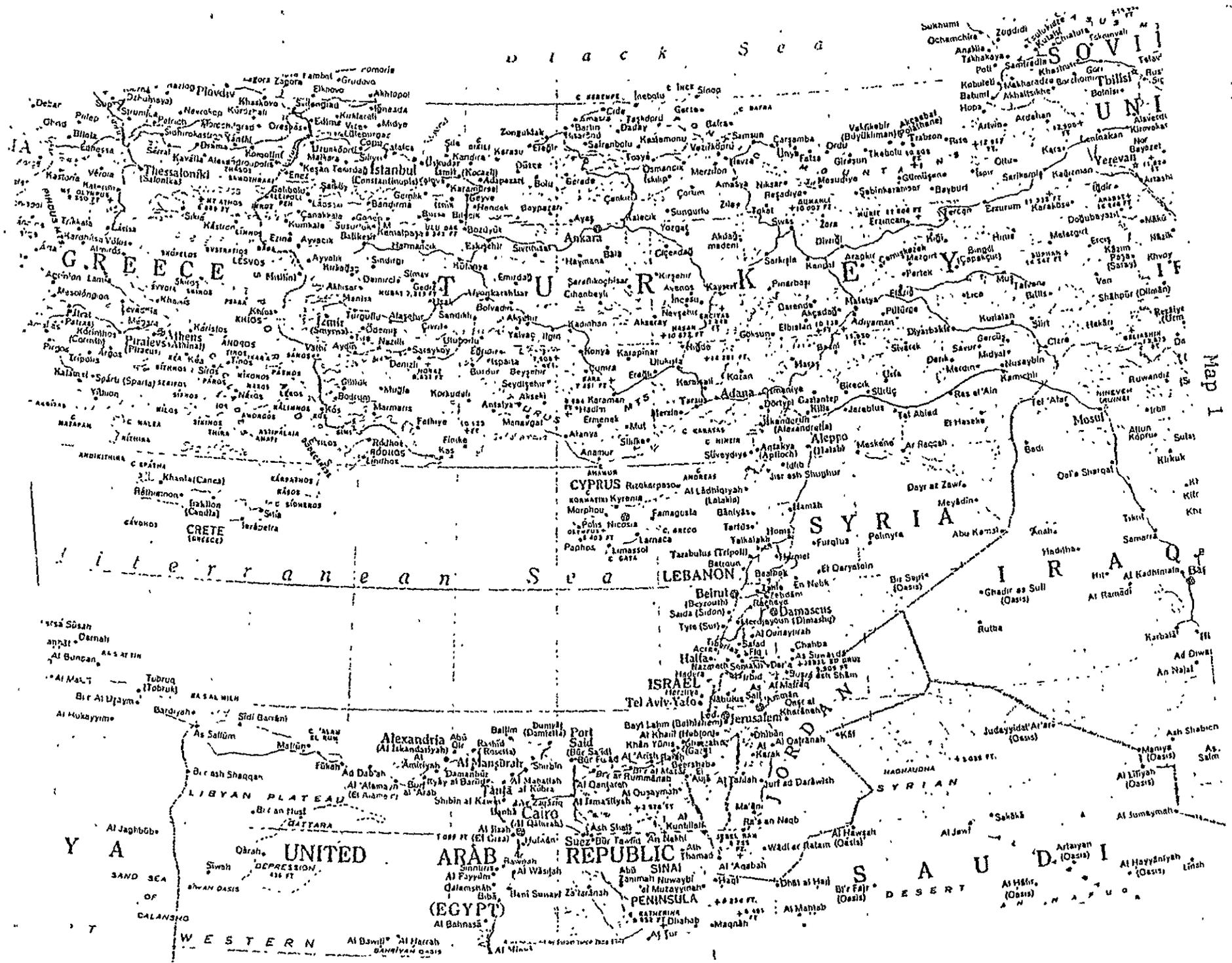
Syria is a country of 71,500 square miles (slightly larger than North Dakota) bounded on the north by Turkey, on the west by the Mediterranean Sea, Lebanon and Israel, on the south by Jordan, and on the south and east by Iraq (see Map 1). In 1970 the population by census was 6,304,685 and in 1976 it is estimated to be 7,581,179.* The population growth rate between census years 1960 and 1970 was 3.28% per year with the population growing from 4,565,121 to 6,304,685.**

This population is concentrated in two large urban/periurban areas and three predominantly rural areas. The urban areas, Damascus City with Damascus Mohafazat (province) and Aleppo, comprise 44.3% of the population or 3,154,915 people. The predominantly rural areas of the western coastal plain and the southwestern oases, and the eastern river basins (the Euphrates and its major tributaries, the Balikh and Khabour) comprise 55.7% of the population or 4,426,264 people (see Table 9 and Map 2).

* See Table 1, Footnote 11. (N.B., Figures in this table adjusted)

** Statistical Abstract 1975, Syrian Arab Republic.

Black Sea



SOVIET UNION

GREECE

TURKEY

SYRIA

LEBANON

ISRAEL

ARAB REPUBLIC (EGYPT)

REPUBLIC OF SINAI PENINSULA

SAUDI ARABIA

Mediterranean Sea

YAN SAND SEA OF CALANCHO

WESTERN DEPRESSION 436 FT

MAP I

35

Illiteracy, though not uncommon in adults, is becoming very rare in young people since widespread primary education now reaches the vast majority of school age children (1,160,000 reported primary school enrollees in 1974, and 1,075,684 persons between the ages of 5-9 in the 1970 census). However, this large influx of students in the primary system has not yet impacted (but undoubtedly soon will) at the secondary level. The number of secondary school students is reported as 108,364 in 1974, as compared to an estimated population group of 840,897 between the ages of 14-18 year-olds in 1974. By government policy, all secondary school (baccalaureate) graduates are guaranteed a post-secondary education, either at a university or technical institute, if they so choose. This educational policy is a direct and probably the major cause of the rapid rise in medical school class size, e.g., the number of annual medical graduates from Damascus alone, which averaged about 70 during the 1960s, is 238 this year, and may exceed 500 in three years. These increases in class size are due to university departments, including medical schools, expanding capacity to accommodate all eligible applicants. It should be noted that the quality of applicants accepted by medical schools is generally held to be very good as medicine is viewed as a choice career, and medical schools can and reportedly do

select the cream of the baccalaureate crop.

Economic development is difficult to quantify accurately. However, the pace of development as observed in urban and rural areas is rapid and pervasive. Tractors and other mechanized farm equipment are common. New and modern construction is underway in large cities, in all provincial centers visited, and in many of the smaller villages. Rural water supplies and rural electrification projects are being installed. There is widespread construction of new factories. This all suggests that resources are available for development throughout the country, not solely in major urban areas. Major foreign exchange earnings are cotton and oil, although other exports, particularly wheat and various industrial exports, are assuming growing importance. Imports into Syria in millions of Syrian pounds are reported as:*

1972	SL 2,060
1973	2,342
1974	4,195

Exports in millions of Syrian pounds:

1972	SL 1,097
1973	1,341
1974	3,000

The value of the country's own products, complemented by major foreign assistance from the USSR, other

* Guine, Antoine. The New Syria. Sama, P.O. Box 4999, Damascus.

Arab nations, and the USA, clearly allows the support of a balanced and extensive educational, agricultural, and industrial development effort--all in addition to the maintenance of a substantial defense establishment.

Syria's Gross National Product on a per capita basis for 1976 will be \$856 (expressed in current monetary values), it has been estimated. It is expected by Syrian economists that the real growth rate of the economy will exceed 10 percent per year for the third consecutive year; the recent high rate of inflation is expected to continue at a pace equalling or exceeding the rate of real income growth.

The employment of large numbers of young men in the armed forces will have substantial impact on Syria's manpower development and on the technical proficiency of its labor force. Military training in the use and maintenance of modern equipment is largely transferable to non-defense activities; training in organizational skills also has application in civilian enterprise.

Perhaps the single most important development project is the Euphrates Dam and associated hydroelectric and irrigation schemes. It is said the entire country will have hydroelectric power sufficient at least until the year 2000. Floods and droughts along the Euphrates should be a thing of the past and irrigated land is scheduled to

double. It is thus possible that Syria can serve as a long-term major exporter of grains and livestock. The pace and breadth of development makes it particularly important that planning for improved health systems should fully consider two related principles:

1. Plans and programs should focus on the probable needs of the population in 1985-1990.
2. There should be full recognition of the vast and largely positive impact that current and future socio-economic development will have on health status (see Section V.2).

The government is becoming progressively more decentralized with annual budget planning and operating responsibility being systematically transferred from the central government to the Mohafazat* level on a Ministry by Ministry basis.

The Mohafazat government is heavily leavened with local input and control. The local government is somewhat akin to a unicameral provincial legislature and its representatives are elected. The group elects an Executive Council; Council members are executive heads of Mohafazat government, rather like ministers in a parliamentary system. The Chief Executive (governor) of Mohafazat government is appointed by the Ministry of Local Affairs

* Mohafazats are the major internal political divisions and are roughly equivalent to States or Provinces.

with the approval of the Prime Minister.

The capacity for national planning has recently been increased by the creation of a Central Bureau of Statistics within the Ministry of Plan. This was done rapidly and effectively and not inappropriately by transferring employees from planning offices within operating ministries to the Ministry of Plan. One necessary consequence has been a serious and immediate degradation in Ministry of Health planning capacity.

IV.2. HEALTH CONTEXT

A. Status

Birth and death records are very poor; health statistics of all kinds are extremely inaccurate and the detecting and reporting of most major diseases of public health significance are unreliable.* It is not possible to derive an infant mortality rate. The figure of 20.8 for 1972, cited in the WHO, Fifth Report on the World Health Situation, 1969-1972, (published 1975 as official WHO record No. 225), is certainly too low, perhaps by three to five orders of magnitude. A commonly heard but unsubstantiated figure for infant mortality is 100 to 150 deaths per 1,000 live births. This level would be compatible with the near absence of maternal and child health services which are now limited to sporadic pre-school immunizations. Further, deliveries attended by trained assistant midwives, and rarely physicians, probably do not exceed 60 percent of total deliveries. Much of the activity of midwives and health visitors appears to be limited to the event of delivery and does not include pre- or post-natal care. Life expectancy at birth is not known. The capability of the government to curtail certain types of preventable morbidity and mortality is attested to by the eradication

* (Malaria, smallpox, and cholera excepted)

of smallpox several years ago and by the currently effective control of malaria.

However, the common occurrence of iron deficiency anemia, hookworm disease, schistosomiasis, malnutrition, typhoid fever, diphtheria, whooping cough, diarrhea and dehydration in infants and children, occasional neonatal-type tetanus, widespread tuberculosis, trachoma, amebiasis and vast amounts of trauma secondary to vehicle accidents, attest to the inadequacy of most preventive strategies as currently employed in Syria.

B. Health Facilities

In the past several years, clinics, dispensaries, and TB and MCH centers have been progressively redesignated as "integrated health centers." However, as observed by the FHC team, the services rendered by these centers were in general fragmented, heavily curative in emphasis and episodic in nature. A clearly defined program emphasis on proven basic preventive services, particularly essential MCH services, was lacking.

Hospital services in government and private hospitals were in the vast majority of cases better organized and more effectively provided than public clinic services. Generally, hospitals, except in the largest cities, were equipped with the basic equipment appropriate for a

community hospital. The equipment, although often old, was almost always in good operating condition. The age of hospitals varied but the majority, although old and difficult to maintain, were clean. Hospital pharmacies were universally well-stocked, and blood banks were widely available.

C. Family Planning

Family planning and population planning as an official policy of the Syrian Government is still nascent. The National Family Planning Association was founded in 1974 with the Minister of Health as president. Since then three local affiliates have begun operation in Damascus, Aleppo, and Latakia. The official position of the government at this time is that family planning services should be available to improve the health of mother and child. The family planning component of nursing and midwifery training is very small, less than 15 hours out of 2,121 total instructional hours (see Tables 11 and 12).

Oral contraceptives and condoms are readily available in most if not all pharmacies throughout Syria. However, abortion is illegal and criminal abortion is said to be unusual.

Various representatives of the government state that there is a need to move into a more aggressive family and

population planning program. If the rate of population growth is not reduced, it is clear that the benefits of development will be consumed by uncontrolled population growth. However, it is generally felt that there must be greater public acceptance of family planning concepts before the government's official posture can change.

D. Health Capacity Estimates

Some quantitative estimates relating to the Syrian national health care delivery system are displayed in Tables 1-5. The reader is encouraged to critically review and modify these tables based on his/her own experience. The FHC team offers a further caution that these are estimates derived from available data and are necessarily replete with what are reasonable but untested assumptions. The purpose of the tables is illustrative and designed to assist the team and the reader in gaining some grasp, roughly correct in order of magnitude, of certain Syrian health services and expenditures.

The estimated private/public sector expenditure ratio of 3.3/1.0, and a per capita health expenditure of \$28.40 annually, representing 3.3% of the GNP, are noteworthy. MOH expenditures are estimated at 11% of national public and private health expenditures. Most ambulatory

TABLE 1

SYRIAN NATIONAL ESTIMATED YEARLY MEDICAL CARE VISITS BY PROVIDER,¹
 NUMBER, PERCENT, AND VISITS PER CAPITA (1976)

Provider Type	Number of ² Providers		Visits ³	Days Worked Per Week	Weeks Worked Per Year ⁴	Annual Visits	
		x				Number	Percent
Physician ⁵	2,800	x	30/day	x 6	x 48 =	24,192,000	67
Pharmacist ⁶	1,270	x	24/day ⁸	x 6	x 48 =	8,778,240	24
Ministry of Health Clinics	287	x	30	x 6	x 52 =	2,686,320	7
Unlicensed Practitioners	840 ⁹	x	150 visits/year	---	==	126,000	<1
Midwives and Health Visitors ⁷	1,500	x	2 ¹⁰	--	x 48 =	144,000	< 1
						<hr/>	
						35,926,560	99+

$35,926,560 / 7,581,179^{11} = 4.7$ visits/person/year

FOOTNOTES, TABLE 1

1. Excludes Ministry of Higher Education, teaching hospital clinics, Ministry of Defense clinics, and Ministry of Social Affairs clinics.
2. Based on latest available data (from Central Bureau of Statistics' Statistical Abstract 1975) as revised, based on interview data received from Ministry of Health, Ministry of Plan, and from other agencies (corrected for known recent graduates).
3. All visit estimates for all provider types are based on summary interpretation of interview data from providers in seven Mohafazats.
4. For physicians, pharmacists, and midwives/health visitors, assumes 4 weeks vacation per year, and for government clinics, 52 weeks per year operation.
5. Private visits by physicians in full and part-time private practice.
6. Private pharmacists.
7. This total of 1,500 includes 1,200 trained midwives and 300 health visitors. Births attended by trained midwife, health visitor, or physician probably do not exceed 60% of total births or 144,000 of 240,000 deliveries per year. (Physicians only do complicated deliveries, e.g., caesarean.)
8. Based on 40 prescription-type drug orders filled per day, 60% estimated as being filled at the patients' request with the pharmacists' advice without a prior physician contact and prescription.
9. A very rough extrapolation based on findings of four unlicensed practitioners per 36,000 persons in one area extrapolated to the country. In general, we found little or no evidence of significant use of this class of practitioners.
10. Deliveries attended in both government and private practice per week. This excludes both pre- and post-natal visits which may occur.
11. 1976 population of Syria based on $1.032 \times$ 1975 population estimate of 7,346,104 from the Statistical Abstract 1975 (assuming 3.2% annual population growth rate).

ESTIMATED YEARLY MEDICAL CARE VISITS
 DEIR-EZ-ZOR MOHAFAZAT.¹
 NUMBER, PERCENT, AND VISITS PER CAPITA
 (1976)

Table 2

<u>Provider Type</u>	<u>Number of Providers</u>	<u>Visits</u>	<u>Days Worked Per Week</u>	<u>Weeks Worked Per Year</u>		<u>Annual Visits</u>	
						<u>Number</u>	<u>Percent</u>
Physician	61	x 30	x 6	x 48	=	527,040	68
Pharmacist	18	x 24	x 6	x 48	=	124,416	16
Ministry of Health Clinics	13 ³	x 30	x 6	x 52	=	121,680	16
Midwife	21	x 2 ⁴	--	x 48	=	2,016	1
Unlicensed Providers ²	--	--	--	--		--	--
						775,152	100%

775,152/352,063 = 2.2 visits per person per year

¹ See Table 1 Footnotes.

² Not known, believed to be low in number.

³ Deir-ez-Zor: 2 clinics and 1 emergency room at the Surgical Hospital
 Mayadine: 1 clinic
 Abaukemal: 1 clinic
 Village clinics: 8

⁴ See Footnote 10, Table 1.

⁵ 1976 population of Syria based on 1.032 x 1975 population estimate of 341,147 from the Statistical Abstract 1975 (assuming 3.2% annual population growth rate).

ESTIMATES: TOTAL AND PER CAPITA SYRIAN NATIONAL HEALTH EXPENDITURES (1976)

Table 3

		SYRIAN POUNDS	PERCENT
<u>PRIVATE</u> ¹			
1. Physicians	8,640 visits/year x 2,800 physicians x S£ 15/visit ⁷	= 362,880,000	46
2. Pharmacists	11,520 prescriptions per year x 1,270 pharmacists x S£ 8/prescription	= 117,043,200	15
3. Dentists ²	5,760 visits year x 860 dentists x S£ 15/visit	= 74,304,000	9
4. Hospitals	1,500 beds x 80% occupancy x 365 days x S£ 60/day ⁶	= 26,280,000	3
5. Laboratories ³	3,791,000 procedures x S£ 5/procedure	= 18,955,000	2
6. Unlicensed Practitioners ⁴	840 practitioners x S£ 7,200 annual practitioner income	= 6,048,000	1
7. Midwives and Health Visitors ⁵	144,000 deliveries x S£ 40/delivery	= 5,760,000	1
		<u>611,270,200</u>	<u>77%</u>
<u>PUBLIC</u> ^{8,9,10}			
1. Ministry of Health		= 90,000,000	11
2. Ministry of Social Affairs and Labour ¹¹		= 6,000,000	1
3. Medical Education and related services:			
a. Min. of Higher Education	Hospitals, nuclear medicine, cardiac surgery ¹²	= 36,500,000	
b. Dental Education	120 graduates x S£ 48,000 ¹³	= 5,760,000	9
c. Medical Education	356 graduates x S£ 80,000 ¹³	= 28,480,000	
4. Serologic and Transfusion Establishment		= 19,000,000	2
5. Other public expenditures ¹⁴ (No figures available)		= ---	--
		<u>185,000,000</u>	<u>23%</u>
		<u>796,270,200</u>	<u>100%</u>

FOOTNOTES, TABLE 3

1. See Table 1 for sources.
2. Number of dentists estimated as for physicians; see Footnotes, Table 1.
3. Assumes 10% of patient visits result in lab tests. Excludes patient self-referral to laboratories and is based on cost of second lowest laboratory test in government fee schedule (e.g., BUN, sugar, ESR, and RBC--all at S£ 5 per test).
4. Herbicists and injectionists not licensed by the government.
5. In this case all deliveries are assumed as private; see also Footnote 7 on Table 1.
6. Inclusive cost for all hospital charges, such as operating room and treatments, but excludes anesthesia and physician surgical fees.
7. Includes all surgical and anesthesia fees.
8. Industrial and government insurance-type payments to covered workers are shown as income to the private sector.
9. Excludes capital budget expenditures, all military health expenditures, and foreign donor grants and loans. Expenditures included are budgeted amounts, not actual spending totals.
10. Sources are 1976 Syrian Budget Analysis and conversations with various government officials.
11. The Ministry of Social Affairs and Labour operates outpatient clinics. The Ministry estimates that each of 400,000 workers covered by the compulsory medical insurance law incurred health expenditures of S£ 150 during 1975. Thus, an estimated S£ 60,000,000 is expended on maintaining the health of covered workers. Most of this cost is paid for in direct payments by industry for reimbursing private physician and hospital services. FHC estimates that 10% of the total, or S£ 6,000,000, is used to pay for supporting the outpatient clinics operated by the Ministry, and for other direct health services paid for by the Ministry.
12. Includes university hospitals, S£ 27,270,000; nuclear medicine, S£ 5,600,000; and cardiac surgery, S£ 3,700,000.
13. Actual number of 1976 medical graduates (118 from Aleppo and 238 from Damascus faculties of medicine); estimated number of 1976 dental graduates. Informal reports of rough estimates of cost for medical education at S£ 80,000 per graduate. Dental is estimated at 60% of this figure.

FOOTNOTES, TABLE 3 (continued)

14. Other government expenditures in the field of health (not included in this calculation) are difficult to estimate and may not be large budget amounts. They include:
- (a) Budget of the Division of School Health in the Ministry of Education, which administers a program with costs shared by the Ministry of Health in which school age children receive free immunizations. It is estimated that about two-thirds of the approximately 1.2 million children enrolled in school (grades one through six) have received these free immunizations. This School Health Division also administers a program of health insurance for students which covers accidents and medical treatment. This insurance is compulsory for all students except for the poor.
 - (b) Budgets of Municipal Health Districts of Damascus, Aleppo, Homs, Hama, and Latakia. Each District is headed by a physician and employs 5-25 health inspectors. They exercise local responsibility in the areas of communicable disease control, enforcement of sanitation measures, food inspection, and water purification. They use Ministry of Health facilities and receive payments from the Ministry to cover 50 percent of personnel costs; the rest of their budgets are made up from municipal funds.
 - (c) Budget for meat and milk inspection and animal disease control within the Ministry of Agriculture and Agrarian Reform.
 - (d) Budget for vital statistics and epidemiological reporting within the Ministry of Economics and Foreign Trade.

Table 4

ESTIMATED COST PER MOH HEALTH CENTER VISIT:
HYPOTHETICAL PREDOMINANTLY RURAL MOHAFAZAT,
(1976)

$$\text{ANNUAL MOHAFAZAT HEALTH BUDGET} \times .3^2 \div [\text{MOHAFAZAT POPULATION} \times \text{VISITS/YEAR} \times \% \text{ OF VISITS IN MOH CENTERS}] = \text{COST/VISIT}$$

4,463,000 x .3 / [468,416³ x 2.2 x .16] = \$8.12
Health
Center Visit

-
- 1 Based on budget information gathered at Deir-ez-Zor and Latakia Mohafazats, and utilizing estimates of visits/person/year and percent delivered by MOH clinics in Deir-ez-Zor Mohafazat. See Table 2.
 - 2 30% of budget devoted to health center operations.
 - 3 1976 population of Latakia Mohafazat based on 1.032 X 1975 population estimate of 453,891 from the Statistical Abstract 1975 (assuming 3.2% annual population growth rate).

TABLE 5

SUMMARY OF ESTIMATED SYRIAN NATIONAL HEALTH EXPENDITURES¹ (1976)

	<u>1971</u>	<u>1976</u>
Total Population ²	6,506,435	7,581,179
Health Expenditure per capita ³		
Public	\$2.03	\$6.60
Private	NA	NA
TOTAL	NA	NA
Per Capita Income (U.S. \$) (In constant [1963] prices)	\$ 234 ⁶	\$357 ^{7,8}
Per Capita Income (U.S. \$)	\$ 271 ⁶	\$856 ⁷
Health Expenditure as % of GNP ³		
Public	0.7% ⁵	0.8%
Private	NA	2.5%
TOTAL	NA	3.3%
Private/Public Health Expenditure Ratio ³	NA	3.3/1.0
Government Health Expenditures as % of Total Budget	2.6% ⁵	1.5% ⁹

¹ All data in this table are based on Table 3, and, as noted below, on estimates of the World Bank.

² Population growth rate is 3.2 percent per annum; 1970 Census count reported total population of 6,304,685; Central Bureau of Statistics estimated 1975 population at 7,346,104.

³ Excludes all capital expenditures, all military health expenditures, and foreign donor grants and loans (see Table 3).

⁴ The 1971 and 1976 figures are not comparable since the basis of the 1971 figure is not accurately known.

⁵ World Bank estimates from Health Sector Policy Paper, (Washington, D.C.: World Bank, March 1975), Annex 3, p. 74. It is not clear

from the table whether these estimates include capital as well as current expenditures. But, Notes to this table in an unpublished Preliminary Version of the Policy Paper, entitled "A Bank Group Approach to Health Policy," dated February 11, 1974, include the following on the Syrian data: "The Central Government is the sole supplier of public medical health services. The figure given includes minor expenditures for welfare services; institutions for disabled persons and Palestine Arab refugees."

- 6 Syria's 1971 GNP was estimated by the World Bank to have been S£ 6,362 in constant (1963) prices and S£ 7,610 in current prices. 1971 Market rate of exchange: U.S. \$1.00 = S£ 3.82.
- 7 Syria's 1976 GNP estimated at S£ 24,000 million, derived from applying monetary rates of economic growth of 30% for 1975 (12% real growth and 16% inflation) and 25% for 1976 (12% real growth and 12% inflation) to 1974 GNP estimated by the World Bank at U.S. \$3,995 million. These rates are based on current rough estimates of the Syrian Government and are somewhat speculative; but this pace of growth is consistent with the Syrian Government's own estimate of 1975 GNP at S£ 19-20,000 million. 1976 market rate of exchange: U.S. \$1.00 = S£ 3.70.
- 8 Estimated implicit GNP deflator (at market prices) is 239.44 for 1976, assuming 1963 = 100.0. This estimate is based on a 1974 implicit GNP deflator estimated by the World Bank at 184.30 and on inflation rates for 1975 and 1976 cited above.
- 9 Based on estimated government current health expenditures of S£ 185 million (from Table 3) and on estimated total (current and capital) government budget of S£ 12.5 billion. The total budget estimate for 1976 represents approximately the same percentage (just over 50% of estimated GNP as for the past two years.

care is provided by physicians (67%) or pharmacists (24%). The annual estimated medical care visits were surprisingly high at 4.7 per capita. In rural areas this figure may well drop to 2.2 and possibly lower.

E. A Synopsis of Program Recommendations

It is in foregoing context that the team proposes to USAID and the Syrian Government a balanced mix of 13 possible programs in three major emphasis areas:

1. Manpower Development
2. Strengthening of Planning and Management
3. Reduction of Preventable Morbidity and Mortality

The fundamental strategy is to address preventable morbidity and mortality through strengthening basic curative and preventive services in the context of a sound health systems planning and management framework. The recommendations derive from the team's analysis of the population's health needs and the current processes of care. In our judgment each specific program recommendation can reasonably be expected to change and improve the current health outcomes with the aggregate effect of more cost-effective health programs.

Although there is a very real and legitimate need for each program recommended, the team directs the reader's attention to the following specific programs:

Priority recommendations for USAID support:

1. Schistosomiasis control - \$832,000
2. Mohafazat management and Central Ministry of Health planning system - \$125,000
3. Maternal and child health service improvement - \$ 96,000
4. Long-range planning for improving environmental and public health protection - \$ 25,000

Priorities recommended for Syrian Arab Republic Government action with or without USAID support:

1. Establishing an effective interministerial national (public and private) health resource allocation and planning mechanism.
2. Establish a Syrian public health service authority.

The proposed health program initiatives in total will contribute to balanced development of rural preventive and public health services. The successful implementation of these programs will complement particularly the Syrian Government priority concerns with the development of agriculture and industry along the Euphrates, Balikh, and Khabour river valleys.

Chart I on the next page is a composite Program and Budget summary for all the recommendations which follow in Section V. Chart II provides an organizational outline of the Ministry of Health.

PROGRAM AND BUDGET SUMMARY

\$4,123,410

Chart 1

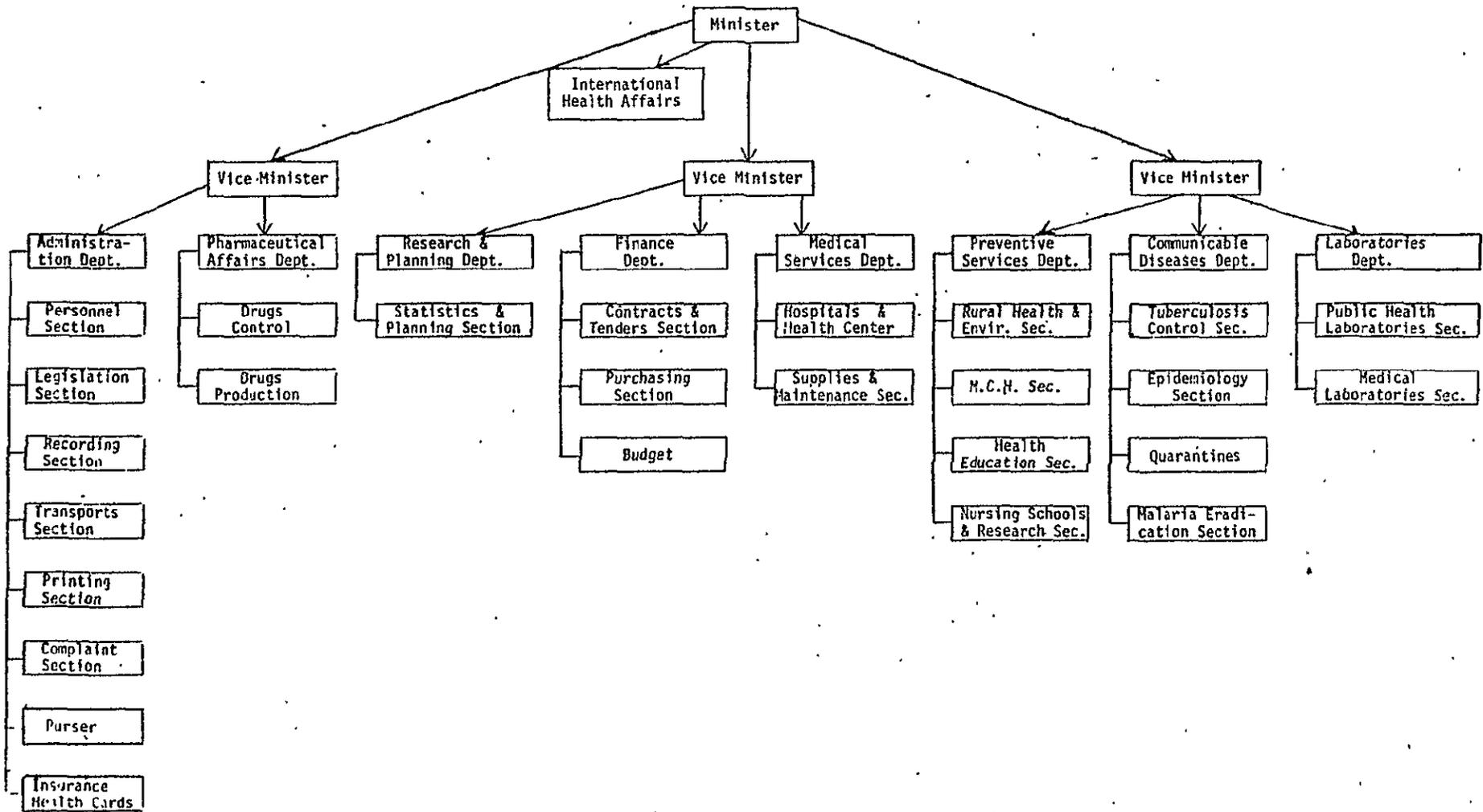
MANPOWER DEVELOPMENT	STRENGTHENING OF PLANNING AND MANAGEMENT	REDUCTION OF PREVENTABLE MORBIDITY AND MORTALITY
<p>** Syrian public health service authority \$460,000</p>	<p>** Interministerial (public and private) national health resource allocation and planning capacity. \$100,000</p>	<p>* Bilharzia control program \$832,600</p>
<p>Long-term training of Syrian physicians in the U.S. in various public health and preventive medicine specialties. \$337,500</p>	<p>* Mohafazat management and central Ministry of Health planning system. \$125,000</p>	<p>* Maternal and child health services. \$ 96,000</p>
<p>Short-term training overseas in public health and management for Mohafazat directors of health. \$ 65,700</p>	<p>Long-term training (Master's level) of university graduates in health management and public health. \$507,955</p>	<p>* Long-range planning for environmental and public health protection. \$ 25,000</p>
<p>Postgraduate education of clinical physicians in rural service. \$109,500</p>	<p>Public Health Library at MOH \$ 7,200</p>	
<p>Improving nursing education and nursing service. \$487,500</p>		
<p>National Health Technical Institute-Administrative curriculum development, teacher training, provision of U.S. radiologic technician instructors, and selected equipment (6th fl) \$461,500</p>		

* Priorities recommended for USAID support.

** Supportive priorities for Syrian Arab government (with or without support).

Chart II

ORGANIZATION OF THE MINISTRY OF HEALTH - SYRIA



V. ISSUES AND PROGRAM RECOMMENDATIONS

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V. ISSUES AND PROGRAM RECOMMENDATIONS

V.1. MANPOWER DEVELOPMENT

V.1.A. Introduction

An overview of Syrian health manpower production is shown in Table 6. Clearly the country is making a substantial effort to produce a broad range of health manpower. This is consistent with the statements of Syrian officials who clearly articulate that it is the intent of the government to make available health services to the entire population through a mix of public and private programs. Further, these services are to be available to rural and urban dwellers--rich and poor. However, the realization of this policy is not yet a reality--particularly for the residents of rural areas and probably for the urban poor and near-poor.

1. Physician-Dependent Rural Services

The provision of personal health services is nearly totally dependent upon physicians.* With certain limited exceptions (midwives and health visitors for deliveries), diagnostic and treatment services must be carried out by a physician.

There is a very widespread belief (expressed by all interviewed on the subject, both physician and non-physician) that the large and growing Syrian production of physicians

* And, to a lesser extent, pharmacists.

SYRIAN HEALTH MANPOWER PRODUCTION (DOMESTIC)
1973-74 / 1975-76
(Latest available data)

Table 6

Institution/Sponsoring Ministry	Source Year	Percent Women in Student Body	Total Students	Entering Class Size	Graduating Class Size	Years General Education Required for Entrance
Medical Schools: Postgraduate**1		n.a.	n.a.	n.a.	n.a.	12 + medical school
Graduate Damascus**		16	2,219	468 ²	238 ²	12
Aleppo**		13	1,786 ²	379 ²	118 ²	12
Latakia**		n.a.	n.a.	100	n.a.	12
National Health Technical Institute* (Damascus)		n.a.	226	116	125+ ³	12
Intermediate Medical Institute** (Aleppo)	a	n.a.	321	134 ²	95	12
Nursing School** (Damascus)		100 ⁴	356	n.a.	131	12
Pharmacy** (Damascus)		42	876	245	149	12
Intermediate Dental Institute**		n.a.	43	n.a.	n.a.	n.a.
Dentistry** (Damascus)		26	801	205	119	12
Veterinary** (Aleppo)		n.a.	388	202	n.a.	12
Nursing (11 schools)*		75 ⁵	1,065	394	228	9
Midwifery (3 schools)*		100 ⁴	90 ⁶	90	0 ⁷	9+3 yrs. nursing
Nurse Specialists**	b	100 ⁴	21 ⁸	21	21	9+3 yrs. nursing
Nurse Aides (4 schools)*		100 ⁴	109 ⁹	109	n.a.	9
Nursing Instructor/Supervisor*10		n.a.	n o n e	r e p o r t e d		n.a.

Ministry of Health sponsored

* Ministry of Higher Education sponsored

- Sources: (a) Figures are for the 1973-1974 academic year (unless otherwise noted) from Statistical Abstract 1975, Office of the Prime Minister, Central Bureau of Statistics, Syrian Arab Republic, 1975, Table 23/10, p. 633, and Table 26/10, p. 639.
- (b) Figures are for the 1975-76 academic year from 1976 Ministry of Health working documents.

TABLE 6 , FOOTNOTES

1. An Institute for High Science was inaugurated in 1974 at the Faculty of Medicine, University of Damascus. It is the only school in Syria to offer specialized medical training to M.D.s. A small, but unknown, number of students are currently enrolled; no specialists have yet completed training. Its term of study is three years and it includes courses in general surgery, internal medicine, obstetrics and gynecology, ear-nose-throat, and radiology.
2. Figures are for the 1975-76 academic year from interviews with officials of the institution.
3. Source: Interviews with Ministry of Health officials.
4. Only women accepted for training in these schools.
5. Two of the eleven schools are for men only; the other nine are for women only. There are 211 men in first and second year classes which total 837 students - in all 11 schools; or 75 percent are women.
6. Damascus (41), Aleppo (38), Latakia (11).
7. Midwifery is changing this year from a one to a two-year postgraduate nursing program; therefore, no graduates show. Midwifery training may also be available at the Damascus University Nursing School.
8. Specialty nurse training for one year in pediatrics (4), surgical (6), ENT (6), and anesthesia (5).
9. Damascus (40), Aleppo (17), Latakia (24), and Deir-ez Zor (28).
10. The Syrian Arab Government currently has a contract with the East German Government which provides for the training of 20 nurse instructors per year.

will shortly meet the entire population's needs for medical services (see Tables 7 and 8). The reasons given are as follows:

1. Government requirements for obligatory rural service for medical school graduates who do not enter speciality training.
2. The relative oversupply of physicians in major urban areas will by competitive pressure drive physicians to progressively more rural practice locations.
3. A corollary to 2 above is the reported relatively large practice incomes possible in rural areas, particularly for those in general practice.
4. The tendency for Syrian physicians to return to their area of origin because of family ties.

Item 4 is especially noteworthy and individual examples illustrating this phenomena were found by the team in several rural areas. Further, the team was impressed by the relatively large number of Syrian physicians outside major urban settings, including some who settled without government incentives in rather small towns and large villages. Too, hardly any foreign contract physicians are working in Syria. Two Egyptian surgeons are reported to be in the country and were visited by the team.

An analysis of current physician distribution* (see Table 9) shows a great rural-urban disparity. In the team's judgment, the absolute magnitude of this

*As well as other health personnel.

Table 7

PHYSICIAN PRODUCTION

<u>Schools</u>	<u>Current Graduating Class</u>	<u>1980-82 Estimated Graduating Class Size¹</u>
Damascus ²	238	500-600
Aleppo	118	300-400
Latakia	---	<u>100-200</u>
TOTAL	356	900-1,200

Medical Students in Training Abroad = 10,952³

¹ Ministry of Plan estimates that in each year of the fourth five-year plan an average of 600 students will graduate. However, entering class sizes for the past two years indicate that graduating classes may reach 1,200 during the 1980-82 period. (Source: Ministry of Higher Education.)

² Damascus and Aleppo information obtained directly from Dean, Vice Dean, or other senior medical school faculty member. Latakia information from Ministry of Health, Ministry of Planning, and other medical school faculty, all of whose estimates were consistent. Latakia is a new medical school, no graduates until academic year 1979-80.

³ Source, Syrian Statistical Abstract, 1975. However, this may exclude 5,000 students consistently reported as being in Spain, but specifically not listed in the statistical abstract. Thus, over 15,000 Syrian students may be studying medicine abroad.

Table 8

AVAILABILITY OF PHYSICIANS RELATIVE TO
POPULATION IN SYRIA PROJECTED TO 1985

	<u>Number of Practicing New Physicians¹</u>	<u>Total Number of Practicing Physicians²</u>	<u>Total Population</u>	<u>Population Per Physician</u>
1976	2,800 ⁴	7,581,170	2,708
1980	2,400	5,200	8,874,323	1,707
1985 ⁵	4,200	9,400	10,388,042	1,105

¹ Based on Ministry of Plan estimates that the number of medical graduates produced from Syria's three medical schools will average 600 per annum during 1976-1980 and 1,050 per annum during 1981-1985, and on the assumption that 80 percent of medical graduates remain in Syria and practice medicine. Number is five-year cumulative total.

² Based on the assumption of no net addition to the total due to the return of Syrian physicians from abroad.

³ Based on the assumption of 3.2 percent annual growth in population, using the Central Bureau of Statistics' 1975 population estimate of 7,346,104.

⁴ Ministry of Plan figure of number of practicing physicians currently available to civilian population.

⁵ No correction for physician deaths or retirement has been made.

DISTRIBUTION OF HEALTH PERSONNEL RELATIVE TO POPULATION
IN SYRIA, 1974

Table 9

Mohafazat	Total Population	% of Total	Rural Population As % of Total	Population/Personnel Ratios				
				Physicians	Dentists	Pharmacists	Nurses	Nurse/ Midwives
MAJOR URBAN POPULATION CONCENTRATIONS:								
Damascus	1,670,657							
Aleppo	1,484,258							
TOTAL	3,154,915	44.3	37.6	1,581	3,968	3,385	1,217	6,247
PREDOMINANTLY RURAL AREAS:								
<u>Western Coastal Plain</u>								
Idleb	421,215		78.1					
Homs	613,899		53.9					
Hama	586,439		66.4					
Latakia	435,002		62.1					
Tartous	340,960		81.9					
TOTAL	2,397,515	33.7	66.7	5,293	11,988	16,421	6,870	19,979
<u>Southwestern Oases*</u>								
Dara	266,671		85.9					
Al-Sweida	159,247		72.6					
Quneitra	18,811		100.0					
TOTAL	444,729	6.2	81.7	8,720	15,883	17,789	4,318	22,236
<u>Euphrates Region</u>								
Deir-ez-Zor	326,054		69.9					
Al-Hasakeh	522,531		79.8					
Al-Rakka	275,209		84.1					
TOTAL	1,123,794	15.8	78.0	6,770	15,394	19,376	19,376	30,373
PREDOMINANTLY RURAL AREAS AVERAGE:								
	3,966,038	55.7	71.6	5,919	13,276	17,319	7,777	22,407
NATIONWIDE AVERAGE:								
	7,120,953	100.0	56.5	2,671	6,497	6,134	2,296	10,441

Source: Statistical Abstract, 1975. Central Bureau of Statistics, Office of the Prime Minister, Tables 19/2 and 20/2, pp. 109-110.

* Relatively close to Damascus and certainly in the Damascus medical trade area for most specialty services and some primary care services

disparity will decrease over the next two decades. There will be sufficient physician capability in Mohafazat centers and large/medium-sized towns to form the core necessary (but not sufficient) for a good basic health services delivery system. However, it is doubtful that any combination of the reasons cited above can ever result in the settlement of physicians on a permanent basis in rural areas for the provision of minimum primary care services to the bulk of the population. The reasons are as follows:

1. The practice environment in smaller towns is not now and never will be sufficiently hospitable. There are too few patients with too little money, and little professional peer contract. Too, physical facilities are limited (inadequate clinics and hospitals relatively remote from the site of practice).
2. The personal environment is equally inadequate; schools, recreational opportunities and social contact are limited for both the physician and his/her family, and it compares unfavorably with opportunities in larger cities.
3. The training of physicians prepares them to render services in hospital settings, and to treat diseases (complex and relatively less common) which are largely irrelevant to the needs of a rural population.

These three reasons serve as incentives for physicians to return or to stay in more urban settings. Those few physicians who do settle in rural areas will be small in number, practicing without the support of non-physician providers of primary care. But of greater importance, they will be inappropriately trained to meet the needs of the population. Physicians are always necessary but seldom in

adequate supply for the provision of basic comprehensive rural health services.

The alternative is the thoughtful introduction of medical auxiliaries, sometimes referred to as non-physician providers of primary care or polyvalent health auxiliaries. This class of personnel works under the supervision of, but often geographically remote from, a physician. This practice model, which employs physicians and delegates substantial diagnostic and treatment responsibility to the non-physician provider of primary care services, is in widespread use throughout developed and developing countries. (For a more detailed treatment of this subject the reader is directed to Appendix II, entitled "Considerations in the Development of a Primary Care Health Manpower Strategy.)

A first and valuable step that could be initiated by the Ministry of Health, ideally in cooperation with the medical faculties at the Damascus, Aleppo, and Latakia Universities would be to expand the responsibilities and the training of nurses, midwives, and health visitors. This expansion would include the diagnosis and treatment of common ills in mothers and children, and the provision of delivery services and pre- and post-natal care to well-mothers and children. A later step can be the introduction of health workers, male and female, into a well-structured, carefully supervised work setting with responsibilities which include initiating diagnosis and treatment as well as referral

of older children and adults. A necessary parallel step is the identification of those physicians who are now and/or will be likely to settle in rural areas. These physicians require training comparable in intensity and depth to that provided clinical specialists. However, the focus of training must be substantially different from that provided to the traditional specialist in clinical medicine.

This new category of physician specialist--a primary care specialist--must be trained not only in the provision of patient care services but also in the management and evaluation of health systems. Training must include the organization, management, planning and evaluation of health systems which extensively use non-physician providers of primary care services. In addition, selected graduate training in internal medicine, obstetrics/gynecology, pediatrics, minor surgery and the initial management of trauma, pharmacology, teaching methods, group processes, family planning, techniques of health education, epidemiology, biostatistics, systems analysis and management methods and environmental science and occupational health, are all necessary curriculum components. Such training would, in aggregate, take three or four years and could be accomplished if a carefully planned post-graduate curriculum, encompassing both clinical-medical and public health training, were developed.

2. Physician Education and Compensation

Both the selection of students for undergraduate education and postgraduate education and the physician reimbursement mechanisms in Syria serve as powerful forces which shape the development of the national physician cadre. The highest economic and social rewards, income and prestige, go to the clinical specialist in urban practice. Specifically:

- a. The best baccalaureate students apply and are selected for medical schools. The students prefer medicine to engineering, science, or law and prior to admission have career expectations most compatible with the practice of classical clinical medicine.
- b. The actual content of the curriculum is almost exclusively concerned with the development of physicians who will practice in hospital settings.
- c. The role models of the students--the faculty--are with very few exceptions in specialty practice and have personal professional experiences largely limited to clinical medicine in urban settings.
- d. The 'best' graduates are encouraged to pursue postgraduate specialty medical education. The rewards include waiver of rural service obligations (common) and partially/fully subsidized postgraduate education abroad (less common).
- e. Fee schedules for practicing physicians for identical ambulatory and inpatient services are always higher for specialists (See Table 10, illustrative schedule of Physician Fees). Further, fees for services in ambulatory settings are relatively low as compared to fees allowed for hospital services--particularly surgical services. This pattern of reimbursement very likely has the following effects:

Table 10

SELECTED PHYSICIAN, DENTAL, AND LABORATORY FEES¹

	FEE RANGE (Syrian Pounds)		
	<u>Low</u>	-	<u>High</u>
PHYSICIAN			
Generalist Office Visit	5	-	10
Specialist Office Visit	10	-	20
Tonsillectomy	150	-	200
Hernia Repair	225	-	350
Gall Bladder Removal	450	-	600
Hysterectomy	500	-	600
DENTIST			
Oral Exam	5	-	10
Simple Filling	15	-	30
Cleaning	30	-	60
Full Dentures (no extractions)	300	-	500
LABORATORY²			
White Blood Count and Differential			8
Erythrocyte Sedimentation Rate			5
Sodium Pro-Thrombin Time			10
Amylase, VDRL			15
Protein Bound Iodine			35
Serum Electrophoresis			60

¹ Source: Ministry of Health Fee Schedule in effect May 1976.

² No range; fixed fee for laboratory services.

1. The encouragement of high ambulatory volume-- highest for the generalist in order to achieve income goals.
2. The encouragement of any clinical specialty over general practice.
3. Strongly encouraging the choice of surgery and surgical specialties.
4. And the establishment of an economic climate fully compatible with the following:
 - a. In ambulatory settings, high volume services with short patient contact time and readily reimbursable, curative, and perhaps unnecessary services:
 - b. In hospital settings, unnecessary services, particularly laboratory services and surgery.

The net results of items one through four above are straight forward. The maximization of professional personal income, family and public respect, and physician satisfaction is best achieved by pursuing a clinical medical specialty in an urban setting.

It should be noted and emphasized that payment mechanisms for physicians in public health, preventive medicine and occupational health and safety are so limited that virtually no physician can rationally choose such a specialty. In fact, no more than four are reported to have done so and at least two of these have extensive private clinical practices.

The problem of adequate reimbursement of physicians in nonclinical practice is recognized by the Ministry of Health and has been commented upon by various outside

consultants, particularly those from WHO and other United Nations agencies. Fundamentally, the government pays the physicians somewhere between S£ 800 - 3,000 per month--the majority under S£ 2,000 per month. Very rarely and under special circumstances, a greater rate may be paid through a variety of salary supplements and contract procedures.*

Private practice, afternoons only, with government service in the morning, a very common Syrian pattern followed by virtually every MOH physician whatever his position or responsibility, probably allows a private income in the S£ 50,000-100,000 per year range, or about S£ 4,000-8,000 per month. This pattern of quasi-full-time employment and outside work is also allowed for midwives, laboratory technicians and possibly some other classes of auxiliary personnel - e.g. anaesthesia technicians, X-ray technicians, and health visitors. It is easy, expected, and officially sanctioned for government physicians to earn the majority of their income in private practice. Further, full and part-time private practice constitutes, in FHC's estimation, about 67% of the total medical care patient contacts in the country per year.

The payment mechanism for government physicians providing clinical private services is not necessarily a problem. The very real and much smaller problem and one absolutely critical to solve, is the development of a

* See page 22, Finding #2a.

payment mechanism for physicians working truly full-time in the various fields of public health and preventive medicine, e.g., health systems management, epidemiology, MCH, academic preventive medicine, laboratory science. At the present time, there is no mechanism to pay for such services at a level which even approaches part-time private practice, let alone full-time practice. And, as there is no way to engage in private practice in public health, then for all practical purposes, no physicians opt for service in this specialty. The national need for public health physicians is quantitatively small, perhaps 20-40 in full-time service by 1985.

The task is to develop a compensation mechanism under government auspices which deals with only a small number of physicians and does not seek to compensate those in clinical/medical practice working for the government at rates comparable to those received in private practice.

V.1.B. Recommendations

1. Physician-Related Recommendations.

Family Health Care makes the following four recommendations to complement physician-related manpower development.

a. Public Health/Preventive Medicine Service Authority

The MOH should establish a government-sponsored Public Health Authority for technical assistance to the public and private sectors. The primary function of such

an Authority is to retain and compensate on a strictly full-time basis physician specialists in public health and preventive medicine, and in occupational health and safety. The total level of compensation should be such that a combination of salary plus fringe benefits will attract and maintain 20-40 such physicians by 1985.

These physicians will serve on a contractual basis with, for example, the MOH, the Ministry of Higher Education, and the Ministry of Industry. Professionally related compensation over and above income and fringe benefits received from the Public Health Authority should be expressly prohibited. If this last requirement is violated by an individual, it should result in dismissal or suspension from the Authority.

The Authority will receive its operating funds from the services rendered to government agencies through a designated transfer of funds for specialized public health services. In the case of industry, a contract mechanism should suffice for this reimbursement purpose. The government should guarantee a minimum level of long-term funding so that uncertainty and risk can be reduced to a level sufficient to attract physicians into specialty training in the non-clinical public health fields.

It is recommended that USAID provide on a loan basis capitalization of the Authority to support the

first three years of operating expenses. This capitalization of \$1,650,000 will allow the Authority to build its core steady state operating capacity from five full-time professionals in the first year to eight in the second and ten in the third. Well before the end of the third year, the flow of funds from contracts should be taking place and the USAID loan input will serve solely as operating and emergency reserves, as well as to support the development and promotion of other selective national promotive efforts in the areas of public health and preventive medicine. For instance, the Authority from its initiation could appropriately take the form of a Public Health Association with such additional functions as the promotion of public health meetings, seminars, and publications. Further, such an Association could serve as a critical stimulus and perhaps seed a faculty in public health associated with a university. As an aside, the team notes that some consideration is being given to establishing a fourth university, probably in eastern Syria near Deir-*ez*-Zor. Such a location would be ideal for Syria's first School of Public Health.

In addition to capitalizing the Syrian Public Health Authority, technical assistance in further conceptualization and program design, operating characteristics, and the requisite principles of establishing this Authority are

proposed. This would require 45 man-days of U.S. in-country technical assistance, primarily with representatives of the MOH, Ministry of Higher Education, and Ministry of Finance.

Cost:

Capitalization	SE 1,650,000
U.S. technical assistance, 45 man-days	SE 75,000
	<u>SE 1,725,000</u>

TOTAL (\$ 460,000)

b. Long-Term Training of Physicians in Public Health and Preventive Medicine

Conditional upon establishing a suitable employment and compensation mechanism for physicians willing to devote full-time service in public health and preventive medicine, it is recommended that USAID undertake to train five Syrian physicians per year in such fields as MCH, epidemiology, biostatistics, public health laboratory science, environmental health, occupational health and safety, health services administration, and health planning.

Cost:

Five physicians x 1.5 years x 3 training cycles equals 22.5 man-years of training. This includes 3 months of language training, 9 months academic training, and 3 months of a structured field experience in association with a U.S. educational program. As some of the suggested training may require two academic years there should be flexibility allowed in the above format.

The degree granted would be a Masters in Public Health or equivalent.

SE 1,248,750
(\$ 337,500)

c. Short-Term Training of Mohafazat Directors of Health

The Mohafazat Directors of Health are not now trained in public health, preventive medicine, the control of endemic diseases common to developing countries, epidemiology or MCH. A structured 3-4 months Diploma in Tropical Medicine, such as the one offered by the Liverpool School of Tropical Medicine, would serve as an excellent base for Mohafazat Directors. This academic experience could be gained in a short period of time and contribute substantially to upgrading the public health component of the Ministry of Health's service programs. Comparable programs in the U.S. are not known to the team. The Liverpool School has had years of experience with such programs, coupled with a fully developed curriculum and vast experience in short-term training of physicians in public health and management. It will be difficult if not impossible to duplicate this expertise in the United States.

The Short-term 3-4 month period is preferable as the Directors are needed in their government positions, and at present they are all dependent on private practice for the majority of their personal income. A program lasting

more than a 3-4 month period will not be generally acceptable to either the government or to the Directors on personal financial grounds.

The FHC team recommends that USAID partially meet the Mohafazat Directors continuing education needs by sending three Directors per year for 4 months training, and supporting this program for 3 years, training a total of 9 directors.

Cost:

Thirty-six man-months of short-term training.

SL 246,375
(\$ 65,700)

d. Postgraduate Education of Clinical Physicians
Serving in Rural Areas

A vital component of comprehensive rural health services is a minimum adequate curative base with appropriate hospital components. These services are dependent upon the availability and willingness of physicians to serve in rural areas. The government requirements can direct physicians to rural areas for short terms of obligatory service. Financial incentives can assist to maintain a rural practice interest as can ties to home and family. An additional incentive which addresses professional satisfaction as well as the quality of medical care delivered is the organized provision of postgraduate education for physicians in rural areas.

Where an effective administrative structure exists and where there are physicians who are willing to specialize in a basic and needed medical specialty, such as pediatrics, internal medicine/infectious diseases, or ob-gyn, it is suggested that specialty training in the United States, preferably in formal residency programs, be offered so long as firm assurances are obtained from the physician and the Syrian Government that he/she will return to a rural long-term practice assignment.

Physicians who practice in rural areas are remote from their colleagues and find it difficult to maintain professional contacts. They are always under professional pressures to move to large urban areas. Retaining basic

medical specialists in rural areas is as important as getting them there in the first place. Therefore, FHC proposes short-term, one to three months, traveling fellowships in the U.S. to selected medical centers, as well as to rural practice settings, for physicians who have already served 3-10 years in rural areas and have given assurances of remaining in such areas upon their return.*

Deir-ez-Zor is one Mohafazat which has already demonstrated an effective capability to select general physicians currently living within the Mohafazat for specialty training overseas. Recently, an orthopedist returned from West Germany and is assuming control of a major program, and another specialist has just returned from France and is working in the area of tuberculosis control. As is the Syrian custom, these physicians carry on with a private practice in addition to their government service.

The team recommends to USAID the initiation of funding for both long and short-term training in the U.S. for physicians from the Deir-ez-Zor area. This Mohafazat has been selected because of its past success with similar programs, and the Director of Health has identified three (3) candidates who are prepared to undertake specialty training. Such a program could and should be expanded to other Mohafazats. Of course, in the long run, it is

* No cost offered by FHC.

necessary for Syria to strengthen its own capabilities for specialty training and graduate education in medicine. Too, continuing education directed at those in clinical practice should be fostered. Representatives of the MOH have expressed interest to the team in approaching USAID for assistance in developing postgraduate training programs in Damascus, Aleppo, and Latakia.

FHC recommends on a trial basis, selecting candidates and arranging for residency training (not fellowship training) that will, if successfully completed, result in American Board Eligibility Status in three specialty areas:

1. Pediatrics
2. Orthopedics
3. Internal medicine, with an infectious disease emphasis.

In the aggregate, with language training, the residency training proposal amounts to 9.34 training man-years. Depending on the arrangements made and qualifications of applicant, the physician should receive a stipend. If the participating institution requires USAID to pay that stipend, then the cost per trainee per year could approach \$15,000 each. The candidates for this program, in addition to having good mastery of language (see Appendix IV), will have to pass the ECFMG and be fully eligible for practicing medicine, either under an institutional or individual

license, as may be appropriate for the particular state and training program to which the student is assigned.

Cost:			
Travel with family	\$1,000 x 3	=	\$ 3,000
Language training	\$1,000 x 3	=	\$ 3,000
Stipend	\$11,081 x 9.34	=	103,500
			(\$109,500)
			SL 410,625

2. Nursing: Discussion and Recommendation

Though the Ministry of Health and the Ministry of Higher Education have been concerned with improving nursing services over the past decade, and though foreign technical assistance from, among others, WHO, UNICEF and East Germany has been substantial, there is still an absolute shortage of nurses as well as severe qualitative problems with those who have been and are currently being trained. Virtually without exception, physicians and administrators stated to FHC during interviews that the most acute shortage of health personnel was in the field of nursing. Some of the problems include the following:

- a. Routinely delivered good nursing care, particularly in government hospitals, is unfortunately rare. Therefore the clinical teaching and practice environment for nurses is unsatisfactory.
- b. Clinical instructors knowledgeable and experienced in good nursing practices and able to teach effectively are in very short supply.
- c. Good role models for student nurses are largely unavailable. This situation is further confused by the practice of having part-time physicians

and dentists serve as directors of nursing schools.

- d. Physicians, nurses, nursing students and hospital administrators all tend to view the nurse role more as a menial task and less as a professional position.
- e. Hands-on nursing care is not easily accepted culturally by the nurse, nor by society.
- f. When nursing care involves male patients and female nurses, both patient and nurse may be uncomfortable and mutually disinclined to render or accept services.

Several adverse consequences are the net result:

- a. Preventible morbidity--decubitus ulcers, contractures and superficial skin infections occur far too frequently.
- b. Physicians limit or avoid certain treatment regimes as nursing care and observation are not sufficient to allow such procedures to be safely carried out (e.g., initiating anti-coagulant therapy).
- c. Patients have a strong and understandable incentive to avoid even necessary hospitalization and to seek out private hospital services where nursing care is reported to be, and observed by the team to be, better than that available in government hospitals.

In summary, the team found throughout its travels a common concern with the lack of availability of nurses, their relative unwillingness to work in hospital settings, and a rather low quality of nursing care, particularly of hospitalized patients.

In Syria, nursing is a newly emerging profession. The appropriate and vital role of the nurse as a central

figure in the care of the sick in the hospital is unappreciated by doctors, nurses, and administrators. Further, there are cultural variables which make the delivery of certain nursing services to male patients difficult to render. It is to be noted in this regard that two schools for male nurses have recently been established.

Inculcating a sense of professionalism, and most importantly, relating professional nursing to sensitive, humane, and critically competent hands-on care of the patient as the foundation on which nursing services, nursing education, and nursing administration are built, is of vital importance to the future development of nursing education.

The curriculum summaries for nurses, nurse aides, and midwives can be reviewed in Tables 11, 12 and 13. In Al-Rakka and Deir-ez-Zor there are two quite different nursing situations. In Al-Rakka, a new 350-bed general hospital and new school of nursing are under construction. Both are scheduled to open within the year, but at the moment there is staff for neither. It is expected that providing nursing staff in the hospital will be extremely difficult. At Deir-ez-Zor, there is an established nursing school with several experienced instructors trained at the postgraduate level in East Germany. The school is busy with 170 students, including 28 in the one-year nursing

CURRENT CURRICULUM FOR NURSES¹

Table 11

Category	Subjects	Theory (Hrs.)	Practice (Hrs.)
First Year	1. Basic Nursing	100	260
	2. Anatomy and Physiology	60	16
	3. Pharmacology (part 1)	32	16
	4. Microbiology and Parasitology	32	16
	5. Chemistry and Physics	32	--
	6. Foreign Language	104	--
	7. Psychology and Sociology	32	--
	8. Personal and Public Hygiene	40	--
	9. Nutrition and Dietetics	32	16
	10. Social-National Orientation	40	--
	TOTAL FIRST YEAR	496	324
Second Year	1. Internal diseases (part 1)	128	--
	2. Surgical diseases (part 1)	16	--
	3. Pharmacology (part 2)	32	--
	4. Personal and Public Hygiene	32	--
	5. First Aid	18	--
	6. Library and Reading	32	--
	7. Operating Room	16	--
	8. Resuscitation and Blood Bank	16	--
	9. Radiology	16	--
	10. Biological Chemistry	16	--
	11. Foreign Language	104	--
	12. Social-National Orientation	40	--
TOTAL SECOND YEAR	466	--	
Third Year	1. Internal Diseases and Their Nursing (part 2)	104	--
	2. Surgical Diseases and Their Nursing (part 2)	104	--
	3. Obstetrics and Gynecology and Their Nursing	32	--
	4. Eye Diseases and Their Nursing	16	--
	5. Skin Diseases and Their Nursing	16	--
	6. Sanitary (or Health) Education	16	--

Table 11 (cont.)

Category	Subjects	Theory (Hrs.)	Practice (Hrs.)
Third Year (cont.)	7. Nose, Ear, Throat Diseases and Their Nursing	32	--
	8. Pediatric Diseases	32	--
	9. Principles of Anesthesia	16	--
	10. Management of Hospitals	32	--
	11. Foreign Language	104	--
	12. Social-National Orientation	40	--
	13. Legal Medicine	32	--
	TOTAL THIRD YEAR	576	--

¹. Ministry of Health Working Document

Table 12

CURRICULUM SUMMARY

Nurse Aides¹

<u>Subject</u>	<u>Theory Hours</u>	<u>Practice Hours</u>
Basic Science	189	630 hours throughout the academic year for all subjects
Professional Orientation	42	
Growth Development of the Family	42	
Basic Nursing	126	
Nursing Specialities	126	
Foreign Language	105	

Total Instruction Hours = 1,260

In 1975/76 there were 109 nurse aides in training at four schools:
Damascus - 40, Aleppo - 17, Latakia - 24, and Deir-ez-Zor - 28.²

¹ Requirements: Training length, one year; entrance requirements - completion of nine years of schooling.

² See Appendix VI for Ministry of Health Source Document.

Table 13

MIDWIFERY CURRICULUM SUMMARY¹

	THEORY	Hrs.	PRACTICE	Hrs.	TOTAL
Year I	Anatomy and Physiology	20	Pre- and post-natal consultations	150	
	Normal Obstetrics, including care of the newborn	70	Delivery room	300	
	Pathological pregnancy, labor, delivery and resuscitation of the newborn	26	Pre- and post-delivery care	200	
	Psychology	5	Newborn care	200	
	Professional orientation, ethics and family planning	15	Perform 20 normal deliveries	---	
	Social-National orientation	40			
	Foreign language	75			
		<u>251</u>		<u>850</u>	1,101
Year II			34 weeks at 6 hours per day assigned to various maternity duties, including readings and discussions on midwifery. Assumes a 5-day instructional week.	1,020	1,020
					<u>2,121</u>

In 1975/76 there were 90 first year students in 3 midwifery schools: Damascus (41), Aleppo (38), and Latakia (11). The current year is a transition year from a one to a two-year curriculum for midwives; therefore, there are no year 2 students at this moment.

¹ Entrance requirements: 9 years schooling and 3 years of nursing school.

assistant course, 42 in the first class, 66 in two sections of 33 each in the second class, and 34 in the senior class. The school is under the part-time direction of a dentist. This combination of two schools, one established and one about to open, and only two and a half hours apart by road in a fast-growing and underserved area of the nation, offers a signal opportunity for an interesting service and educational improvement project. It is recommended that three (3) nurses from the United States, all experienced and with a keen desire to work in hospital-based nursing, be assigned here. One, preferably two, should have experience in nursing education, methods of training, and basic curriculum development. All should have experience and proven capabilities in clinical instruction.

Such a team would be in residence for a minimum of three years. The members would need to understand that all their basic interactions with students and patients would be in Arabic. Therefore, acquiring basic conversational skills in Arabic would be of the utmost importance. This team should take intensive Arabic instruction for ten to twelve weeks before arriving in eastern Syria. Equally important is continuing and less intense language instruction during their course of residency.

The nurses, prior to selection for participation, should be well briefed on the environment in which they will work, the level of existing medical and nursing services,

and the substantially different professional practices they will encounter. It is important that they have the ability to discriminate between practices in need of improvement and those which are merely different but equally as good as U.S. practices. In the selection of nurses for this assignment, particular attention should be directed toward nurses with community hospital and hospital-based school of nursing experience.

The net results of this investment effort should be a marked improvement in the quality and professionalism of nursing graduates, and derivatively, a noticeable and appreciated improvement in the quality of hospital-based nursing services. The staff of the schools, the curriculum, the training approach, the emphasis on integrating service and education, all should be permanent changes in the nursing profession. If effectively implemented in Deir-ez-Zor and Al-Rakka, this project may provide subsequently a continuing education focus in other nursing schools throughout the country.

Cost:

Three U.S. nurses x 3.25 years each (9.75
man-years) x \$50,000 per year. = SE 1,828,125
(\$487,500)

3. National Health Technical Institute (NHTI):
Discussion and Recommendations

The NHTI in Damascus graduates approximately 125 technicians per year and offers two-year courses in the fields of anesthesia, laboratory technician, X-ray technician, pharmacy, and environmental sanitation. Entrance requirements are a science division baccalaureate. The NHTI is operated by the Ministry of Health. The only other similar institution training mid-level technicians in Syria is the Intermediate Medical Institute affiliated with the Aleppo Faculty of Medicine. This institute offers training in anesthesia, laboratory, and X-ray and next year will graduate about 134 students.

The NHTI will soon move from three separate training facilities into a new, circa SE 5,000,000, six-story building devoted solely to the training of mid-level technicians. Class size and the number of courses offered can expand to allow up to 300 students per year. The existing physical plant capacity allows approximately twenty-five to thirty students per year in each of the five discipline areas. However, shortage of instructors limits this further, particularly in the area of X-ray. Students are both male and female. But, in the environmental sanitation curriculum the student body is one hundred percent male.

Training combines lectures, demonstrations, and laboratory field experience. The lectures have been primarily by physicians but as their willingness to lecture is limited, perhaps because of relatively low fees, the Institute is

turning more and more to its own graduates to serve as government full-time staff. The Director of the Institute has arranged for some postgraduate overseas training. Thus far, students have been sent primarily to other Arabic countries, particularly Egypt and the Sudan.

The students are largely dependent upon their own classroom notes or notes developed by the lecturer for written instructional materials. The limitations on training at the Institute are fundamentally of two types:

1. inadequate physical capacity (being corrected)
2. insufficient supply of instructors:
 - a. physicians
 - b. technicians

The instructor shortage that is most critical is in the X-ray technician training program. At present, the X-ray curriculum is almost entirely dependent upon physician lecturers/instructors, and it is reported that they are unavailable. The supply of radiologists in the country is small and special lecture fees as high as 200 Syrian pounds are reported to have been refused. As there are very few X-ray technician graduates, there is only a limited pool of graduates to draw on to act as instructors. The X-ray technician shortage would, if remedied, not result in an oversupply of technicians or placement of technicians in settings where there was not equipment or an appropriate demand for services. It is

FHC's understanding that hospital-based X-ray technicians are in such great need that production at a level of 15 to 25 technicians per year can go on for a number of years before there is market saturation.

The case is considerably different in the area of laboratory and environmental sanitation technicians. Though there are superficially shortages of these personnel throughout the nation, it does not follow that production should at present be increased beyond current capacity. The capacity of the existing system to use effectively the current or a larger number of laboratory or environmental sanitation technicians is open to great doubt.

Laboratories, particularly in ambulatory settings in Syria, if they exist, are ill-equipped. There is no minimum specified set of diagnostic tests, nor are there the necessary equipment and supplies to carry out such examinations. Physicians are untrained or poorly trained in the use of laboratory diagnostic aids. An increase in laboratory capacity without a parallel or antecedent effort to train practicing physicians and medical students in the appropriate use of laboratory services will result in little or no benefit since physicians effectively control the demand for laboratory services and must interpret test results. The equipping of laboratories should begin with an analysis of the tasks appropriate to a particular class of laboratories. These should take place prior to increasing the production of laboratory technicians at the National Health Technical Institute.

The consequences of production without consideration of these factors is likely to result in overtrained, unhappy technicians, placed but not working in under-equipped and inappropriately utilized laboratories.

The number of hospitals in the country is sufficiently small, and the production capacity of laboratory technicians at the Aleppo Intermediate Medical Institute is sufficiently large (50 or more per year) that current production from both institutes, coupled with in-hospital training capacity, should suffice for the moment to meet most of the needs of hospitals.

The environmental technician situation is rather different. The actual work setting for environmental technicians is unstructured. Supervision is loose or absent; job responsibilities are vague and sometimes inappropriate. This category of worker should be held constant or decreased until the job requirements are clear and a rational management framework established. Then, when there is a reasonable likelihood of ongoing supervision and field evaluation of environmental technicians, additional slots can be opened at NHTI.

Also, since the Ministry of Higher Education is training health technicians at Aleppo, the production of this class of health personnel should be coordinated with NHTI and the Ministry of Health to foreclose costly duplication of efforts aimed at addressing common problems.

Anesthesia technician production capacity now seems adequate with about 50 per year soon to be graduated between Aleppo and NHTI. The relevance and appropriateness of the pharmacy curriculum is open to question and is being reviewed now by the Ministry of Health with the assistance of a WHO consultant.

Because of the foregoing, the NHTI should not precipitously change the curriculum offerings. However, and particularly as health center services expand and improve, consideration could be given to the following:

1. For smaller rural and urban health centers:
A polyvalent technician trained in the performance of X-ray procedures, laboratory procedures, and pharmacy supervision. Such an individual would be able to handle capably the lab/X-ray load and could select, train and supervise a Brevet graduate to act as a pharmacy assistant.
2. Pharmacy Assistants:
Pharmacy training might be reduced to one or one-and-one-half years with greater emphasis on developing expertise in systems management, inventory control, record keeping, and methods of storage. Such a technician could on an itinerant basis provide technical assistance to 5-10 pharmacies in smaller urban or rural health centers and work with the polyvalent technicians on a consultation basis vis-a-vis the selection, training, and supervision of the local pharmacy assistant. In larger centers and hospitals the work of the pharmacy technician would be relatively unchanged.
3. Environmental Sanitation:
This health worker is vitally needed in rural and urban areas. Effective use is critically dependent

on a structured work situation, a careful and complete description of tasks and responsibilities, and continuing field supervision. As curriculum content and improvement should derive from these factors, modifications should be deferred until these issues are addressed.

4. Anesthesia:

Discussions with surgeons and physician anesthetists suggest that this worker is well-trained and very useful. Consultations with technicians working in the field support this impression.

5. Administrative Technician Curriculum:

In the MOH centrally and in the Mohafazat offices, hospitals and health centers, there is a lack of personnel trained in management and administration. As a necessary complement to the U.S. training of graduate health administrators proposed elsewhere in this section, USAID should assist the NHTI in the development and implementation of a curriculum for health administrative technicians. The graduates will be capable of working as junior and middle level managers/administrators throughout the Ministry of Health system. They will be trained in basic systems management procedures, accounting, payroll, inventory, budgeting, personnel practices, supervisory techniques, principles of public health, and hospital services, and will receive orientation on the content and intent of MOH service delivery programs. Curriculum development for this new class of worker should not proceed until the Ministry of Health has defined expected job functions.

The assistance provided in the design of this program will allow a sound new curriculum to be introduced. In addition, the techniques of curriculum analysis and design, and the development of a curriculum derived from an analysis of the knowledge and skills required to perform a particular function can be subsequently applied to other courses in the NHTI. To maximize the benefit of both improved and new curricula, as well as the utilization of new technical skills acquired by instructors in the short term U.S. training process, in-country training in instructional techniques is recommended.

Proposed Program for NHTI

I. Design and equip the 6th floor of the NHTI.

a. Technical assistance in the design and layout of interior space for the 6th floor of NHTI as a conference and audio-visual center. This can then be used for NHTI training purposes as well as by other divisions of the MOH needing instructional and seminar type space.

b. Cost:

60 man-days of U.S. consultant time in functional analysis and design & equipment specification, with travel and per diem.

SE 103,705

Provision of equipment.

SE 187,500

II. Training of Trainers.

a. Short-term training in the U.S. for graduates of NHTI, for staff acting as full-time instructors, and for other non-physician full-time instructors; a three-month structured exposure to current methods, techniques, protocols, and equipment, in the area of laboratory, X-ray, anesthesia and environmental sanitation is recommended.

b. Cost:

Three trainees per year x 5 years = fifteen trainees.

SE 675,000

Language training can be given at the MOH language lab sufficient to allow technical conversations in English. This must be accomplished and documented by language testing conducted by a fluent English speaker prior to any individual departing for short-term training.

Provision of one language laboratory trained operator for one man-year to operate existing new equipment and participate in training of a Syrian English language laboratory instructor.

SE 281,250

III. Curriculum design and instructional methods.

Cost:

Design of health administration curriculum,
9 man-months of direct U.S. technical
assistance. SL 253,125

Instructional methods, 9 man-months direct
U.S. technical assistance. SL 253,125

TOTAL COST SL 1,730,000
(\$461,500)

4. Concluding Manpower Comment

Though a specific program was not recommended at this time, FHC suggests that the current Syrian rural health manpower strategy may well prove unnecessarily costly and inadequate to meet the basic needs of the population. The team recommends that the Syrian government reassess its current physician-dependant manpower strategy and, in the context of a plan for rural health services, consider the introduction of two new personnel categories:

- a. Non-physician providers of primary care services
- b. Physicians trained in primary care and health systems management.

In a larger sense the health programming opportunities in Syria are great and the potential for realizing substantial gains in health status with relatively little increase in total expenditure are very real. A coordinated National Planning and Resource Allocation policy, involving both public and private sectors, holds the best promise for a controlled health sector development which would complement and enhance overall national development goals. The need and rationale for such a policy forms the thrust of the following subsection.

V.2. STRENGTHENING OF PLANNING AND MANAGEMENT

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V.2. STRENGTHENING OF PLANNING AND MANAGEMENT

V.2.A. Discussion

1. Investments in the Health Sector: A Note of Caution

The health status of a population is affected by three major factors:

- a. Socio-economic development
- b. Environmental quality
- c. Personal health care:
 1. preventive and promotive services
 2. medical services (the diagnosis and treatment of illness)

Though vital to the relief of pain and suffering and highly desirable as an entree to the community for the provision of preventive and promotive services, treatment of illness by itself makes only a very small contribution to the health status of the population (7,8,20 & 21).^{*} Dr. Thomas McKeown, Professor of Social Medicine, University of Birmingham Medical School, commenting on factors affecting health in England and Wales over the past two centuries concludes:

"That in order of importance major contributions to improvement in health in England and Wales were from limitation of family size (a behavioral change), increase in food supplies and a healthier physical environment (environmental influences) and specific preventive therapeutic measures." (11)

Thus, there is a substantial body of literature that lends support to the statement that "small families, well-

* See Bibliography, Appendix V.

nourished and reasonably well-educated, with adequate disposable income, living in clean, structurally sound, well-ventilated homes, with a good diet, safe water and sound, simple methods of refuse and sewage disposal will be well on the road to sound health."(4)

There is no doubt that many of the development efforts instituted by the Syrian government must already have had and certainly will continue to have profound, positive effects on health status. Improved literacy, improved income, improved housing will inevitably contribute substantially to the health status of the population. However, socio-economic development though critically important to improved health status is not sufficient. Health protection and promotion activities undertaken on a large scale by the government, such as the development and protection of water supplies and the disposal of sewage and raw wastes are vital determinants. On a smaller scale--at the level of individual, family, and community--a personal health services system is necessary if common preventable diseases are to be brought under control, morbidity and mortality rates decreased, and productive capacity of the work force maximized.

The critical importance of personal health care as a necessary health intervention for any population is widely recognized. For instance, Bryant (5), Fendall (6), Parker (13), and King (10), in their discussions of the organization and

delivery of personal health services in both developed and developing countries make this point repeatedly. Fendall's articulation is particularly eloquent and cogent:

"The physician must maintain a balance between curative medicine and preventive medicine and between the individual and the needs of society. Better health is derived from a combination of many factors--not merely curative medicine and public health programs, but also from broad ecological advances. Thus there has developed in the field of medicine the concept of the health team led by the physician rather than the physician working as an individual. Particularly in developing countries, the physician also has an important role to play as a member of the community developing team. He needs the support of paramedical colleagues and professional colleagues outside of medicine in order to achieve his purpose--the betterment of health."(6)

Parker comments specifically with regard to maternal and child health services:

"Some primary care services going primarily to mothers and children...relate directly to health rather than to disease. For instance, prenatal programs which provide the prospective mother with information about proper diet and exercise during pregnancy and offer training and exercises to facilitate labor and delivery are specifically health oriented as are many infant care activities such as nutritional advice and development guidance."(13)

Syria is already making a substantial per capita investment in health, particularly when viewed from the percentage of GNP devoted to health as estimated by the FHC team (see Table 5). An analysis of World Bank (21) and other data (2) suggests that merely increasing per capita investment in health may not result in much change of health status, measured by

either life expectancy or infant mortality. The critical factor is how the investment is made.

The general tendency throughout the developed and developing world is by accident or design to take new monies as they become available and develop urban, hospital-based, specialist-dominated systems of curative care. The capacity of modern, but not necessarily good or desirable hospital-based medical services, to consume financial resources and distort the orientation of providers is profound. The current pattern of care and health services investment in the United States dramatically illustrates the problem of unchecked overdevelopment of hospitals and physician specialists. The system is one that has been characterized as resulting in "poorly served patients with society as payer and custodian of the people's care left holding the physician's bag" (2). It is a pattern of high and ever growing costs associated with diminishing benefits to patients and the population in need of services.

2. Controlling Capital Investments (Hospital Construction)

Syria is at a critical juncture in planning for health services capacity, particularly capital investments. A series of forces are developing which, without capital investment planning and control, could precipitate a rapid overdevelopment of hospitals at the expense of initiating broadly based, basic programs in personal health services. The latter point is

especially valid in the near absence of effective maternal and child health services in rural and urban areas. What are some of these forces?

- a. Paradoxically, a clear need for additional hospital beds. At the present time, acute hospital bed capacity, if fully utilized, could provide no more than .276 hospital bed days to each individual in Syria per year. This hospital bed utilization is substantially below that achieved by the best managed, prepaid, group practices in the United States, treating what are often carefully selected populations without excessive morbidity burdens. A basic minimum annual per person bed need is .5 acute hospital days per person per year. Undoubtedly, many would argue that this is seriously low and should be raised to at least .8, particularly in the context of a developing country. However, if the .5 figure is used, one can calculate that there is a bed deficit in Syria today of 4,866 acute hospital beds (See Tables 14 & 15). -

The need is there. But, rather than ask why additional beds should not be built, the question is more properly stated in the context of: when should the beds be built? The answer requires some understanding of the dynamics which lead to hospitalization and appropriate utilization, in addition to an understanding of both the financial and program components of the opportunity costs already mentioned that tend to preclude development of ambulatory care services. More specifically, a balanced ambulatory care program with full emphasis on basic preventive services, in particular, maternal and child health services, should be substantially in place prior to rapid expansion of acute general hospital capacity. In the main, patients should reach hospitals through and on referral from ambulatory care settings. Many can be diverted from hospitalization through appropriate ambulatory intervention. Further, if a carefully planned ambulatory system is implemented as a first step, experience with hospitalization can then develop.

Table 14

HOSPITALS AND CLINICS - 1974¹

<u>Facilities</u>	<u>Government</u>		<u>Private</u>	
	<u>No.</u>	<u>Beds</u>	<u>No.</u>	<u>Beds</u>
Hospitals	29 ²	4,623	65	1,350
Sanatoria	4	780	--	-----
Clinics	287	---	--	-----

Total acute hospital beds = 5,973

Beds per 1,000 population = .84 or 1 bed for 1,192 people or 1,962,131 bed days capacity @ 90% occupancy. This is sufficient for .276 hospital days/person/year.

¹ Statistical Abstract, 1975. Central Bureau of Statistics, Office of
² the Prime Minister.
Ministry of Health and Higher Education facilities.

Table 15

ACUTE HOSPITAL BED NEED ESTIMATE¹

POPULATION NEED:

$$7,120,953 \text{ people} \times .5 \text{ hospital days/person/year} = 3,560,477 \text{ bed days/year}$$

BED NEED:

$$\begin{aligned} 3,560,477 \text{ bed days/year} \div 365 \text{ days @ 90\% occupancy} &= 10,839 \text{ beds}^2 \\ \text{Less existing beds} &= 5,973 \\ \text{Additional bed need} &= \underline{4,866}^3 \end{aligned}$$

¹ Based on 1974 population.

² This figure will increase annually at roughly the same rate of population growth (currently 3.3%).

³ A current deficit does necessarily not warrant the construction of additional beds. See discussion of this issue on pages 102 through 111.

This would allow subsequently an accurate calculation of actual bed needs based on the experience of particular segments of the Syrian population with the ambulatory care system. Further, in some areas of the country, hospitals are now not fully utilized even when adequately staffed (Deir-ez-Zor). In such a setting, where hospital staffing is reasonable, and hospital utilization is low, the case can be made that primary care services are deficient. The introduction of acceptable and accessible services, therefore, will result in an increased and fully appropriate referral to hospitals, resulting in increased hospital utilization.

In summary, where hospital utilization is inappropriately high, primary care services can lower the hospitalization rate by preventing needless hospitalization. Such inappropriately high utilization may well be occurring in certain urban areas of Syria. However, where utilization is very low and hospital staffing adequate, the introduction of primary care will tend to properly increase the hospitalization rate.

- b. Dramatic increases in physician supply over the next 5-10 years can be foreseen. By 1982, Syria may be producing in-country as many as 1,200 new physician graduates per year (See Table 7). At the present time, these physicians are in training and the current medical school curriculum is heavily oriented toward curative medicine. There is a premium placed on specialization. This premium is based on prestige as well as income potential. The net result is such that in just a few years there will be large numbers of physicians who have been trained to practice only in hospital settings. These physicians will form a well-educated, powerful elite who probably will be able to lobby effectively for what they view as necessary professional prerogatives, including places to practice, i.e., hospitals.
- c. The increasing rate of growth in per capita income will lead subsequently to rising personal expectations. In the health sector, this will be manifested by a broadly based public interest in the expansion of health services capacity. An understandable and typical response of governments in

this situation is to construct hospitals. This response meets both the physicians' and the public's demand for more health services.

But a decision to build hospitals is usually made without full awareness either of the opportunity cost of financing construction or of the subsequently high operating cost of staffing, equipping, and maintaining the hospitals. The net result can be a well-developed hospital system offering high-cost, sophisticated medical care to relatively small numbers of people and consuming large amounts of the government budget and of total national income. Concomitantly, large numbers of people may go without the most basic preventive and curative services, and may suffer from a high incidence of common, preventable diseases, particularly in the poor and rural segments of the population.

A pattern of heavy public investment in hospital construction may well result in a corollary underinvestment in public health and environmental protection programs, with potentially serious consequences for the safety of drinking water supplies and the adequacy of sewage disposal. It is too early to predict the consequences of the pattern of Syria's public investments in health, but there appears to be a definite trend toward greatly increased appropriations for hospital construction. For instance, the Ministry of Social Affairs and Labour is already undertaking the construction of two new hospitals in Damascus and Aleppo and may be considering additional hospitals elsewhere in the country in response to demands from insured workers for improved services. This is in addition to the growing capacity of hospitals in the Ministries of Health and Higher Education, and to the unknown but reported significant capacity in the military hospital system.

The Fourth Five-Year Plan (1976-1981), now in preparation, is said to focus in health on two major areas:

1. Construction of new health centers
2. Construction of hospitals
 - a. At the Mohafazat level to serve as regional referral hospitals with some sub-specialty staffing and
 - b. At the sub-Mohafazat level to serve as community hospitals with only basic specialty services in pediatrics, general surgery, ob-gyn, and internal medicine.

The intent of the Ministry of Health is to place priority on the construction of health centers rather than on construction of hospitals. The actual capacity planned by the end of the next five years, although higher than .5 hospital-days per person per year, is not unreasonable. (The plan is reported to call for a one-bed-to-500-people ratio. This provides capacity for utilization at .8 hospital-days per person per year, at a 90% occupancy rate.)

It is likely that professional and public pressures for expanded hospital-based health services will grow still stronger in the foreseeable future, and that availability of financing will increase; a rapidly rising level of personal disposable income may well coincide with a proliferation of third-party reimbursement mechanisms and with the increased availability of government funding. The confluence of these developments, in the absence of a policy and resource coordination capacity at the national level, is likely to result in the rapid growth in numbers--and in overall bed capacity--of government and private hospitals within the next eight to ten years.

A slightly altered and more destructive scenario might be: the government invests first in health centers, finds it impossible to staff them (See Section III.3. and Appendix II for discussion of manpower for rural health services), and then moves toward a major expansion of the hospital sector because of the "failure of the clinic program".

As more and more technological improvements are introduced into Syria, private hospitals--in order to survive--will have to develop ways to finance purchase of modern equipment. To pay for the costly equipment, which in some hospitals is seldom used, private hospitals will have to consider one or more of the following actions:

1. Increase rates substantially, either directly or by hospital-related services of the physician owners;
2. Merge with larger hospitals having greater purchasing power and an ability to attract a high and steady volume of patients;
3. Progressively move their case mix to the simpler and less complex cases which are less costly to care for but which-- with careful selection--can be highly remunerative.
4. Close.

Alternative One is difficult without government approval.

Alternative Two may be taking place already where there are private hospitals, particularly charitable/religious hospitals.

Alternative Three would constitute an indirect subsidy of private hospitals by public hospitals. Specifically, private

hospitals will not be able to afford to staff and equip themselves to a level sufficient to treat the seriously ill. If relieved of responsibility for treating complex and costly cases by virtue of the public hospital's caring for them, the private hospitals can be freed to attract those patients with less serious illnesses and with an ability to pay for services.

Alternative Four is self-explanatory. Favorable changes in payment mechanisms, i.e., revisions of benefit schedules in third-party reimbursement plans to provide incentives to hospitalization, could dramatically and rapidly improve the financial outlook for private hospitals.

The rapid building of new government hospitals, followed by inadequate staffing of them (e.g., those at Al-Rakka and Al-Hasakeh), are major factors serving to put government hospitals at a competitive disadvantage relative to private hospitals, and causing low utilization of them by the public. To avoid difficulties in staffing and to encourage optimum utilization, the government should build hospitals only in areas of clear need, and only after a network of functioning ambulatory services is in place. Further services should be initiated slowly and only as adequate physician and nursing staff become available.

The government recently introduced a salary scale offering physicians major salary increments (base salary + 2 x base salary) coupled with retention of 1/2 of clinical earnings, if

their practices are conducted in exclusive association with government hospitals. This new salary arrangement should be a distinct disincentive to private hospital expansion.

Although this system now appears to be limited to Ministry of Higher Education teaching hospitals, it might well be appropriate to extend it to Ministry of Health hospitals.

V.2.B. Recommendations

1. A National Health Planning and Resource Allocation Capacity

As the development is now so rapid, an opportune time-frame in Syria for engaging in strategies leading to basic change within a framework of accepted national economic and social values will occur during the next five years. Efforts to create the strategic tools, and to employ resources which evaluate goals and costs for health services, must be made now. Unless this is done, the subsequent tasks to be undertaken years hence will be most difficult and costly.

Better health is one aspect of man achieving more positive control of the environment, and as such helps to justify and facilitate planning of the future--social or economic, public or family affairs. Satisfactorily integrated with other socio-economic advances, health improvements are a vital part of the development process. Pushed in isolation, improved health could have unbalancing influences, so that the adverse effects of health expenditures on increased population growth may offset the positive gains. Viewed in terms

of partial criteria, there can be a conflict between social and economic objectives. Rather, better health should be viewed as a vital segment of balanced socio-economic development, with major contributions to better health being made by sectors other than health.

It is in this context that FHC suggests that if the Government of Syria is to improve health services, preventive and curative, public and private, at an affordable cost, it should develop expeditiously a national capability that has both the technical capacity as well as the authority to recognize and plan for the changing health needs of the country. Such a capability should capitalize on the power and strength of the growing government financing of personal health services, whether through the direct operation of services, such as is the case with the Ministry of Health, Ministry of Defense, and Ministry of Higher Education, or through the financing of health services, such as is the case with Ministry of Social Affairs and Labour. Of course, the latter ministry is also becoming involved in the direct provision of health services.

It is critical that such a capacity be able to recognize and plan for constructive cooperation between the public and private sectors. In order to do this, it is necessary to go beyond the re-establishment of an effective planning and analysis division within the Ministry of Health. Such a capacity within the Ministry of Health is necessary for the success of national

health planning and resource allocation, but is not sufficient to assure that informed resource allocation decisions will take place. Therefore, the team recommends the establishment of a central health planning and resource allocation structure with the following authorities:

- a. Develop qualitative and quantitative criteria for rural and urban health manpower and health facilities.
- b. Approve all service and payment programs, public and private, without being an agency responsible for directly operating or paying for services.
- c. Evaluate periodically the accessibility, acceptability, quality, content, and cost of all personal health services.
- d. License health facilities and services:
 1. New public/private facilities. Allow construction/operation only if established criteria for need are met.
 2. Existing public/private facilities. Relicense if there is need and reasonable performance in terms of the factors outlined above.
- e. Establish criteria for the education and training of critical categories of health manpower, including physicians, dentists, primary care auxiliaries, nurses, and public health auxiliaries.

Such a national health planning and resource allocation mechanism must have the support of the Ministry of Plan, Ministry of Finance, and the participation of Ministry of Social Affairs and Labour, Ministry of Higher Education, Ministry of Education, Ministry of Health, and Ministry of Defense.

Any such approach should recognize the need for a better understanding of the critical interdependencies between health and economic development on the part of those who will be

engaged in the national planning process. Through this process, health planners will have to acquire the discipline to recognize the imperative of making their claims on national resources in terms of efficiency and equity, and in a manner persuasive to economists and other non-medically-trained policy makers concerned with overall societal planning for Syria. In turn, those Syrians trained in economics and economic development have to be encouraged to focus their professional talents on health sector planning. The process, then, has to be intimately related to national policy formulation and not confined to the narrow acquisition of more health dollars per se.

The functions outlined above (items a through e) need not all be carried out by such a central body but might be specifically delegated to a specific ministry, or more likely, inter-ministerial working groups. The critical capacity is the ability to coordinate policy and set a policy framework within which all government program and financing decisions will be cast. Thus, the approval of an individual hospital for construction need not come before such a ministerial body. Rather, that body should determine criteria for approval of individual hospitals with full knowledge of the operating cost implications of capital investment decisions and delegate the actual process of reviewing needs in a specific situation to some appropriate operating ministry, such as the Ministry of Health. The fundamental purpose of the inter-ministerial

committee is to link planning with resource allocation in a framework which permits an understanding of the total health needs of the population, both preventive and curative, environmental and personal. This understanding can then be coupled with an appreciation of both start-up and operating cost implications of alternative investment decisions and should, if functioning well, allow coordination between branches of the government and components of the health sector, public and private, that frequently operate without adequate conjoint planning and feedback. Furthermore, the likelihood of balancing the benefit of health investments against the benefit of investment in other sectors can be more appropriately weighed by such a committee. For instance, such a mechanism would allow early identification of a possible new financing mechanism proposed by, i.e., the Ministry of Social Affairs and Labour, to be analyzed by the Ministry of Health as to its impact on rural services or the maintenance of a viable patient population for its own hospitals. Alternatively, the coordination of manpower planning with service needs could more effectively take place if there were a dialogue required by the structure that brought together the Ministry of Higher Education and the Ministry of Health prior to major changes or new directions being taken in medical education.

Cost:

Fifteen man-months of U.S. consultative and technical assistance in the areas of health planning, systems design, social policy and economic analysis.

SE 370,000
(\$100,000)

2. Mohafazat Management and Central MOH Planning System

The Ministry of Health (MOH) has broad responsibilities for planning health services and health protection activities, and through its decentralized Mohafazat services, shares responsibility with local government for the organization of the delivery of services in urban and rural areas. Additionally, it retains as a central responsibility the training of nurses and allied medical personnel, even though that training may take place in the Mohafazats.

With an annual operating budget of S£ 90,000,000 and 5,000 employees, most of whom are engaged in service delivery or other field functions, there is a need for simple, effective central planning methods and data inputs. This should be coupled with the development of a capacity for decentralized management systems which are output and performance oriented and are fully compatible with the government's recent move to shift more responsibility for the on-going operation of health programs to the Mohafazats. Central planning cannot be divorced in either practice or principle from decentralized management. It is both necessary and possible, as well as cost effective, to develop a basic management planning and information system which allows for the collection, analysis, and dissemination of minimum data.

Currently, basic health resource data such as the number and type of facilities, utilization of services, output of health providers, cost of services by functional unit, and

basic budget and personnel information are either not available or insufficient for the basic management of existing programs, the evaluation of on-going programs, or for program planning.

Some of this is understandable and stems from the necessary and appropriate steps taken by the government to create a first quality Central Statistical Bureau by drawing staff from other planning and statistical offices throughout the government. Yet, this leaves the MOH in a difficult, perhaps untenable position with regard to carrying out its health planning mandate.

In order to effectively capitalize on trained management and planning personnel that will become progressively more available over the next five years (many of them from the programs discussed herein), it will be necessary to design, develop and initiate implementation of a system for gathering a minimum of data by organizational unit and program element which relates resources applied (money and personnel) to specific outputs and performance objectives. Such a system must be compatible with and contribute positively to local government program and budget management processes, as well as Ministry of Health and Mohafazat level management. Further, the basic design should be one that continually reduces and refines information. Thus, as one moves from the periphery of service delivery (hospital/clinic) to the Mohafazat and then centrally to the MOH, the amount of data will be reduced with a parallel increase in ease and utility of subsequent analysis.

Although a health center might keep accurate and detailed productivity records for every field worker, perhaps only total visits of field workers in a given center would be reported to the Mohafazat office. The Mohafazat Director of Health would be required to report quarterly to the MOH planning section, and he would certainly aggregate all such visits into a single summary figure. Data in all cases would be related to a defined population base.

In order to manage effectively, it is necessary to have clearly defined program objectives. The need for re-specification of certain MOH programs with clearer and perhaps changed program objectives will become evident during the process of developing the management and planning information system. This should be viewed as a valuable and desirable part of system development (a critical area ready for redefinition is MCH services and this is more fully described elsewhere in Part 3 of this Section).

In addition to developing performance objectives and a system to relate inputs to outputs, it is necessary to develop a program for management by exception at the Mohafazat level. That is, management by exception directs attention to those components of the service system whose costs are unusually low or high, or whose outputs are at great variance with other similar services. Any such system must verify performance reporting. Thus, as many instances as possible of

aberrant performance are investigated and only as appropriate corrected. However, it is also necessary to regularly and randomly sample within a subset of appropriate performances to allow expert on-site verification of reported performance and its meaning.

In a similar manner, it is necessary for central planning at the MOH to not only receive condensed data from the field and subject it to various consistency checks, but on a sample basis, randomly and in depth, validate the information received by reviewing actual performance as well as record systems and management at peripheral service units and Mohafazat offices.

In order to accomplish the foregoing, a four-phase program is proposed, with movement from phase to phase dependent on successful programs and completion of each prior phase.

- Phase 1. Detailed design and system specification
- Phase 2. Development and testing
- Phase 3. Implementation
- Phase 4. Maintenance

At each stage USAID assistance would be progressively decreased until it reaches zero at Phase 4.

Phase 1: In full collaboration with representative and receptive Directors of Health from several Mohafazats, hospital directors, local government officials, and central staff in the MOH, and in consultation with the Ministry of Plan and the Ministry of Finance, develop the following:

- a. Systems performance specification.
- b. Representative data inputs at each level of collection and analysis.
- c. An analytical framework for peripheral managers, Mohafazat level staff, and central planners.
- d. Select two Mohafazats for development testing of prototype system.
- e. Specify training and operating procedures and the basic hardware required.
- f. Propose a specific detailed program and budget for cooperative Syrian-USAID Phase 2--Development and Testing.

Cost:

In order to initiate the four-phase process outlined above, Phase 1 is recommended for funding at this time. Fourteen man-months in-country U.S. technical assistance, utilizing experts with proven capability in the planning and management of decentralized health service programs and the conceptualization, design, implementation, and evaluation of health management, planning and information systems is required.

SE 462,500
(\$125,000)

3. Long-Term Training of Postgraduate Non-Physician Health Management and Planning Personnel

To provide sufficient depth and expertise in planning and management at the MOH in Damascus, at major hospitals throughout the country, and in the facilities operated by each Mohafazat, there should be a long-term goal by 1985 of deploying 30-40 graduates trained at the Master's level. The training program should result in the award of a Master's degree and should especially be designed to cover health administration, principles of health planning, public health program development, the management and evaluation fundamentals of epidemiology,

MOH program principles, and basic hospital administration.

Such a training program would be rather intensive and demand first quality students for selection. Among other positions, graduates after some field experience should be fully capable of assuming the responsibility of their Mohafazat Health Director. This would decrease the Ministry's total reliance on physicians for this position. As the curriculum content proposed does not conform to most standard MPH or MPA/MBA programs with a health emphasis, agreement on specific courses and overall program content must be reached before the fact with each participating university. In addition, an appropriate summer in-service program must be an integral part of the U.S. academic curriculum between the first and second training years.

Cost:

A discussion of curriculum content and training with selected U.S. schools of public health and related institutions. Travel and per diem for two MOH representatives to spend 45 days in the U.S. and 4 days in international travel.

SE 31,706

Training of five students per year for 2.25 years in 3 training cycles, including 3 months intensive U.S. based language training; $5 \times 2.25 \times 3 = 33.75$ trainee years.

SE 1,875,125

TOTAL

(\$507,955)

4. Provision of a Basic Public Health Reference and Periodical Center

The MOH is reported to be interested in establishing a small reference center containing working and basic texts in public health and medicine, as well as in acquiring a selection of English language periodicals.

The team feels that the MOH's interest is both timely and appropriate. The lack of current working references will be particularly telling in future years as progressively more personnel are formally trained in public health specialties and return to employment with the MOH. Therefore, as a relatively small but very vital complement to every other program, it is suggested that USAID provide a basic set of English texts and references in the fields of: nutrition, health education, health administration, hospital administration, tropical medicine, community health, health economics, systems analysis, maternal and child health, microbiology, epidemiology, biostatistics, occupational health and safety, standard methods of laboratory analysis, water supplies, sewage and solid waste management, comparative medical systems, and general medicine.

In addition, selected journals, perhaps twenty (20) in number, should be provided in general and specialty areas, largely but not exclusively limited to public health and preventive medicine. Titles such as: The New England Journal of Medicine, the American Public Health Association Journal,

Lancet, Public Health Reports, the International Journal of Health Services Research, the Journal of Medical Education, and the Medical Letter on Drugs and Therapeutics, deserve consideration.

The cost of establishing such a reference center is low and the only condition which should be attached to the provision of the recommended materials is that space be provided in or very close to the MOH central offices and that a responsible person be designated to manage this valuable working and reference resource.

Recommendation: Purchase basic texts and provide three(3) year subscriptions to 20 selected journals.

Cost: 120 reference texts x \$35 =	SE 15,750 (\$4,200)
20 journals x \$50/journal/year x 3 years =	SE 11,250 (\$3,000)
Total	SE 27,000 (\$7,200)

V.3. REDUCTION OF PREVENTABLE MORTALITY AND MORBIDITY

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V.3. REDUCTION OF PREVENTABLE MORTALITY AND MORBIDITY

V.3.A. Introduction

At the present time there is a serious need for improved and expanded preventive services. The rapid growth in the urban population and the widespread development of new industry makes it imperative that the health and environmental consequences, both positive and negative, of development be assessed, where possible before the fact. Then, if warranted, preventive or control measures can be taken at a time when they are likely to be the least expensive and most effective. Toward that end, FHC suggests three programs for consideration.

V.3.B. Discussion and Recommendations

1. Bilharzia Control Program

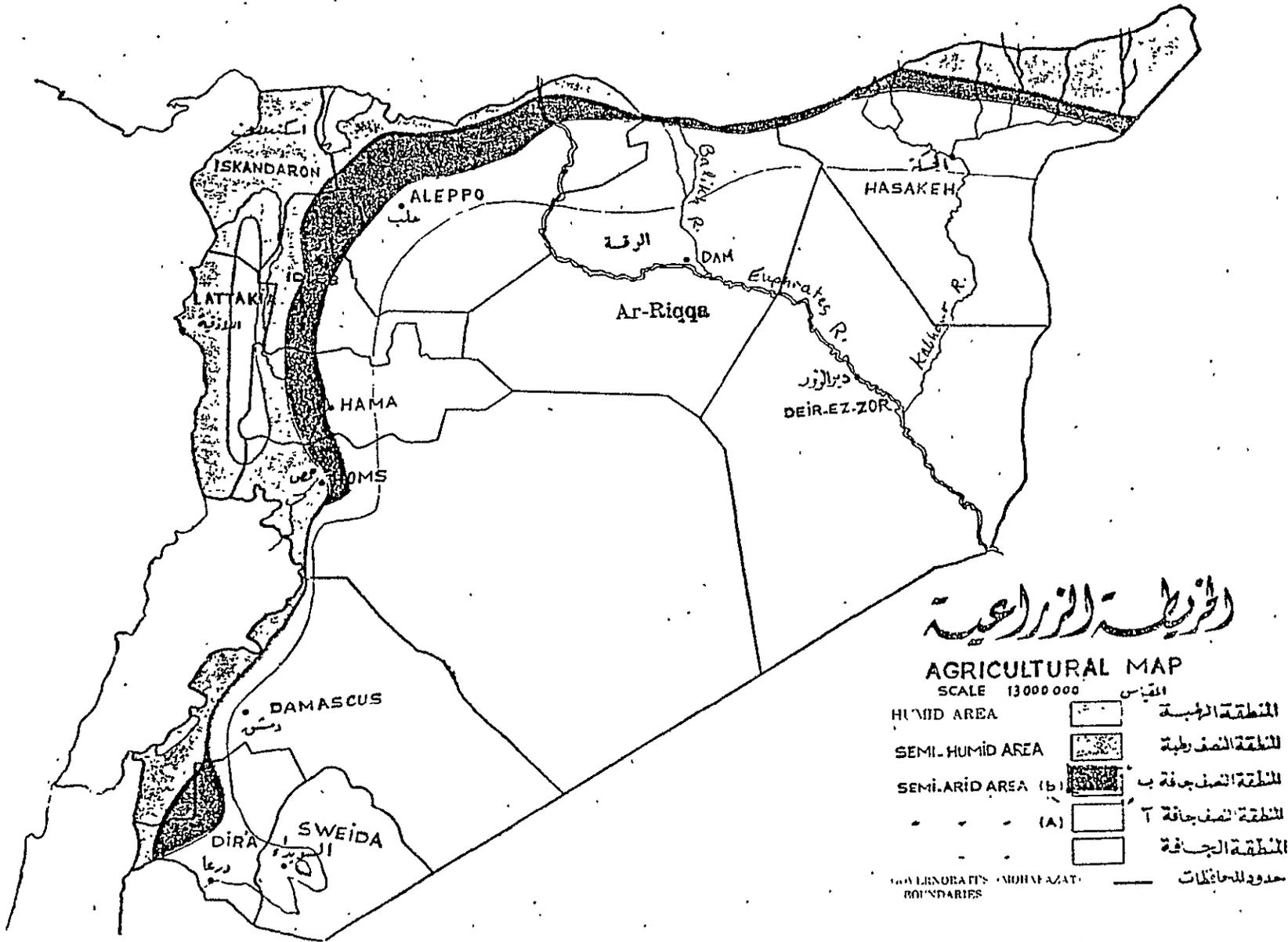
The Euphrates Dam Project is perhaps the major development program in Syria. The dam is substantially completed and four of its eight generators are producing electric power at this writing. This vast and technically successful undertaking will have a positive impact on agriculture and industry, particularly in the eastern 2/5ths of Syria's land mass, comprising the Mohafazats of Deir-ez-Zor, Al-Rakka, and Al-Hasakeh and 16% of the total population (1970 census). The area is attracting emigration from throughout Syria. Compared with the national population growth rate of 3.2%, the eastern area experienced a 4.27% annual growth rate from 1960 to 1970 and a rate which may reach 5% annually through 1980. Extensive land reclamation projects are underway; irrigation projects

have been completed and additional ones are being planned and implemented; five new factories are being constructed in Deir-ez-Zor alone; and a major air and land transportation network is being developed along the Deir-ez-Zor and Damascus corridor.

The generative influence that this hydroelectric project will have on the future economic development of the country is yet unknown and difficult to forecast. It is known, though, that development gains of this magnitude can seldom be achieved without adverse side effects which serve to increase the social cost to specific portions of the population at the same time that other segments of the same population receive increased economic benefits. A social cost in this instance that will be borne by the agrarian population at risk within the entire Euphrates River Basin is Schistosomiasis (Bilharzia).

The incidence rates of Schistosomiasis are not now known with any degree of accuracy. It is believed that the 1,000 cases cited per year represent gross under-reporting. The Balikh and Khabour Rivers both harbour snails infected with Schistosomiasis and some human infection is already reported along the Euphrates River. The location of these two rivers, with the Balikh joining the Euphrates about 45 km below the dam and the Khabour about 180 km below the dam, virtually guarantees further spread throughout the Euphrates Basin, particularly as irrigation increases (see Map 3).

MAP 3



The Ministry of Health and the Ministry of Dam have recognized the hazard. Dr. Kigondu Githaiga*, a WHO malacologist, is in residence at Al-Rakka. He has already recommended an overall control and treatment plan to the MOH**. His proposal has been reviewed by the team and discussed with the Regional Health Directors in Al-Rakka and Deir-ez-Zor. From this review, and from subsequent discussions, the team concludes with reasonable certainty that:

1. A serious health problem does exist.
2. The problem will get worse.
3. Control (i.e., amelioration, but not elimination of risk), although complex, administratively and technically, is possible.

The effects of Bilharzia (S. Haematobium) on the urinary tract leading to infection, obstruction, and chronic renal disease, as well as hemorrhage, anemia and cancer of the bladder are well known. In addition, possible adverse effects on female fertility have been reported (personal communication Dr. Githaiga). The negative impact of the disease re: cost of treatment, decrease in productivity, and a decreased return on the investment potential of newly irrigated land at considerable public expense, appears to be great. Given the importance of the Euphrates Dam Project to the future economic well-being of Syria, a Schistosomiasis control and treatment program

* Dr. Githaiga is a Kenyan national, attended medical school in New Mexico and completed postgraduate education in the United States.

** See Appendix I.

should receive priority attention from national policy-makers. Each month, each year of delay in the initiation of a control program will increase the chances of program failure when and if a program to control Schistosomiasis is eventually implemented. The problems immediately facing a potential Schistosomiasis control program are:

- a. A near total lack of trained microscopists/laboratory technicians.
- b. A near total lack of trained environmental sanitarians/community health educators.
- c. No available vehicles.
- d. Lack of non-medical/senior scientific and management staff.
- e. Lack of trained clinical expertise.
- f. An existing management and administrative structure which is inappropriate to, and possibly incompatible with the goals of the project.
- g. Lack of molluscicide.

Each of the foregoing problems must be substantially corrected before Phase I of the project (baseline data phase) can be effectively implemented.* Phase I is designed to, a) gather and analyze data on the snail population, its dynamics and infection rates, b) test mollusciciding methods and schedules, c) determine human water contact behavior patterns, d) develop baseline human prevalence and incidence rates, and, e) establish clinical treatment protocols.

* See Appendix I.

Therefore, FHC recommends a joint WHO, MOH, USAID multi-year project with the immediate goal of alleviating or eliminating each of the seven obstacles mentioned above:

1. A near total lack of trained microscopists/
laboratory technicians.

Solution:

- a. Identify eight (8) science baccalaureate students from the Mohafazats of Al-Rakka, Deir-ez-Zor, and Al-Hasakeh for training.
- b. Initiate a special one-time only, three-month, short-term training program at Deir-ez-Zor's Ministry of Health Laboratory. This would require augmentation of the Deir-ez-Zor staff with one U.S. technician for a period of six months, and the utilization of Dr. Githaiga (WHO) in this project phase. When staff is trained, deploy them to Schistosomiasis Control Centers. As graduates from the National Health Technical Institute (NHTI) become available, gradually replace the original short-term technicians with these personnel. Then, offer and arrange admission to the initial group of technicians for full-term training at the NHTI, should this be their desire.

2. A near total lack of trained environmental sanitarian/
community health coordinators.

Solution:

- a. Identify eight (8) students from the same Mohafazats as (1) above for training.
- b. Initiate a special, one-time only, three-month, short-term training program in Deir-ez-Zor.
- c. Augment this training with one U.S. technician for a period of six months, along with assistance in technical matters from Dr. Githaiga. As in (1)(b) above, when graduates from the NHTI become available for placement, the short-term technicians can be replaced with these personnel. The initial group of short-term technicians can be offered admission to the NHTI for full-term training, if they so desire.

3. No available vehicles.

Solution:

Purchase nine (9) 4-wheel drive multi-purpose, long wheel-base vehicles (6 vans and 3 trucks) with capabilities for carrying personnel and supplies. Consideration should be given for the installation of portable laboratory equipment. In addition, sixteen (16) motorcycles will be needed for snail collectors.

4. Lack of non-medical senior scientific and management staff.

Solution:

a. Identify two-four outstanding university graduates in science from the eastern region of Syria and send for training in fields relevant to Schistosomiasis control and general public health, including management principles, epidemiology, and public health laboratory science. This training can be done in the United States and at its completion each trainee should be in a position to receive a Master's or equivalent degree in Public Health. Estimated training time, with language instruction, 2.5 years.

b. During the duration of training for those individuals cited in (4)(a) and for three months after their return to Syria, provide two U.S. MPH equivalents or better senior staff to work under the direction of the WHO expert advisor in initial program development and management. The skill specifications for each person to be determined in consultation with the WHO advisor and the MOH. Two persons x 3.25 years per person equals 6.5 man-years. The year one cost is \$200,000, and the total cost is \$450,000. To allow for sufficient overlap, three (3) months per person is allowed for the returning Syrian graduates in order to provide for technical and management continuity.

5. Lack of trained clinical expertise.

Solution:

a. The provision of six (6) man-months of U.S. physician/clinician services for assistance in the establishment of clinical treatment protocols, follow-up, and consultation with public and private physicians in the eastern Mohafazats concerning the use of standard methods.

- b. One internist from Deir-ez-Zor, Al-Rakka, or Al-Hasakeh with a proven major commitment to government service to visit the U.S., and selected foreign countries for structured exposure to current diagnostic and treatment methods for Schistosomiasis over a period of three months.
6. The existing management and administrative structure is inappropriate to the goals of the program.

Solution:

Establish the Euphrates Basin Bilharzia Control Commission with representation from the Ministry of Health, Ministry of Dam, the Ministries of Local Affairs, Agriculture; and the Mohafazats of Al-Rakka, Deir-ez-Zor, and Al-Hasakeh. This Commission would be chaired by the MOH, with the WHO technical advisor serving in an ex-officio capacity. To establish this Commission, appropriate Syrian statutory regulations must be followed. The Commission should be empowered with authority and responsibility for the overall program, policy and management aspects of the control project. Such an entity should be invested with the authority to receive and disburse funds from a central account, employ personnel, contract for services, construct, renovate, or rent facilities and equipment, purchase supplies and contract for services as long as the approval of the Board of Directors for the Commission is received. These authorities will be necessary to acquire and retain the services of key technical personnel. Whatever administrative structure is chosen, it must include the principles of inter-ministerial cooperation, unified management, relative fiscal autonomy and organizational flexibility.

7. Lack of molluscicide.

Solution:

- a. Provide ten (10) metric tons of molluscicide for the first year program of trial operation. Estimated delivery cost is \$1,000 per metric ton, and total cost would be \$10,000.

8. Long-term Planning.

Solution:

- a. Early in the first year, provide a U.S. advisor with expert technical and management skills in Schistosomiasis control. This advisor would

draft in full consultation with the MOH; and the WHO advisor, a detailed program and budget, describing the context of the Syrian national Bilharzia control strategy and the recommended U.S. long-term contribution. The U.S. technician would be needed for three months at an estimated cost of \$18,000.

FHC suggests that serious consideration be given to designating Deir-ez-Zor rather than Al-Rakka as the headquarters and operation base of the control program. The reasons for this recommendation are based on Deir-ez-Zor's central location close to the junction of the Euphrates and Khabour rivers. A central location will dramatically reduce road transport times to all sites and increase the likelihood of effective supervision and management. Additional considerations are regular, almost daily, air service to Damascus, and the existence of a good public health laboratory at Deir-ez-Zor. (As the project becomes fully operational in one to two years, serious consideration should be given to the acquisition of a light single engine aircraft to reduce unproductive travel time of senior management).

Early U.S. government participation to the maximum extent feasible is strongly recommended. However, a U.S. commitment to participate should be contingent upon two factors: a) securing tangible assurances from the Ministry of Dam for financial participation as evidenced by an initial cash transfer to an appropriate Bilharzia Control Account available to the MOH, coupled with firm guarantees of continuing future year support^{*},

* This is suggested as the Ministry of Dam is reported to have committed but not made available to the Ministry of Health substantial resources for schistosomiasis control.

and b) assuring that the program and management structure chosen by the Syrian government gives sufficient recognition to the management principles outlined in (6) above to allow the U.S.A.I.D. Mission to conclude that the project will be operated from a sound organizational and managerial base.

Cost Summary
Bilharzia Control Program

1. Microscopists/Laboratory Technicians		
U.S. senior laboratory technician,		
6 man-months @ \$5,000/month	=	<u>\$30,000</u>
2. Environmental Sanitation/Community Health Educators		
U.S. environmental sanitarian with appropriate		
community health education experience,		
6 man-months @ \$5,000/month	=	<u>\$30,000</u>
3. Vehicles		
6 vans @ \$10,000 each	=	\$60,000
3 trucks @ \$10,000 each	=	\$30,000
16 motorcycles @ \$1,000 each	=	\$16,000
Total		<u>\$106,000</u>
4. Senior Scientific and Management Staff		
3 trainees x 2.5 yrs. x \$15,000/yr.	=	<u>\$112,500</u>
2 U.S. technical experts, each for 2.25 yrs,		
4.5 man-years @ \$100,000/yr.	=	<u>\$450,000</u>
5. Trained Clinical Expertise		
U.S. MD for 6 man-months @ \$10,626/man-month	=	<u>\$63,730</u>
Travelling fellowship for 45 days (1)		
per diem	\$4,050	
travel	\$2,000	
stipend	\$1,500	
misc. expenses	<u>\$ 300</u>	
Total	\$7,850	<u>\$ 7,850</u>
6. Management Structure		
no cost--all benefit		
7. Molluscicide		
10 metric tons @ \$1,000/ton	=	<u>\$10,000</u>
8. U.S. Budget and Technical Advisor		
2 man-months @ \$11,250/man-month	=	<u>\$22,500</u>
GRAND TOTAL:		<u>\$832,600</u>

2. Maternal and Child Health

As has been mentioned elsewhere in this report, Syrian medical services, particularly the ambulatory component, are dominated by the private sector. This situation does not seem likely to change. Furthermore, it is quite possible that bringing more ambulatory curative medical services into the public sector could in fact further impede the development of basic preventive services, particularly MCH services. Additionally, such a move would increase the competition and conflict between the public and private sector with the likely losers being consumers in the public sector. Instead, FHC suggests that ambulatory, and ambulatory is emphasized as opposed to the hospital programs of the MOH, be designed to complement rather than compete with the private sector.

At the present there is a serious need for improved, expanded preventive services in the area of MCH. Fully 40 percent of deliveries are unattended. Pre- and postnatal care on an organized and available basis is not usually present. Health, nutrition, and educational services directed at mothers and infants are left to chance. Immunization levels in the first 18 months of life are not accurately known, but from FHC's review of immunization practices, it must be low--particularly in rural areas. The treatment of the simple and recurrent illnesses of infancy are often neglected. Furthermore, the opportunity is missed to use medical intervention in illness as a way to introduce and interest the mother in improved

personal health practices for herself and her family.

Equally serious, there is only slight availability of simple methods for rapid, effective treatment of infant diarrhea.

Still, there is ample room for improvement in this gloomy picture. Nurse midwives are well accepted by the population. In some areas of the country, the health visitor attends uncomplicated deliveries and sometimes provides preventive services. Physicians, government, and the people have clearly accepted the role of these auxiliaries as an integral part of the basic framework for maternity services at the time of delivery. The task and challenge is:

1. Expanding from present services, all too often limited to the actual event of delivery for perhaps 60% of the population, to widely available comprehensive Maternal and Child Health Services.
2. Determining what staff mix is appropriate for this task.
 - a. What types of workers?
 - b. Located where?
 - c. In what numbers?
 - d. Providing what types of services?
 - e. With what supervision?
 - f. At what cost?
3. Deciding if urban and rural systems for MCH services should follow similar or different patterns.
4. Altering existing and introducing new training programs to meet the manpower needs that derive from answers to the questions in item "2" above.

FHC thinks it is of the utmost importance for the MOH to intensively analyze and reassess the current organizational structure, supervision, staffing, and service mix, and make

such changes as may be necessary to make basic and comprehensive MCH services available to a wider spectrum of the population.

In order to assist the MOH in this task, FHC recommends to USAID 12 man-months of U. S. in-country technical assistance delivered in close cooperation with MOH staff. The technical assistance will be directed at the four basic issues just enumerated above. Essentially, the analysis and redesign of MCH services proposed would result in specific recommendations regarding:

1. Location of services;
2. Scope of services;
3. Number and type of workers;
4. Training needs:
 - a. Recommendations regarding introduction of a front-line MCH worker similar to the health visitor. Should these workers have a 9th or 12th grade education? Should their role exclude attendance at deliveries expected to be normal? These questions must be answered in the context of overall program redefinition.
 - b. What is the role of the nurse midwife? Does she supervise the health visitor? If the nurse's basic education is 9th grade and the health visitor's is higher, what conflict does this pose?
 - c. What are the minimal physician inputs required for the successful operation of the programs? What special training needs will such physicians require? What incentives can be developed to encourage long-term participation of physicians in the MCH program?
5. Supervision:
 - a. What is the role, potentially a large one, for the non-physician supervisor of MCH services at the Mohafazat and health center level?

- b. What is the general framework for supervision, accountability, verification of performance, and program evaluation?
6. Design a plan for phased logical implementation of the proposed new program.

The 12 man-months of technical assistance would be spread over a period of 15 calendar months and should be sufficient, in concert with the MOH, to fully and effectively address all the items mentioned above. Technical assistance personnel must be chosen who are familiar with MCH services. Too, they must be familiar with the training and use of auxiliary personnel and the development of a decentralized delivery service capacity. Care must be taken to interface this design effort with other parallel and complementary efforts which are aimed at strengthening management planning, supervision, and accountability, particularly the project for developing a management planning and information system.

Cost: 12 man-months	= SE 360,000 (\$95,000)
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3. Long-Range Planning for Improving Environmental and Public Health Protection

Development and its environmental consequences were only superficially reviewed by the team. It seemed evident that the provision of safe food and water, and the sanitary disposal of sewage are now receiving inadequate attention. These basic problems will soon be complemented by issues of solid waste disposal and noxious industrial effluents capable of significantly polluting the air, water and ground. The industrial effluent issue also suggests the importance of limited but

early attention to the occupational health and safety of workers, particularly those occupations known to be hazardous to health.

FHC recommends that the MOH consider establishing a section in the Ministry for environmental and public health protection. The activities of this section would include the health risk assessments of development in other sectors of the Syrian economy. The initial priority tasks should be the setting and enforcement of standards for safe food, water, and for sewage disposal. At a minimum, the MOH should issue a White Paper annually to the Ministry of Economics and Industry stating environmental and public health hazards, including the likely national consequences if the issues remain unaddressed.

In order to assist the MOH in defining needs for such a unit, its roles and responsibilities, basic staffing requirements, and necessary equipment, and to assist in reviewing the magnitude of current problems and urgent priorities, FHC proposed an initial effort requiring a U.S. level of effort of two (2) man-months of technical assistance in-country.

Cost: Including travel = SL 93,750
(\$25,000)

VI. APPENDICES

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Director of Health
Bilharzia Centre
Reqqa, Syria
22 December 1975

H.E. Dr. Madani El Khiami
Minister of Health
Syrian Arab Republic

Attention: H.E. Dr. Nouri Ramzi
Deputy Minister of Health
Syrian Arab Republic

Your Excellency:

After visits and studies of areas so far reported affected by Schistosomiasis (Bilharzia) in the Syrian Arab Republic, I now have the honour to submit my preliminary report and recommendations of the steps and requirements necessary to conduct a sound control and, hopefully, eradication campaign. These recommendations will of necessity be amended if and when need arise.

A.O. GENERAL.

A.1. Prevalence. I have the feeling the prevalence of Bilharzia in the Syrian Arab Republic is much higher than the 1,000 cases reported every year. Better and comprehensive surveys will yield higher figures. Even in Hasseke-Kamishili area where Bilharzia Control is commendably organized, complete and comprehensive surveys are not done. Therefore a more thorough search of Bilharzia will invariably yield more cases.

A.2. Existing Control Programmes.

A.2a. Hasseke-Kamishili Mohafazat.

This is the only area where a reasonably good control programme had been drawn up, and to some extent implemented, but unfortunately its original vigour and intensity of execution is slackening because of lack of field supervision from Hasseke. The Sanitarian in-charge of the control programme is not effective in securing the personnel, material and equipment needed for his work.

2b. Raqqa Mohofazat.

Some sort of control programme has been undertaken in this Mohofazat but, alas, in a very haphazard way. There is a lot of waste of manpower and technical knowhow in this province. Four people have received overseas training with WHO assistance, but their knowledge has not been fully utilized. Only the patient-oriented control aspect is haphazardly attempted.

A.2c. Deir-ez Zor Mohafazat.

I understand that a very good Bilharzia Control Programme once flourished in Meyadin and Abu Kemal areas but this is not so now. As in other provinces there is no adequate supervision of personnel and therefore their output is deplorable. Their equipment are either old and unusable or are not available as they are once in a while called upon to participate in other preventive medicine campaigns. It was brought to my attention that plans are underway to introduce rice cultivation in the Meyadin-Abu Kemal region and thus create ideal habitats for vectors of Bilharzia and Malaria. Therefore it is the opinion, and I fully concur, of the Bilharzia Workers in this region that control programme should be re-initiated in full force. Although cases of Bilharzia have been diagnosed in and around Deir-ez Zor City no control efforts- not even treating the diagnosed cases- have been undertaken.

B.0. RECOMMENDATIONS.

With those brief observations on the three areas affected by Bilharzia, I now present some of the recommendations necessary to carry out a successful control campaign.

B.1. PERSONNEL.

B.1a. Chief, National Bilharzia Programme.

There is an absolute need to create a post of a person in-charge of National Bilharzia Programme. Here in Syria you seem to have been quite successful in securing the services and cooperation of the World Health Organization in all matters of Expert service, training of personnel, provision of equipment, etc. Unfortunately because proper supervision is lacking I feel these services and personnel have been under utilized. To correct this anomaly I envisage, therefore, a Bilharzia National Chief whose duties, inter alia, will be to draw up, coordinate, execute and supervise a Bilharzia Control Programme on a National level.

After discussing this problem with the doctors in the various provinces most have assured me that they cannot foresee any doctor of medicine accepting such a post even if the post was upgraded salarywise. In actual fact I have met only one doctor of medicine who has indicated he would accept such a post if it were upgraded salarywise. I therefore concur with a suggestion that such a man need not be a medical doctor. He could be a man with a Ph.D. in either parasitology or entomology and ideally with further training in public health (preventive medicine). World Health Organization or any other cooperating agency could be approached to give fellowship for such training.

B.1b. Provincial Chief, Bilharzia Control Programme.

Most of the doctors in-charge of Bilharzia Control in each of the three provinces freely and frankly told me that they just don't have the time to undertake the kind of supervision required in order to have a successful campaign. It is only in Hasseke-Kamishili region

where satisfactory supervision was found. I therefore suggest the recruitment of science college graduates who, after appropriate period on-the-job training, might undertake short overseas training in Bilharzia Control. These men will be made in-charge of Provincial Bilharzia Teams, and will work under the direction and supervision of the National Bilharzia Chief.

B.1c. Bilharzia Technicians.

These are presently just not adequate. Each Bilharzia Centre should have at least one specimen (urine) collector, one microscopist, one drug dispenser, two snail searchers, one molluscicider, two snail attendants, one Bilharzia Sanitarian, one Centre attendant and a driver. Their duties are self-explanatory and therefore I need not elaborate.

B.1d. Summary on Personnel Requirements.

Syrians	93
International Experts	2
Total	95

The breakdown follows:

National Chief Plus Inter. Experts	3
Provincial Chiefs (one per province)	8
Bilharzia Technicians and Auxillary Personnel	89

The Bilharzia Centre to have:

Bilharzia Sanitarian	1
Specimen (urine) Collector	1
Microscopist	1
Drug Dispenser	1
Snail Searchers	2

Bilharzia Technicians and Auxillary Personnel

Molluscicider	1
Snail Attendants	2
Centre Attendant	1
Driver	1
Total	11

B.2. Notes.

B.2a. Proposed Bilharzia Centres are at Raqqa, Subkin, Hammum Turkman, Deir-ez Zor, Meyadin, Abu Kemal, Kamishili and Kubul Beith. Total of 8 centres.

B.2b. Raqqa, being the National Bilharzia Headquarters, requires a secretary-typist who is conversant with French or English characters, and preferably able to perform Arabic-English translation and vice versa.

B.3. Centre by Centre Breakdown.

As some Centres are already established and already with some personnel, this is the Centre by Centre breakdown of personnel requirement:

B.3a. Reqqa:

Specimen Collector	1
Snail Searcher	2
Molluscicider	1
Snail Attendant	<u>2</u>
Total	6

B.3b. Subkin:

Snail Searchers	2
Molluscicider	1
Snail Attendants	2
Centre Attendant	<u>1</u>
Total	6

B.3c. Hammum Turkman:

Specimen Collector	1
Microscopist	1
Snail Searchers	2
Molluscicider	1
Snail Attendants	2
Centre Attendant	<u>1</u>
Total	8

B.3d. Deir-ez Zor:

Specimen Collector	1
Microscopist	1
Drug Dispenser	1
Snail Searchers	2
Molluscicider	1
Snail Attendants	2
Centre Attendant	<u>1</u>

Total 9 plus driver

B.3e. Meyadin:

Snail Searchers	2
Drug Dispenser	1
Molluscicider	1
Snail Attendants	<u>2</u>
Total	6

B.3f. Abu Kemal:

Snail Searchers	2
Drug Dispenser	1
Molluscicider	1
Snail Attendants	<u>2</u>
Total	6

B.3g. Kamishili:

Snail Searcher	1
Molluscicider	<u>1</u>
Total	2

B.3h. Kubul Beith:

Snail Searcher	1
Molluscicider	<u>1</u>
Total	2

B.4 EQUIPMENT.

B.4a. GENERAL.

In all the proposed Bilharzia Centres I found some laboratory equipment of some sort albeit they are old and some no longer usable. Most of these were handed over to the Syrian Government after the completion of the work of the World Health Organization Term, 1954-1958. Efforts should therefore be made to secure more modern and reliable equipment for each Centre as listed below:-

	<u>Per Centre</u>	<u>8 Centres</u>
Compound Microscope (Binocular)	1	8
Dissecting Microscope (Binocular)	1	8
Thermometer (Lab.)	1	8
Thermometer (Field)	1	8
pH Meter (Lab.)	1	8
Hand Lens	4	32
Snail Scoop (Wire Mesh)	6	48
Tape Measures (100 meters)	2	16
Depth Measures (metal)	2	16
Tally Counters	2	16
Stop Watches	2	16
Automatic Watches	2	16
Electrical Centrifuges	1	8
Snail Tubes (2cm.x2cm.)	1000	8000
Rough Balances (0-100 kg.)	1	8
Glassware	as necessary	
Chemotherapeutic Agents (Ambilhar)	as necessary	
Molluscicide (Bayl cide).	1,000 Kg./centre	8,000 Kg./8 centr
Space and Furniture:	as necessary.	Centres at Hammum Turkman and Subkin require immediate attention and provision.

B.4b. TRANSPORT.

With a late and comprehensive campaign envisaged, there is need to provide transport in Centres with none or with old unreliable vehicles as follows:-

B.4b. TRANSPORT Continued.

<u>Centres</u>	<u>Land Rover</u>	<u>Truck</u>	<u>Motor Bike</u>
Reqqa	1	1	2
Subkin	-	-	2
Hammum Turkman	-	-	2
Deir-ez Zor	1	1	2
Meyadin	1	-	2
Abu Kemal	1	-	2
Kamishili	1	1	2
Kubal Beith	1	-	2
Total	6	3	16

Notes.

1. Trucks. At least one truck should be provided to each provincial centre for use during mollusciciding season. Such a truck can be scheduled to rotate among the centres of the province during mollusciciding season.

2. Motor Bikes. They are preferable for snail searchers because they are more maneuverable and agile and hence the snail searchers can cover more ground.

B.5.0. HEALTH (VISUALS?)

B.5.a. Bilharzia Film. These could be bought from bodies like the World Health Organization. Films are useful in pragmatically alerting the general population of the dangers and seriousness of Bilharzia, how to avoid polluting the environment, how to avoid infection/re-infection and how and where to seek help when necessary.

B.5b. Bilharzia

Their duties will include showing Bilharzia films, designing and erecting anti-Bilharzia Signboards, paying regular visits to Bilharzia-infected water bodies, etc.

C.0. SUMMARY.

In conclusion I would like to urge Your Excellency to study this report and to act on its recommendations as soon as possible so that a truly sound and productive Bilharzia Control Campaign could be embarked on as soon as possible.

I have the honour to be,

Yours Faithfully,

Dr. H.Kigonde Githaiga
WHO Malacologist

cc: Regional Director,
WHO/EMRO
P.O. Box 1517
ALEXANDRIA, Egypt

Director of Health,
1. Reqqa
2. Deir-ez Zor
3. Hasseke-Kamishili

SCHISTOSOMIASIS CONTROL PROJECT IN SYRIA.
EM/SYR/MPD/002/RE/(2101). AN APPENDIX ON TRAVELS AND
FAMILIARIZATION TOURS FOR PLAN OF ACTION.

By Dr. H. Kigonde Githaiga, WHO Malacologist, Raqqa, Syria.
18 January 1976

After spending eight days of briefing in Alexandria and a further eight days of UNDR documentation and meeting Syrian National Officials in Damascus, the writer finally arrived, accompanied by the Syrian National Entomologist, at Raqqa, the headquarters of the project, on 22 November 1975. Under the guidance of the National Entomologist quick trips were made to the Provincial Headquarters of Deir-el Zor and Hasseke, the other two Governorates involved in the project. The purpose of these trips was to enable the writer to meet the National Counterparts and the Directors of Health in the Governorates. These officers were expected to participate fully in the execution of the programmes of the project. It was suggested that the writer should arrange to undertake a more comprehensive familiarization tour of the area without the company of the National Entomologist who, after completing his mission of introducing the writer to the Directors of Health of the three Governorates, left Raqqa on 25 November 1975.

Accordingly the writer made a further familiarization tour of the areas in early December 1975. Fruitful discussions and assessment of the prevailing schistosomiasis situation in the areas were the basis of the writer's report to His Excellency, the Minister of Health, Syrian Arab Republic, on 22 December 1975. This report was duly studied and was the subject of a lengthy discussion by "the National Bilharzia Committee" comprising H.E. the Deputy Minister of Health, the Director of Preventive Endemic Diseases, the National Epidemiologist and the writer. After minor changes and especially in the question of the provision of the motor cycles for the Snail Searchers, the report was adopted and the writer was instructed to lay down the plan of action (work) for the year 1976. Both of these documents are enclosed.

SCHISTOSOMIASIS CONTROL PROJECT IN SYRIA.
EM/SYR/MPD/002/RB/(2101). AN APPENDIX ON TRAVELS AND
FAMILIARIZATION TOURS FOR PLAN OF ACTION.

By. Dr. H. Kigondu Githaiga, WHO Malacologist, Raqqa, Syria.
18 January 1976

PLAN OF ACTION.

A.1 Past History of the Project.

This is amply covered in the Plan of Action in the agreement signed by the World Health Organization and the Syrian Arab Republic, and also in some previous publications on the project such as EN/SCHIS/42 SYR. 04/REG, /BIL/32 SYR/Regular, /BIL/22 ,SYR 34/REG,act.

A.2 Project Area and Population Served.

This is well covered in the report referred above, and especially EM/SCHIS/42 SYR 04/REG, but the writer would like to draw attention to two features of this item which will work very adversely against control activities - and these are the sparse density of population and expansiveness of the area affected. The three Governorates affected, i.e. Raqqa, Deir-el Zor and Hasseke, make up more than two fifths of the total land area of the Syrian Arab Republic and the area's average density of population is about eight/km².

A.3 Establishment of baseline data and Fundamental Studies.

a. Epidemiological Surveys.

In the absence of the Epidemiologist, the other WHO Expert provided in this project, the writer has planned the 1976 programme of work to include collection of some epidemiological data which are imperative parameters in any evaluation endeavours. This will include:-

i. Prevalence and incidence data.

This will be based on the examination of one whole urine specimen. Due to lack of adequate and well trained personnel it is only feasible to carry out two surveys per year and the writer proposes to have these done in winter and late spring--early summer seasons. The in-between periods, i.e. most of spring and summer, will be devoted to malacological surveys and studies.

ii. Transmission sites, patterns and other ecological factors relating to disease in man.

Water bodies which are the source of infection, factors contributing to water contact and any other predisposing factors will be established and studied. This will be invaluable information which will later be applied to Education Campaign, possibly in 1977.

A.3b. Molluscan host surveys.

Malacological surveys and studies will include:

i. Sampling Techniques.

There will be a development of quantitative sampling techniques to establish snail population peak (s)

ii. Ecological Surveys.

Nature and type of snail colonies.
Factors governing distribution of colonies.
Pollutants favoring or disfavoring establishment of snail colonies.

iii. Snail Infection Rates.

This will be done both in the field and in the laboratory.

iv. Snail Hosts of Schistosomiasis.

Studies in a variety of natural and un-natural habitats will include egg-egg life cycle, both in the field and in the laboratory.

v. Snail Distribution in Relation to Irrigation and Agricultural Patterns in the Affected Areas.

Mapping out of the extent of the snails in the Euphrates Dam Project and in the rivers of the area.

vi. Snail Host/Parasite Relationship.

Studies on the disease in the snail (intermediate host). Hyperinfection and hypoinfection studies.

A.3c. Molluscicidal Studies.

i. Bayluscide Trials.

Effective dosage calculations, at a variety of habitats. Most economical method of application at a variety of habitats such as running/stagnant water.

ii. Cost analysis exercise.

Determine the approximate cost and the amount of the Bayluscide to be used in the whole project area.

iii. Determination of modus operandi of the molluscide and the optimal time of application.

B. PROJECT TARGET.

B.1. Phase I.

Baseline data in 1976.

B.2. Phase II. (mostly in 1977)

- a. All out attack on snail hosts.
- b. Concerted treatment of infected people.

B.3. Phase III (to be attempted in 1978).

- a. Consolidation and modification of control method, if any, in the light of the gained experience.
- b. Evaluation of the successes or failures of the project.

C. QUALITY CRITERIA.

C.1. Epidemiology.

- a. Prevalence and incidence data.
- b. Qualitative evaluation of the effectiveness of the Health Education campaign.
- c. Percentages of the schistosomal patients cured.

C.2. Molluscs.

- a. Snail population densities.
- b. Snail re-infection rates.
- c. Snail re-infestation time lapses.
- d. Amount of molluscicides used in the ensuing years.

D. METHODOLOGY.

D.1. Epidemiology.

- a. Prevalence and incidence surveys.
 - i. Collect one whole urine specimen between 10.00-14.00 hours.
 - ii. Sediment for at least half hour.
 - iii. Decant most of the urine leaving only the amount to be put in 15 ml. centrifuge tube.
 - iv. Centrifuge at 400 rpm for about 5 minutes.
 - v. Decant top layer and examine sediment for ova of Schistosoma haematobium.
 - vi. Compute prevalence and incidence percentages.
- b. Transmission patterns, sites, water contact, etc.
 - i. Transmission patterns.
 - Record likely times of infection in various localities.
 - Note any other relevant information.
 - ii. Transmission sites.
 - Record infected and uninfected water bodies.
 - Note nature and type of pollutants in the water bodies.
 - iii. Water contact studies.
 - Record reasons for water contact.
 - Note seasons of water contact.
 - Note time of the day for water contact.
 - Suggest water contact preventive measures.

D.2. Molluscan Host Studies Methodology.

- a. Quantitative Sampling Techniques.
 - i. Scoop three times every 25 meters.
 - ii. Count and record the genus and species, if possible, of the snails collected.
 - iii. Establish snail population peak(s).
 - iv. Draw maps on snail population densities and extent.
 - v. Draw graphs of time versus snail population densities.
- b. Ecological Surveys.
 - i. Record nature and type of snail colonies
 - ii. Note and suggest factors governing snail colony distribution.
 - iii. Note aquatic weeds, if any, in the site.
 - iv. Note pollutants favouring or disfavouring establishment of colonies.

c. Snail infection rates.

- i. Compute percentages of naturally infected snails in various water bodies.
- ii. Attempt correlation of natural snail infection rates and prevalence rate in the human population.
- iii. Design experiments to determine hyper- and hypoinfection.

d. Snail host of Schistosomiasis Studies.

- i. Egg-egg life cycle in natural habitats.
- ii. Egg-egg life cycle in laboratory conditions.

e. Snail distribution in irrigation and river and other water bodies in the affected areas.

- i. Search snails in the various water bodies.
- ii. Note and record their extent and distribution.
- iii. Construct a snail map of the affected area.
- iv. Laboratory confirmation of the vector role of Bulinus truncatus.

f. Snail host/parasite relationship studies in the laboratory.

- i. Nature and consequences of a hyperinfection state.
- ii. Nature and consequences of a hypoinfection state.
- iii. Any other consequences of the disease in the snail.

D.3. Molluscicidal Studies and Routine Methodologies.

a. Dosage Calculations.

- i. Flowing water.
 - Determine flow rate by means of a float and a stop watch.
 - Determine volume of water passing/second.
 - Read off the quantity of Bayluscide required from the tables.
- ii. Stagnant water bodies (Ponds, dams, etc.)
 - Determine volume of water (area x depth)
 - Read off the amount of Bayluscide required from the tables.
- iii. Effective method of application.
 - Determine whether spot spraying (for ponds and edges of dams) is preferable.
 - Or flow application (for flowing water bodies).

E. COST ANALYSIS.

E.1. Calculate quantity of Bayluscide required for the project.

E.2. Convert the Bayluscide requirement into currency terms.

E.3. Staff requirements have been submitted to the Government.

E.4. Equipment, including transport, requirement have also been submitted to the Government.

E.5. These items are detailed in the two letters, which are enclosed herewith, written to the Minister of Health, Syrian Arab Republic.

F. RECORDS TO BE KEPT BY THE PROJECT.

1. Prevalence and incidence percentage.
2. Snail population density records.
3. Quantity of molluscicide used.
4. Prevalence and incidence graphs.
5. Snail density graphs.
6. Maps/affected areas:-
 - a. Prevalence and incidence.
 - b. Snail extent and distribution.
 - c. Affected water bodies.

G. BENEFITS OF THE PROJECT.

1. Arrest the spread and increase of schistosomiasis in the Euphrates Dam Project area and in the Syrian Jezira as a whole.
2. Treatment of the disease in the affected population will relieve disease state and all its attendant consequences in the sick person.
3. The widely observed socio-economic negative attributes, e.g., diminished work output, known to be a common phenomenon in schistosomiasis communities, will be arrested.

Distribution:

1. NO/EMRO 8 copies
2. Government (Damas) 4 copies
3. Resident Representative, D.M.D.P. 1 copy
4. Bilharzia Centre, Raqqa 1 copy
5. Director of Health:
 - a. Raqqa 4 copies
 - b. Deir-ez Zor 4 copies
 - c. Hasseke 4 copies

Encl.

1. Appendix relating to travels and familiarization by the writer.
2. Letters to H.E. Excellency, the Minister of Health, Syrian Arab Republic

Directorate of Health
Bilharzia Centre
RAQQA, Syria.
24 January 1976

H. E. Nadani El Khiami,
Minister of Health,
Syrian Arab Republic,
DAMASCUS, Syria.

Attn. H.E. Dr. Nouri Ramzi,
Deputy Minister of Health,
Syrian Arab Republic,
DAMASCUS, Syria.

Your Excellency:

SCHISTOSOMIASIS CONTROL PROJECT IN SYRIA
EE/SYR/002/RB(2101).

A. INTRODUCTION.

Having submitted my first report, which was duly studied and adopted by a panel consisting of H.E. the Deputy Minister of Health, the Director of Preventive Endemic Diseases, the National Epidemiologist, the National Entomologist, the writer and others, I now submit the plan of action to be followed in order to implement the recommendations contained in the report. Phase I, which should be completed in 1976, will be presented in greater details while comprehensive plans of action for Phases II and III, to be implemented in 1977 and 1978, will be presented later.

B. THE PHASES.

1. Phase I or Baseline Data Phase (Execution in 1976).

- a. Collect data for prevalence map of vector snails.
- b. Collect data for prevalence map of schistosomiasis in the Syrian Arab Republic. Incidence percentages will also be established. Winter 1976-1977 will also be a time to collect more data on prevalence and incidence percentages.
- c. Elucidate snail population peak(s).
- d. Study biology and ecology of the vector snails.
- e. Ascertain transmission sites and patterns.
- f. Carry out trial attacks of vectors with molluscicides.
- g. Train National Personnel.
- h. Initiate Health Education campaign.

2. Phase II or Attack Phase. (Execution in 1977).

- a. Carry out an all-out attack on the vector snails.
- b. Carry out further prevalence and incidence surveys.
- c. Initiate treatment campaign of infected persons.
- d. Re-establish the prevailing snail population density.

3. Phase III or Evaluation Phase. (Execution in 1978).

- a. Winter 1977-78 should be used to obtain further prevailing and incidence percentages, both required as evaluation parameters.
- b. Spring-early summer 1978 could be used to re-establish the prevailing snail population densities, also to be used as evaluation parameters.

- c. Some comparative analysis and evaluation of data could be undertaken in late 1978.
- d. Consolidation and modifications, if any, in the light of gained experience, of the campaign could be attempted in 1979.

C. DETAILED ACTIVITIES OF THE PROJECT IN 1976.

Each of the eight Bilharzia Centres will be required to accomplish the following:

1. Prevalence and incidence surveys.

- a. Most of the units have been experiencing transport difficulties but it is to be hoped that it will be possible to complete winter 1975-76 prevalence and incidence figures before end of March, 1976. Due to lack of adequate and trained personnel and also adequate equipment, especially transport, the writer recommends two complete, and not the preferred three or four, prevalence and incidence surveys each year - one survey in winter season (November-February) and the other survey in late spring-early summer season (May-early June). The in-between periods will be devoted to studies of snail biology and ecology, and also to mollusciciding operations. In this connection it should be noted that in most Centres the technician who will be examining urine for ova will be the same one who will be examining snails for cercariae. All together about 12-15,000 children and villagers near reported infected water bodies will be covered in Raqqa Mohafazat--Subka, Hamman Turkoman and Raqqa districts. Figures for Hasseke-Kamishili and Deir-El Zor are not presently available to the writer. In summary in 1976 emphasis will be on snail biology and ecology although trial-run mollusciciding may be undertaken in late summer 1976.

b. Methodology.

- i. Prevalence and incidence percentages will be obtained by collection of a whole urine specimen between 10.00 to 14.00 hours from children in suspected areas, sedimentation, decantation of some portion, centrifugation and examination of the centrifuged sediment, and the computation of the results.
- ii. The methodology to be adopted will be reviewed and demonstrated to all Centres by the writer so as to make sure that all Centres adopt similar methodology.

2. Snail Biology and Ecology.

- a. Breeding cycle will be studied both in the field and in the laboratory.
- b. Confirmation, if time allows, of the vector role of Bulinus truncatus by rearing these snails in the laboratory from egg to adult, exposing them to miracidia, and observing the shedding of schistosoma cercariae.
- c. Seasonal snail population peak(s) will be established in the various water bodies. At least monthly records are to be kept from February through November each year.
- d. Number and type of water bodies harbouring snails will be established. Lengths and extent of snail infestation in such water bodies will be recorded. Nature or type of the water body (i.e., stream, pond, etc.) and the vegetation and pollutants therein will be noted.

- e. Infection rates of snails with Schistosoma haematobium cercariae will be established in the various infected water bodies and also in the laboratories of the various centres.
 - f. Transmission sites and patterns (i.e., water contact places and reasons) will be established for the various water bodies.
 - g. Methodology for Snail Biology and Ecology.
 - i. The writer will review with all the Centres all the relevant methodology in details.
 - ii. Each main Centre (Provincial Headquarter) will be required to obtain data for most of the topics on snail ecology and biology. Sub-centres need not obtain data for such topics as breeding cycle, confirmation of the vector role of Bulinus truncatus, snail infection rates, trial runs of molluscicides, etc.
3. Pilot Mollusciciding Projects.
If time allows, and also depending on an early availability of molluscicide, it will be desirable to initiate pilot mollusciciding projects in at least every Provincial Headquarter. The purpose of such projects will be to ascertain the efficacy of the molluscicide to be used in the concerted attack in 1977 and also to review the mollusciciding methodologies - handling, calculation of dosages, etc.- well before the actual mollusciciding campaign begins. These pilot mollusciciding projects should be undertaken in late summer 1976.
4. Training of National Personnel.
 - a. As mentioned elsewhere there is an appalling lack of trained Schistosomiasis Technicians in most of the existing Centres. Only Hasseke-Kamishili Team seems to be endowed with a well-trained Team. Raqqa Mohafazat has three Technicians trained in Bilharzia Control techniques in the Arab Republic of Egypt but these gentlemen lack adequate formal education: all attained only the elementary certificate of education (5th grade). Most of the other Bilharzia personnel in this Province have little or no formal education. While the writer doesn't have details for the other two Provinces, it is very much doubtful if they are any different. In this connection I would like to request his Excellency to secure the services of young people with high school diploms ready to be trained as Bilharzia Sanitarian (Technician).
 - b. At a lower level, perhaps with those with certificate of elementary education, there will be need to train molluscicides and Snail Searchers. These Bilharzia Auxillary personnel will generally work under the supervision of Bilharzia (Snail) Technicians like those trained in Cairo, who shall be expected to acquire expert knowledge of snail identification and calculation of the required molluscicide dosages.
The writer and any other International Expert who might offer his services to this project would gladly undertake the responsibility of training the personnel.

D. PERSONNEL REQUIREMENT.

After the study of the writer's first report of 22 December 1975 by H.E. the Deputy Minister of Health and others, it was agreed that each Bilharzia Centre should have:-

1. <u>Permanent Staff.</u>	<u>No.</u>
Microscopist/Snail Technician	1
Bilharzia Sanitarian	1
Snail Searchers	2
Centre Attendant	1
Driver	1
TOTAL	6

2. <u>Temporary Staff.</u> (4 months/year)	
Molluscicides	2
TOTAL	2

3. Taking into consideration of the existing staff in various Centres and the requirements as tabulated above, the following is Centre by Centre staff requirement:-

a. Raqqa.

<u>Permanent Staff.</u>	<u>No.</u>
Snail Searchers	2
Snail Technician (Special to Raqqa)	1
TOTAL	3

<u>Temporary Staff.</u>	
Molluscicides	2

b. Subkha.

<u>Permanent Staff.</u>	
Snail Searchers	2
Centre Attendant	1

<u>Temporary Staff.</u>	
Molluscicides	2

c. Hammam Turkoman.

<u>Permanent Staff.</u>	
Snail Searchers	2
Centre Attendant	1

<u>Temporary Staff.</u>	
Molluscicider	2

d. Deir-el Zor.	
<u>Permanent Staff.</u>	
Snail Searchers	2
Bilharzia Technician	1
Microscopist/Bilharzia Sanitarian	1
Centre Attendant	1
Driver	1
 <u>Temporary Staff.</u>	
Molluscicides	2
 e. Mayadin.	
<u>Permanent Staff.</u>	
Snail Searchers	2
Centre Attendant	1
 <u>Temporary Staff.</u>	
Molluscicides	2
 f. Abu Kemal.	
<u>Permanent Staff.</u>	
Snail Searchers	2
Centre Attendant	1
 <u>Temporary Staff.</u>	
Molluscicides	2
 g. Kamishili.	
<u>Permanent Staff.</u>	
Snail Searcher	1
 <u>Temporary Staff.</u>	
Molluscicides	2
 h. Kubul Beith.	
<u>Permanent Staff.</u>	
Snail Searcher	1
 <u>Temporary Staff.</u>	
Molluscicides	1

Your Excellency, the provision of these personnel, transport (the Deputy Minister's Committee agreed on the provision of 6 new Land Rovers only) and equipment as detailed in the writer's communication of 22 December 1975, should be accomplished as soon as possible so that there will be no fall back on the 1976 schedule.

Yours faithfully,

Dr. H. Kigundu Githaiga
WHO Malacologist

cc: The Regional Director,
WHO/EMRO
P.O. Box 1517
ALEXANDRIA Egypt

Director of Health,
Raqqa,
Deir-el Zor
Hasseke-Kamishili

CONSIDERATIONS IN THE DEVELOPMENT OF A PRIMARY CARE MANPOWER STRATEGY.

The FHC team wishes to bring to the attention of the Syrian government some of the factors which it feels mitigate strongly against utilizing physicians as the sole providers of diagnostic and treatment services when staffing rural health service delivery points.

Country after country, developed and developing, has tried countless strategies to induce physicians to settle and serve in rural areas. It is a fair generalization to conclude from the world's experience today that nothing has worked.

Physicians and their families are by training, if not by birth, urban creatures. They are accustomed to more than just the amenities of urban hospital and office practice, and to the more important social, cultural and economic opportunities of urban life--that is, schools, enjoyment of the arts, and professional contacts with peers. The potential for higher income is by no means a small factor. These are all strong forces acting on physicians the world over, driving them to seek "hospitable" environments for practice. These social and professional wants, common to most physicians everywhere, mitigate in favor of either urban settlement or immigration and militate against rural settlement and practice.

What must a nation do, what in all likelihood will the Government of Syria have to do in order to insure:

1. Rural settlement of physicians in large numbers.
2. Effective practice that results in the delivery of cost-effective health services.

To insure reasonable numbers of rural physicians, some or all of the following steps would likely be required:

1. Severely limit travel abroad of young physicians for all purposes, i.e., training, employment and vacations.
2. Severely restrict the entry of specialists and generalists into urban private practice, both full- and part-time.
3. Provide subsidized housing comparable to urban housing for physicians and their families.
4. Provide or pay for schooling for physicians' children on a comparable level to urban schools.
5. Arrange for a mixture of continuing professional and social contacts designed to both maintain skills and allow peer group communication.

6. Restrict opportunities for needless extensions of postgraduate training in urban areas.
7. Provide a basic salary plus a substantial bonus incentive sufficient to result in rural physician income exceeding urban net income by at least a ratio of 1.25/1.0.
8. Require mandatory quasi-military initial assignments to rural areas for a minimum two to four year period after completion of postgraduate training.
9. On a preferential admission basis recruit students from rural areas to medical schools.

Adoption of all nine policies might result in, at most, a transient increase in rural physicians forced by a quasi-military obligation to settle transiently in rural areas. In Syria it appears likely that there would be some modest retention of a few of these physicians in rural areas because of ties to their family and place of origin. The ability of any country to implement and enforce such a rigorous set of controls over a long period is very limited. Experience to date suggests that no country has successfully implemented a comprehensive policy that achieves rural settlement of physicians in sufficient numbers to adequately staff a rural health service that is totally dependant on physicians, for diagnostic and treatment services. In the team's judgment, some of the hypothetical possible policies outlined above run counter to current policies of the Syrian government and without doubt would stimulate discontent among physicians and medical students.

Clearly, settlement of significant numbers of physicians in rural areas, however transient, is a very difficult if not impossible goal. But, even if it is accomplished, it is not enough. The physicians are not going to be effective unless further rigorous preconditions are met. Specifically, a practice environment conducive to good medical care must be developed. This requires at least the following:

1. Training the physician to serve as a member of a rural health team.
2. Developing in the physician skills in management, consultation and supervision.
3. Training the physician to work with and through auxiliaries.
4. Providing auxiliaries appropriately trained with whom physicians can work.

5. Providing a medical record and health systems data that supports auxiliary-based medical care.
6. Providing attractive physical space for clinical services.
7. Guaranteeing reasonable referral and opportunities for consultations with specialists in clinical medicine.

Physicians practicing in an inhospitable practice environment will, depending upon personal motivation and economic incentives, tend to either withdraw from practice or deliver a very high volume of ambulatory services in a manner that is extremely fragmented and episodic. This type of patient care is common the world over, is of questionable curative value, and virtually no preventive or promotional value, and is generally coupled with both physician and patient dissatisfaction.

Two themes are dominant:

1. Whether or not physicians settle in rural areas, polyvalent auxiliaries are needed if any medical practice is to be effective.
2. The use of auxiliaries of the polyvalent type decreases the absolute number of physicians needed to support effective rural services and changes the type of physician needed.

Thus, there is a clear policy imperative to introduce medical assistants (non-physician providers of primary care services or polyvalent auxiliaries) into rural Syrian practice.

It is important to emphasize that medical assistants, as recommended in this report, are not independent practitioners operating outside of a system of care without continuing supervision and management. Rather, such assistants to be successful and to be safely employed, must be carefully selected, appropriately trained according to curricula developed by or under the supervision of physicians, and instructed to conduct diagnostic and treatment procedures according to carefully developed protocols. These actions should be subject to physician review and conducted under his/her supervision even though supervision may be remote and indirect. Physician involvement in the design of curricula as well as in the supervision, consultation, and continuing education of polyvalent auxiliaries maximizes the use of the physician as consultant, teacher, and supervisor. It is the physician who provides the quality control as well as referral and consultation services.

The medical assistant provides the basic service delivery capacity for those components of service delivery which do not require the physician's special and more extensive skills and knowledge.

Is the introduction and use of auxiliaries in the best interests of patients? Or, approached from a different perspective, are doctors necessarily the best or most desirable source of primary care? For, this is where patients should enter the medical care system, where all care should be coordinated, and basic diagnostic treatment, rehabilitative, supportive as well as preventive and promotive services should be available, along with referral for more complex and specialized services when indicated.* Tradition and practice suggest physicians are the best source of primary care. Yet, in developing and developed countries alike, more and more attention is being paid to the role of non-physicians in the delivery of primary health care services. The weakness in primary health care in the United States has been discussed by Parker in the proceedings of a symposium titled, "Primary Care: Where Medicine Fails."** In new and innovative programs in the United States, nurse practitioners and physician assistants are well accepted by patients in all social strata and economic levels. Certainly, in developing countries the proven value of non-physicians in the delivery of personal health services, especially in rural areas, can no longer be questioned. A very convincing case can be made that a system of care emphasizing the delivery of primary personal health services by non-physicians is not a second class way of substituting for physicians either not available or not willing to work in primary care. Rather, it is becoming ever more clear that this is the best way to provide quality primary care services at an affordable cost to any population, rural or urban, in developed and developing nations.

Or, in the words of the World Health Organization regarding health population and development:

"Integrated health and family planning services provided by auxiliaries in a regionalized network can facilitate demographic adjustments while directly contributing to the social components of general

* Fendall, N.R.E., Auxiliaries in Health Care-Programs in Developing Countries, Johns Hopkins Press, Baltimore, 1972.

** Parker, A.W., M.D., Primary Care and the Consumer in Primary Care: Where Medicine Fails, Ed. S. Andreopoulos, John Wiley & Sons, 1974.

development. A combined programme of this type can be practical, constructive, immediately applied, and relatively inexpensive."*

* WHO Chronicle, Health Population and Development, Vol. 28, December, 1974, pp. 523-528.

Externally Financed Pre-Investment and Technical Assistance Projects and Activities: 1974

Country receiving assistance: Syrian Arab Republic

Sector: Health

APPENDIX III

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(1) Project Activity (Title)	(2) Source of Assistance	(3) Assistance committed (US\$ equivalent)	(4) Duration Begin/End Dates	(5) Nature of Assistance and Location
Technical Health Institute SYR/72/022	UNDP/LS (WHO)	160,500	3 years October 1974- September 1977	5/37 m/m of expert services; 6/144 m/m of fellowships; Equipment: US\$ 129,400 Damascus
Faculty of Dental Medicine, University of Damascus SYR/72/017	UNDP/LS (WHO)	250,000	2 $\frac{1}{3}$ years 1974- 1976	3/30 m/m of expert services; 2/48 m/m of fellowships; Equipment: US\$ 120,400 Damascus
Faculty of Pharmacy, University of Damascus SYR/72/012	UNDP/LS (WHO)	105,000	1974- 1976	2/13 m/m of expert services; Equipment: US\$ 71,900 Damascus
Radioisotopes in Medicine and Biology SYR/70/002	UNDP/SS (IAEA)	96,504	1971- 1975	2/6.5 m/m of Consultant services 3/36 m/m of fellowships; Equipment: US\$ 67,229 Damascus
Malaria Eradication Programme SYR/2001	WHO (RP)	231,060	1974- 1975 (started in 1960)	2/24 m/m of expert services; Fellowships: US\$ 4,000; Equipment and Supplies: US\$ 190,00 Damascus and elsewhere
Tuberculosis Control SYR/1201	WHO (RP)	12,000	1974-1975 (started in 1965)	Equipment: US\$ 12,000; Damascus

Source: U.N. document

Externally Financed Pre-Investment and Technical Assistance Projects and Activities: 1974

Country receiving assistance: Syrian Arab Republic

Sector: Health

(1) Project Activity (Title)	(2) Source of Assistance	(3) Assistance committed (US\$ equivalent)	(4) Duration Begin/End Dates	(5) Nature of Assistance and Location
Advisory Services in Epidemiology SYR/1001	WHO (RP)	44,160	1974-1975	2/13 m/m of expert services; Fellowships: US\$ 11,300; Equipment and Supplies: US\$5,000 Damascus
Public Health and Endemic Diseases Laboratory SYR/4201	WHO (RP)	52,630	1974-1975 (started in 1959)	2/12 m/m of expert services; Fellowships: US\$ 7,000; Equipment: US\$20,000; Damascus
Nursing Education, Damascus SYR/4401	WHO (RP)	78,500	1974-1975 (started in 1960)	1/3 m/m of expert services; Fellowships: US\$37,500; Equipment and Supplies: US\$35,00 Damascus
Schistosomiasis Control SYR/2101	WHO (RP)	98,880	1974-1975	2/30 m/m of expert services; Fellowships: US\$ 6,000; Equipment: US\$25,000; Raqqa (Euphrates Area)
Intensive Care Unit SYR/4301	WHO (RP)	63,600	1974-1975	1/11 m/m of expert services; Fellowships: US\$ 10,000; Equipment: US\$ 30,000; Damascus
Rehabilitation Services SYR/4801	WHO (RP)	44,920	1974-1975	1/6 m/m of expert services; Fellowships: US\$ 10,000; Equipment and Supplies: US\$25,000 Damascus

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Externally Financed Pre-Investment and Technical Assistance Projects and Activities: 1974

Country receiving Assistance: Syrian Arab Republic

Sector: Health

(1) Project Activity (Title)	(2) Source of Assistance	(3) Assistance committed (US\$ equivalent)	(4) Duration Begin/End Dates	(5) Nature of Assistance and Location
Education and Training (Fellowships) SYR/6041	WHO (RP)	130,000	1974-1975 (continuing)	Fellowships only;
Application of Radioisotopes in Medicine (Fellowships)	IAEA (RP)	7,200	1974-1975	1/12 m/m of fellowship;
Radioimmunoassay SYR/6/06	IAEA (RP)	25,000	1974-1975	1/4 m/m of expert services; Equipment: US\$ 15,000; Damascus
Basic Health/Nutrition (Selected Services for Children)	UNICEF	374,100	1973-1975	Equipment, Supplies and Cash: US\$ 128,700 in 1973; US\$ 183,900 in 1974; US\$ 118,800 in 1975.

Source: U.N. document

LANGUAGE TRAINING

The FHC team recommends these language training requirements for persons engaged in the projects outlined in Section V of this report:

- A) For Syrian nationals selected for short-term training in the United States or other English-speaking country, conversational fluency, particularly in the area of special technical interest sufficient to allow informed discussions and information exchange to take place is required. Any special training needed would be provided at the MOH language laboratory. Verification of competence prior to departure by a fluent English speaker is required.
- B) For Syrian nationals selected for long-term training in the United States, the same as in A above. In addition, 3 months intensive structured conversational and reading exposure to English prior to commencement of studies. This should be a mandatory requirement which can only be waived by demonstrating excellent written and oral comprehension in English as well as the ability to use effectively and understandably a wide general and technical oral vocabulary.
- C) For U.S. nationals engaged in long-term, in-country, technical assistance, 12 months or more, intensive training in basic spoken Arabic for 8-12 weeks prior

to departure. In addition, provision for ongoing lessons in-country in spoken Arabic at a less intensive frequency should be provided throughout the duration of stay.

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