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TUNISIA
RURAL COMMUNITY HEALTH PROJECT (664-0296)
REVIEW AND EXTENSION
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I. Summary Conclusions and Recommendations

In collaboration with key participants from the Ministry of Health and USAID/Tunis, the team reviewed and analyzed:

1. Progress in implementing the principles and specific program activities of the Rural Community Health Project (664-0296); and
2. The health services infrastructure and other conditions in Kasserine and Gafsa (3 northern delegations) to determine appropriateness of extension of the RCH project to these areas.

Based on this review the team concluded that indeed considerable experience and progress has been gained by the MOPH in adapting principles of the RCH project governing the provision of integrated rural health services, and recommends the project be amended to include Kasserine and parts of Gafsa.

Recommendations for program focus or modification in continued implementation of the RCH project and its extension to Kasserine and Gafsa are summarized below. The translation of these principles into project elements is discussed in Section IV. For the most part the extension of the project can be accommodated by a minimal increase in technical assistance, participant and in-country training, and construction and equipping a limited number of new or renovated facilities.

This following list of technical recommendations has been translated into French and reviewed and discussed with the MOPH prior to departure of the team.

1) As identified in the RCH project, polyvalent workers and polyvalent teams integrating at the front line preventive and curative services are of first importance. The central feature of the program in the four provinces is strengthening existing and new primary care workers to provide a broad range of appropriate preventive and curative services at the community level--sometimes in health centers, sometimes by outreach. The services should always be responsive to community needs and recognize that approximately 2/3 of the population is women and children. Therefore maternal and child health, family planning and health education should receive special emphasis.

2) Personal preventive services (e.g., pre and post-natal care, child health, family planning, health education in the areas of water and nutrition) are effectively introduced and made available to the population when linked to curative services for common conditions. Therefore, in designing the program of services in primary care there should be recognition that people seek health services for the relief of pain and suffering not for prevention. By effectively meeting basic needs for care of the sick, the credibility of primary care services is established and the patient and family are more likely to accept preventive services and respond to educational programs.

3) A central factor in establishing credibility of health centers and acceptability of preventive services becomes the availability of curative services. If curative services are available only for a limited number of hours per day and the health worker is not a resident at the health center, many people are likely to bypass the center for a larger facility or, more likely, simply stay home. Thus acceptability of preventive services by the people is dependent on reasonable availability of full time curative services.

4) The most peripheral health unit (Type "A")^{1/} should serve as the operating locus for carefully planned and supervised out-reach. The center staff provides services in the center and participates in out-reach activities. The mobile team periodically reinforces center staff providing more specialized or less frequently needed in-center and out-reach services. Specific out-reach activities include:

- A) MCH - Case finding and education for use of routine type "A" services including family planning.
- B) Treatment of selected minor illnesses (e.g., colds superficial skin infections) as well as starting treatment and educations re: diarrhea and oral rehydration.

1/ Brief definitions of Health Service Centers: Types A (A1 and A2), B and C; also P.R.S. (Points de Rassemblements - Assembly Points):
Type A: Most peripheral unit, serves 2000 to 5000 people. Comes in two sizes: A1 and A2. A2 is smaller facility staffed by a "frontline" worker (usually a nurse). Physician visits intermittantly or not at all. A1 is slightly larger, also staffed by full time front line workers. Physician visits at regular intervals, usually, once a week. Type B: Basically an expansion of Type A above supplemented by up to 10 maternity beds and a very limited laboratory capacity. Minimum staff includes one midwife, one front line worker and the part time services of a physician. Population served is 5,000 - 10,000. Type C: Situated in a delegation seat, center serves 10,000 or more. An expanded Type B, the Type C has a small laboratory and 5 to 10 general med/pediatric beds (plus the 10 maternity). Staff includes at least 1 physician, 1 midwife and 4 front line workers.

P.R.: A P.R. is a designated meeting place in the community (e.g., a mosque, tree, Omda's house, etc.) Where some curative and preventive services are provided by a mobile team (equipe mobile). P.R.'s are visited 1-2 times per month and serve anywhere from 300-1000 people.

- C) Water source testing, maintenance and use.
 - D) School health
 - E) Environmental inspections including slaughtering points, commercial and public areas, waste disposal.
 - F) Epidemiological investigation data gathering.
- 5) . The Type "A" program of services should include:
- a) Locus for outreach (See 4 above).
 - b) Definitive treatment of minor trauma.
 - c) Identification and treatment of common skin disorders and minor illness.
 - d) Stabilization and referral of major trauma (trauma should be read to include burns).
 - e) Provision of routine and continuing care as prescribed by a physician - distribution of oral medications, injections and dressings.
 - f) Provision of selected prenatal services (list to be expanded in the case of female provider.) Services suggested do not require physical contact/exam of the pregnant women beyond cursory overall visual inspection and palpation of the ankles for edema, risk assessment by history, determination of hemoglobin, provision of prophylactic oral iron, nutrition education.
 - g) Identification, temporizing treatment, consultation or referral, as appropriate, of serious illnesses (acute pulmonary infection with high fever, fever and stiff neck, moderate and severe diarrhea).
 - h) Provision of family planning information and supplies (pills, condoms and IUDs) with referral for sterilizations and social abortions.
 - i) Laboratory services are limited to hemoglobin determination.

- j) Nutrition and mother craft education.
- 6) It is vital in planning facilities to precisely define and agree on the following:
- a) Services
 - b) Staff
 - c) Probable patient volume
 - d) Management and logistic support needed.

Facility design must also take into account human factors and the needs of all people for dignity, respect and privacy when utilizing health facilities. Logical next steps for facility planning and design would include the following:

- a) Perform an evaluation of the current standardized, expandable model: Types A1, A2, A3, B, (C1), C.
- b) Compare the Rural Community Health Project facilities with those proposed for the World Bank project.
- c) Clarify the now complex array of labels for various facilities within the MOH's system, particularly if the goal of replicating the facilities across the country is to be realized.
- d) Assess each existing building in Kasserine and Gafsa and document fully the existing conditions so that renovation design can begin as soon as amendment finalized.
- e) Clearly determine the new versions of Types A, B, C and record all assumptions for these decisions.
- f) Establish a project team for facility related decision-making. Schedule the project and revise as needed.

Finally the functional budget requirement must be calculated and compared to the probable availability of budget. If the budget required is unrealistic then changes in the program are required. A rational facility design consistent with initial operating assumptions yet capable of responding to the needs of a growing population and growing economy must derive from the foregoing steps. If not facility design rather than service needs will dictate and control program content.

- 7) The location of health centers must adapt the quantitative population, staffing and utilization assumptions on pages 24-27 and 31-36 of Design Study II and reflect in the central zone of Tunisia:
- a) Population density.
 - b) Projected population growth or decline.
 - c) Development in other sectors e.g., agriculture, water, social affairs and education.
 - d) Travel time to the nearest facility that provides referral services (e.g., Type 'A' to Type 'C', Type 'C' to Regional Hospital).
 - e) Traditional land use patterns and prevalent local customs and practices in the specific area of the proposed facility.
 - f) Plans and actions of government such as creating new delegations, initiating or curtailing regroupment, etc.
 - g) Travel patterns and practices including to markets, availability of private vehicles, public transport.
 - h) Telephone availability.
 - i) On site water and electricity.
 - j) Lodging availability.
 - k) Maximizing the possibility of co-ordinating with programs such as training schools for young rural women.

In areas where population density is low and changing, care should be taken to limit investment in new health facilities only to those sites where it is very likely that utilization of services will justify the expense of construction and operation. This replacement of existing dispensaries and salle de soins or construction of a new facility where none exists should only be done after a careful analysis of local factor in determining final location and type of new facility are characteristics (i.e., economic, socio-cultural) of the local community that can only be determined by careful assessment of each site by those responsible for program and facility planning. Criteria can assist in provisionally identifying sites. A good final decision require a site visit.

- 8) The principle of having Type 'B' centers with only maternity beds should be dropped. Rather there should be a series of centers building on the basic Type 'A' core. Architectural programs and designs need to be explored and criteria developed for modifications on the basic Type 'A' and Type 'C' cores to reduce the size or add a few multi-purpose beds if community and geographical factors warrent.
- 9) The physical size of a particular center and the presence or absence of a small number of beds in Type 'A' center should be a product of specific inquiry into local factors discussed in items 5, 6 and 7 above.
- 10) All Type 'A' centers should be professionally staffed by at least one and preferably two polyvalent workers with complementary skills. All Type 'C' centers have at least one full-time physician.
- 11) It is noted that improved basic health services will result in the long run in appropriate and needed increases in hospitalization as well as the prevention of much unnecessary morbidity and mortality. While the number of beds in Kasserine and Gafsa may be insufficient for future population's needs, placing maternity and non-surgical beds in Type 'C' centers and not overbuilding and over designing regional hospitals has the advantages of helping control rising operating costs, bringing services closer to people and providing an attractive practice environment for rural physicians (Type 'C' centers).

Rather than build new regional beds, to the extent possible capital resources should be directed to increased primary care capacity. Primary care services will have far more impact on preventive mortality and morbidity than will hospitals particularly with regard to mothers and infants. In any case, new regional hospitals should be carefully designed as to size and program of services so as not to absorb resources better spent on primary care. The MOPH has requested U.S. assistance in hospital planning and design for interior governorates to assure facilities respond to needs as well as available resources. The team recommends such assistance be considered under the Reimbursable Development Program.

- 12) Services in Type 'C' centers include all Type 'A' plus maternity, plus basic laboratory, plus X-ray ('C' only), surgery other than minor surgery (suturing is referred to the provincial hospital).

- 13) It would be useful to help clarify functions, roles and responsibilities if a common terminology for health facilities and associated programs of service was developed that subsumed salle de soins, dispensary, PMI, Family Planning center, Type 'A', 'B', 'C', circonscription hospital.
- 14) The rural community health program in all four provinces is an ideal training ground for interns serving their obligatory six month preventive medicine stage. A program based on the RCH PP is suggested that involves the facilities of medicine in Sousse, Sfax and Tunis.

"The key to improving and maintaining the quality of rural health services is the training of a small but reasonably stable cadre of physicians who are professionally challenged by the opportunities in public health, preventive medicine and primary care. It is essential that a hospitable work environment and, to the extent possible, social environment be structured to allow the physician with an interest in rural services to pursue further training and finally to find rewarding employment in rural areas." A fuller description of a proposed intern training program is contained in the RCH PP and backup documents.

In the development of a strengthened internship program the needs of the facilities of medicine must be considered. Are there requirements for short and long term post graduate education overseas? How can faculty effectively supervise students in the field and what is the role of MOPH staff in internship training? Do MOPH staff at the regional and circonscription levels need additional training and educational experiences to effectively participate as preceptors for interns".

- 15) Health centers particularly Type 'C' may be fruitful places where young women in training schools for Jeunes Filles can be exposed to food health principles, perhaps be stimulated to become health workers and certainly receive education in MCH and family planning relevant to themselves and their families. This is an example of integration of social welfare and health activities at the Type 'C' level where such social centers exist (see planning criteria item 7).
- 16) Another aspect of collaboration with Social Affairs is involvement of the animatrice sociale in structured outreach.
- 17) Matrons are for the foreseeable future primary attendants at most deliveries. As suggested by Dr. Hamza, Director of MCH Services, an effort should be made to identify and select matrons interested in short-term training that emphasizes:

- a) Safe delivery practices.
 - b) Identification and referral of high risk mothers.
 - c) Maternal and Family education.
- 18) Continuing education in management, health services and supervision for regional administrators, surveillants and key staff at the regional and circonscription level has merit and should be pursued as the project is extended.
 - 19) As physicians are identified as potential candidates for Regional Health Directors, consideration should be given to systematically exposing them to principles of public health, preventive medicine, management and planning through available structured, short (8-9 weeks) and long term (one year) training.
 - 20) The integration of data gathering and analysis, epidemiology, health services and outreach as developed in Mejez-El-Bab should to the fullest extent possible be integrated into the program of service and management in Siliana, Sidi Bouzid, Kasserine and Gafsa.
 - 21) Lodging for polyvalent workers, physicians, and interns is viewed as critical to the successful establishment and maintenance of a viable Rural Health program. Therefore a serious step toward fulfilling lodging needs is needed. The lodging goal is as follows:
 - A) All Type 'C' centers - lodging for one physician
lodging for 2 senior staff(non-physician)
 - B) Each Gouvernorate - lodging for 4 interns - dormitory style.
 - C) Type 'A' centers - one lodging for 1 - 2 health workers (where housing in community is limited)
 - 22) Most nurses and nurse aids for Central Tunisia are trained in Gafsa (with the exception of staff for Siliana who are trained at Kef). However, training at Gafsa is strictly curative whereas the Nabeul school includes a preventive health curriculum. Since students from Central Tunisia are more likely to attend Gafsa (given its proximity) and since an integrated service approach is proposed, an effort should be made as a part of the project extension to add preventive health instruction to the Gafsa and Kef schools.
 - 23) The functions of the Health Equipe Mobile (Mobile Teams) need to be more clearly defined and coordinated with health center and outreach activities. In particular the health education program needs strengthening.

II. PROGRESS SINCE APPROVAL OF THE RURAL COMMUNITY HEALTH PROJECT (RCH)
664-0296

A. Program Progress

In 1976 and 1977 the U.S. Agency for International Development and the Government of Tunisia's Ministry of Health explored various health project options. This process is outlined in technical documents entitled:

1. A Review of Health Services Development in Tunisia *;
2. A Program Proposal for Integrating Rural Health Services in Siliana and Sidi Bou Zid Gouvernorates--Tunisia *;
3. Design Study II: Integrated Rural Health Services in Siliana and Sidi Bou Zid Provinces--Tunisia *;
4. Architectural Design Study by Susan Christie Shaw
5. Project Paper Rural Community Health 664-0296 dated 8/15/77

These documents form the basis for what has become the Rural Community Health project in Siliana and Sidi Bouzid Gouvernorats. This project has two components:

- 1) Capital assistance (a \$4 million loan program with \$3 million provided by USAID and \$1 million by the Government of Tunisia). The capital assistance program was intended primarily for constructing and equipping rural primary care facilities in the two gouvernorats.
- 2) Technical assistance (USAID grant of \$1 million), primarily intended to assist the GOT and MOH in restructuring the tasks of front-line workers, retraining existing front-line workers and strengthening supervision and management of health services at the gouvernorat level.

The AID-GOT agreement was completed in 1978 and construction of many centers is now nearing completion with all new construction well underway. Renovation has proven more costly and difficult than anticipated and has not yet begun.

Technical assistance, though originally intended to run in parallel with the construction program, has been delayed. However, it is now anticipated that a contract team from the University of California at Santa Cruz will be in the field by late 1980.

Since 1977 the GOT/MOH in Siliana has made very substantial progress in improving the quality and capacity of health service delivery along the lines envisaged in the rural community health project. Furthermore, the general level of services from dispensaries through regional hospitals in the gouvernorats of Kasserine and Gafsa, though

* Family Health Care reports prepared in English and French; English versions respectively dated March 10, 1976, February 1, 1977 and July 28, 1977 per USAID contracts.

in need of strengthening, are more effective (e.g., better equipped facilities, better trained personnel and a better managed system) than was the case in Siliana and Sidi Bouzid in 1976. These observations are based on a direct comparison by one member (Dr. William Bicknell) of the July, 1980 USAID Technical Team who participated in all of the USAID/GOT contract assistance studies referenced earlier and undertaken in 1976 and 1977. The technical team in July, 1980 visited a small sample of sites in Siliana and Sidi Bouzid and a somewhat larger number in Kasserine and N. Gafsa. (Infrastructure Inventory lists specific sites visited in Annex A).

Specific improvements and changes noted since 1976 and 1977 include:

1. The Siliana circonscription hospital targeted for upgrading under the RCH project now functions as intended with an excellent small laboratory, new x-ray machine and increased physician staff. The hospital interior has been repainted, the facility is well maintained, the occupancy is high, the laboratory block intended for renovation several years ago has been renovated by the GOT and includes a small emergency room, functioning laboratory and several general support areas. In 1976 those few patients who were hospitalized appeared to be receiving custodial care. This year, in addition to much increased utilization, the patients in the hospital had illnesses meriting hospital care.
2. Existing dispensaries and PMI's in Siliana Gouvernorat are far better maintained, integration of services is understood by virtually all workers and the level of function of workers in terms of their ability and willingness to initiate effective basic curative services and begin to integrate preventive and curative services (as proposed in the RCH project) is far more advanced than was the case in 1976-1977.
3. Dispensaries in Siliana, Kasserine and Gafsa were all better maintained with improved provision for sterilization of syringes, needles and small instruments. Supplies of pharmaceuticals were sufficient and the level of maintenance, order and cleanliness in all cases substantially exceeded the norm of 1976-1977.
4. From discussions with several nurses in Siliana and Kasserine it is evident that the MOH's efforts to adopt oral rehydration as a major means of treating diarrhea at the primary care level is taking hold. For instance, one worker, during the course of questioning as to his activities of the preceding several days, noted that when his dispensary was closed he had visited a woman and infant at their home and instructed them in the preparation of an appropriate oral rehydration solution from ingredients in the home, saw to it that that was done,

treatment started by the mother and follow-up arranged to the health center one or two days later. Additionally, the use of prepared oral rehydration dry stock, widely available in the dispensaries, was clearly understood by many health workers.

5. Mobile teams of the service d'hygiene, staffed by workers from several disciplines are now, although stretched thin, used in all three gouvernorats. The mobile teams were less functional, if in existence, in 1976 and 1977.
6. The Ministry of Health staff has successfully carried on and extended the Mejez-el-beb project of retraining health workers to deliver integrated primary health care much along the lines of the RCH project proposal. This was originally a PL480-funded WHO program that, for the last three years, has been run under Tunisian auspices and has been wholly funded by the Government of Tunisia. The project and the services in the project area have little, if any, operating cost supplementation from the Government of Tunisia. A key feature of the program is the effective ongoing collection and analysis of basic epidemiological data which is routinely integrated with service delivery and outreach programs. The effects of this at the primary care level are several:
 - A. It allows timely epidemiologic investigation and coordination of resources to intervene effectively in a very local geographic area in response to such events as outbreaks of typhoid or hepatitis.
 - B. It tends to assure that services are relevant to local health needs.
 - C. It serves as an input into continuing education of staff.
 - D. It serves as a management tool and a management mechanism that is simple (requiring only pen, ink and people--not computers) but sophisticated and allows senior administrative and professional staff to monitor the application of the resources applied.

The central element of the Mejez-el-beb program is the ongoing collection and analysis of basic epidemiological data which is routinely integrated with service delivery and outreach programs. The approach requires sound professional leadership and good management and has been integrated with the existing service delivery structure without increases in operating costs. The simplicity, elegance and replicability make it one of the most impressive, practical and applicable projects in health service delivery seen by the physician member of the 1980 technical teams.

7. It is apparent from discussions with Ministry of Health staff, both centrally in the field, that the initial dissemination of lessons learned from the Mejez-el-beb will, with the advent of the technical assistance component of the project become more vigorous.

There are problems and issues which deserve the ongoing attention of the GOT/MOH--such as the interplay between capital and operating costs, the balance between referral hospital and primary care services, the training of physicians in primary care, preventive medicine and public health and the attraction and retention of some physicians to relatively rural areas for both long-term government service as well as private practice. However, these problems are in substantial part recognized and being addressed by the GOT and MDPH and should in no way be viewed as insuperable barriers to program success. A discussion of problems areas and their application to project extension is contained in Section II C.

On balance, the foregoing factors taken together demonstrate a pervasive and thoughtful commitment of the Government of Tunisia and Ministry of Public Health to extend and improve primary care services. The concepts and approaches being taken are sound. The professional and managerial strength of the Ministry of Public Health makes it highly likely that not only will the original objectives in Siliana and Sidi Bouzid be substantially met, but that the extension and adaptation of the project in Kasserine and three delegations of Gafsa will, very likely, be successful.

B. Summary of Current Status of Facility Development for the Rural Community Health Project

1. New construction in Siliana and Sidi Bouzid Gouvernorats--
Types A1, B, C1:
 - All new construction is scheduled for completion by end of 1980 or sooner. Observation of a number of sites confirms this schedule.
 - As of July 1980, construction administration services are being provided for the MOH by A.E.U.D. (bureau d'etude) consulting engineers. Lack of such administration has been a problem with the current construction process and should help in the future.
 - Within the Government of Tunisia, the RCH project now is "official", i.e., the MOE (Ministry of Equipment) has accepted it as such. Apparently this means that the MOE has "control" over the process and manages it. Exactly what this control is should be defined.

- Before accepting each new health center, the MOH should walk-through each with the A/E consultants and prepare a check-list of all items that must be done by the contractor. Only after this final inspection has been done should the MOH accept the facilities. A list of critical items might be prepared prior to the walk-through as a guide. This list should include: check the exam room doors to assure they are hung correctly to provide privacy; check provision for water; check for septic tank and field; check location of light switches and receptacles, etc...
 - Complete, coordinated drawing were taken to each new construction site by Dr. Rejeb shortly after Ms. Shaw's consultant's visit in January 1980. Due to the incomplete drawings, there are some discrepancies between what is actually built and what was intended. For example: all Type A1 were to have a "potez", a small heating unit in the waiting area. Some do and some don't.
 - USAID Engineer, John Neave's April 1980 report, "Highlights of Health Center Visits", points out some significant items which require immediate attention, if not already corrected
 - a) Testing of concrete mix
 - b) Roof-top water tanks and structural design adequacy to take this load.
 - c) Sceptic tank and leaching field/pit installations at certain sites.
 - Lodging (some) for physicians, nurses and midwives has recently begun at sites in Siliana and Sidi Bouzid by the MOPH. This is an MOPH contribution to the project.
 - Local call for bids have been issued for equipment for the new facilities.
2. Renovation and/or expansion centers in Siliana and Sidi Bouzid
- Types A1, B, C
 - Preliminary schemes prepared by Ms. Shaw in January 1980 for and with the MOH have been developed by Architect Wassim Ben Mahmoud, a private consultant. Since the working drawings are to be completed by end of July 1980, detailed cost estimates by A.E.U.D. will be forthcoming.
 - It is essential that the "project team" review and approve these drawings before they are let for bid. Any small changes should be made before bids are solicited.
 - Bids should be received only from complete, coordinated sets of drawings.

- The renovation-expansion facilities are also an official MOE project now. Thus, a technical (not programmatic) review will be conducted by the MOE's Technical Commission.
- Both A.E.U.D. and Wassim Ben Mahmoud, MOH consulting engineers and architect, will be involved in construction administration for the renovation-expansion sites according to the MOH.

3. Evaluation of the current facility model

- The MOH has begun discussing the strengths and limitations of the current standardized, expandable model: Types A1, A2, A3, B, C. Some preliminary thoughts are the apparent need for even smaller versions, more flexibility or a wider range of choices. For example, a few potential sites indicate 2-4 hospital beds plus a Type A1 would be desirable. How, when, by whom this evaluation will be performed is not determined. Evaluating the current model must be accomplished against a set of criteria. If it is not flexible enough, how flexible should it be? What are the program requirements? Then, how well do these respond. How much smaller should Type A1 be? Why? etc...
- The MOH has expressed doubts about Type B in particular, saying in most cases a smaller or larger facility is more appropriate.
- Part of the evaluation should include exploratory studies by an architect to see how much more flexibility is achievable with minor adjustments to the current designs, and studies to explore new combinations, sizes, expansion possibilities.
- Issues to review in such an evaluation are addressed in Annex B.

C. Problem Areas

As progress has been made by the MOPH in implementing primary health care objectives in Tunisia, a number of "problem" areas have emerged. Some of these issues which need to receive special attention as the Rural Community Health project is continued and expanded are discussed below. The MOPH is aware of these problems, in fact, most have been brought to the team's attention by the Ministry.

- 1) The training of physicians in primary care, preventive medicine and public health and the attraction and retention of more physicians to rural areas for long term government service and private practice is a key factor in the Tunisian primary health care strategy. The RCH project in all four provinces is designed to increase the role of non-physician workers, but even this strategy requires a small but reasonably stable cadre of physicians to supervise and supplement these paramedical workers. At present there are very few Tunisian physicians in the project area (see Table 1 Page 21). However, the RCH project provides an ideal training

ground for interns serving their obligatory six month preventive stage. The original Project Paper and study design included a model internship program. However, the ability of the medical faculties to develop these was not thoroughly analyzed since only the University at Tunis had an active program at that time. The medical faculties at Sousse, Sfax and Tunis all now have instituted community medicine programs and will be looking to the RCH project to assist them in arranging appropriate internships.

Short and long term graduate education overseas as well as U.S. technical assistance in curriculum design could assist the faculties in preparing the intern programs. A program for effective supervision of students in the field must be developed including a definition of the role of MOPH staff in field training. This will require a number of project inputs including (A) housing facilities for interns in all four governorats, (B) University budgets for transport of staff and students to the field sites, (C) training and consultant assistance for the faculties, and (D) in-country training for MOPH staff at the regional and circonscription levels to effectively participate as preceptors for interns.

- 2) Paramedical Training Schools: Salle de soins, dispensaries and Type A health centers are staffed with paramedical workers (nurses, nurses aides, etc.) on a full time basis. The mobile teams also utilize such workers.

At present most workers in central Tunisia are trained in either Gafsa or Kef. Neither of these schools have any formalized preventive health curriculum. Both provide curative training only. Since it is unlikely that many students from the preventive program at Nabeul will be lured to central Tunisia, it is important that some assistance be provided to the schools in central Tunisia to reorient their curricula. We understand some informal efforts have been made at Gafsa. Also, the World Health Organization is working on teacher training and curriculum redesign nationwide to incorporate preventive health. The project extension should build on these efforts and provide assistance in the curriculum redesign process.

- 3) Mobile teams: It is clear that the role of the Mobile teams in providing health education and some basic outreach services will be key. A good portion of the population lives in scattered clusters which are not large enough to warrant permanent faculties and full time staff. The Mobile Teams will serve to link the health resources and the community. Although such teams are now functioning in each delegation, the role and effectiveness of the teams vary. (There is approximately 1 health mobile team for each sanitary sector and 1 family planning mobile for each governorate, See Annex A for details). The current health education skills of the teams are weak and there is no protocol or basic description of their educational tasks or priorities. Although the teams seem to have a fairly well defined schedule of visits, an effort needs to be made to prioritize and routinize the substantive aspects of their functions with particular attention to health education.

- 4) GOT staff: Tunisian staff to work at the governorate level with the U.S. TA team is essential to success of the project. The RCH project proposed such counterparts for Siliana and Sidi Bouzid but none have been identified as yet. Although there are regional Ministry staff such as the Regional Health Administrators and Surveillants, these staff are already fully employed with current responsibilities. From discussions with the Ministry of Health, the team understands that two new levels of Ministry staff will be responsible for the operation of primary health care (non-hospital based) services. The first will be the Associate Director in charge of primary health care at the level of the Sanitary Region. That person will work in conjunction with, and report directly to the Medical Director of the Sanitary Region. Second, as part of the MOPH effort to decentralize the health system, on the circonscription level a Medical officer will be appointed and charged with the responsibility for overseeing all curative (hospital based) as well as all preventive and outreach activities. He/She will report directly to both the Regional Director and the Associate Director for Primary Health Care. An individual such as the Associate Director would be an appropriate counterpart for the team and every effort should be made by the Ministry to identify such individuals for the project area as soon as possible.

In addition, to facilitate expansion of the project activities to Kasserine and parts of Gafsa and to coordinate training, management and logistics. it would be highly productive to have a Tunisian Health Services Administrator assigned to CTDA in Kasserine by the MOPH.

He would serve as the coordinator of health activities for central Tunisia and assure that the project objectives continue beyond the life of the A.I.D. project inputs.

- 5) Facilities Planning: The team was concerned over the number of new facilities in the Kasserine/N. Gafsa area which have been built usually with local funds with little planning in terms of population in the area, services to be delivered, or possible need for expansion. There were several facilities opened since January 1980 that the MOPH is now suggesting A.I.D. assist in renovating. This highlights the need for a region-wide facilities planning effort to coordinate plans. Additionally, there have been numerous delays and changes in finalizing the renovation plans for Siliana and Sidi Bouzid. Part of this problem has been caused by the lack of a dynamic planning process between the program (MOPH) and facilities design (MOE) elements of the GOT as discussed in Section II. B.

To improve this situation as we expand the project, the team strongly suggests that a "Facilities Planning Committee" be organized to manage the facility development process. The process must be organized in a manageable, efficient, systematic way to enable decision-making, review and approval by key participants, and clear communication. Since the MOE now is officially involved, it is not clear how much of the process they will control and manage versus the MOPH.

To guide the process, it is suggested that a schedule or time table is set-up--not only for the phases of facility development but for all components of the project: buildings, equipment and furnishings, retaining of workers, etc.

Review and approval at various stages of facility development can best be made by a project team composed of decision-making representatives for the various key participants. This project team should be organized by the central MOPH project director and include participation by:

- regional MOPH officials
- CTDA
- MOE
- A & E consultants
- USAID
- U.S. Technical Assistance team
- Since the Population/Family Planning Office (ONPFP) also utilizes facilities in the region, they should also be invited to participate.

A schedule with key decision points, clear responsibilities and expectations should be defined. The project team would be concerned with who does what, when, where, why and at what cost. Such a team should be involved in:

- renovation plans/progress for Siliana/Sidi Bouzid.
- facility planning, needs, and site locations for Kasserine and Gafsa.
- design decisions on new construction and renovations in Kasserine and Gafsa.
- construction progress.
- certifying construction acceptance.
- assuring timely ordering of equipment.
- scheduling appropriate staffing plans and retaining to coincide with above activities.
- evaluate facilities and identify need for change.

Further comments on some of the issues to be considered by the committee are included in Annex B .

Initially such a committee is essential to assure a comprehensive project planning process as well as a design which responds to program needs. However, given that facilities in the region may be built with funds outside of the USAID/GOT project, consideration should be given to utilizing such a group on all future facility planning. Also, as the GOT moves toward nationalizing and standardizing facility plans such a group could expedite the process.

III. Application of Experiences to Kasserine and Gafsa

A. Present Levels of Health Manpower and Infrastructure Development.

In general, Tunisia's level of performance in the social service sector has been impressive. Authorities encouraged a rapid transformation of society by promoting educational and legal reforms, rapid economic growth and a comprehensive set of policy measures. The continuity of pragmatic political leadership, the willingness of the authorities to introduce structural changes in the economic system, and the determination shown in the pursuit of development have contributed to creating an environment in which the economy could prosper as planned. A direct outcome has been rapidly rising per capita income growth sustained over long periods and supplemented with comprehensive social programs and policies. About 15% of GDP is being allocated to social programs (health, education, housing, nutrition, family planning, etc.). By international standards this is high as 10% of GDP for social services is already considered substantial.

However, a great deal of this expenditure is biased toward upper income groups mostly located in urban areas. This is not surprising as non-equitable distribution of resources is a problem common to most developing countries. By allocating social (including health) services predominately to those who pay for them through taxation, the flow of benefits to the poor, particularly the rural poor, is reduced to small, but by no means negligible number.

With regard to the distribution of health services, the past 4 years have seen improvement in the central Tunisia area. As mentioned in Section II.A, the quality and availability of health service infrastructure and personnel have increased substantially since the initial assessments of Siliana and Sidi Bouzid governorats were made by Family Health Care Inc., in 1976/77. In fact, in all sectors of Siliana and Sidi Bouzid, evidence of increased investment in development activity exists: improved roads and public transport systems, increased agriculture activity, new construction, greater numbers of machinery and agricultural equipment, a greater availability of electricity and water, and an improved general appearance of the small cities and villages in the region.

The same general improvements can be said of Kasserine and Gafsa governorats. In fact with regard to the health sector, greater numbers of health sector resources (facilities and manpower) are available in Kasserine and Gafsa than in Siliana and Sidi Bouzid.

For comparative purposes, 1979 health sector (Kasserine, Gafsa, Siliana, Sidi Bouzid, Tunis, Jendouba) data for six governorates can be found in Table 1 on the following page. Tunis was included as it represents the largest urban center in Tunisia. Jendouba governorat located in the north was included because it has different demographic characteristics from Central Tunisia (less dispersed, more highly concentrated population groupings) and is the site of the Medjez el Bab project.

As can be seen, in terms of absolute members of personnel, facilities and hospital beds, Sidi Bouzid is the worst off with Siliana following at a close second. This is partly due to the fact that both are relatively new governorats. As regions most bereft of resources, they were given governorat status in 1976 in order to allow the GOT to focus more attention and resources on the development problems of the area.

Turning to Kasserine Governorat, although a rapidly growing and prospering area, it is nonetheless relatively worse in terms of beds and personnel than Jendouba, Gafsa and, of course, Tunis. Although many of the buildings are in poor condition and badly equipped, there are a relatively large number of dispensaries and salles de soins. This is in a large part due to the governorat's rural development fund and local contributions which have financed the construction of many of them. In fact, some facilities remain closed as the MOPH cannot supply staff and equipment fast enough to put them into service. As with Siliana and Sidi Bouzid, drugs appear to be plentiful (although the variety is not large nor are appropriate drugs always available for dispensing) and the pharmaceutical resupply system seems to function reasonably well.

Gafsa Governorat appears to be in better shape; in terms of personnel and beds it compares somewhat favorably with Jendouba. However, facility infrastructure in Gafsa is not well developed and the number of health facilities located in rural areas remains small. This is especially significant as unlike Jendouba, rural communities in Gafsa and Kasserine are very dispersed making the availability of health services even a greater problem. In addition, an examination of the distribution of resources within the governorat itself reveals a great deal of disparity in the availability of health service resources between delegations. For example, containing only 52%

TABLE 1

COMPARATIVE HEALTH DATA (1979) OF FIVE GOUVERNORATS

GOUVERNORAT CHARACTERISTICS	KASSERINE	GAFSA	SIDI BOUZID	SILIANA	JENDOUBA	TUNIS
I. <u>POPULATION</u> ^{A/}	299,856	110,663	256,462	198,506	313,855	1,030,000
II. <u>PERSONNEL</u>						
A. No. of physicians (with MOH)	19	15	8	10	27	488
B. <u>No. of habitants</u> No. of physicians	15,781	7,377	25,646	18,046	9,807	2,110
C. No. of para- medicals	200	223	153	129	284	3,563
D. <u>No. of habitants</u> No. of para- medicals	1,499	496	1,676	1,539	1,105	289
III. <u>INFRASTRUCTURE</u>						
A. No. of hospitals- Regional, Univer- sity, Institutes, Centers	1	1	1	1	1	15
B. No. of circon- scription hospi- tals	4	1	1	3	4	0
C. No. of dispen- saries	21	19	21	17	27	35
D. No. of salle de soins	16	- ^{B/}	- ^{B/}	8	12	-
E. Total No. of facilities (non- hospital)	37	19	21	25	39	35
IV. <u>HOSPITAL BEDS</u>						
A. No. of existing beds	176	200 ^{C/}	82	129	444	5,566
B. <u>No. of beds</u> 10,000 habitants	6	18	3	6	14	54
C. No. of additional planned beds	100	0	60	30	NA	NA
D. Total (existing & planned)	276	200	142	159	444	5,566
E. <u>Total beds</u> 10,000 habitants	9	18	5	8	14	54

^{A/} Population figures for Kasserine and Gafsa are 1979 data; all other Gouvernorats' figures are from 12/1978 data.

^{B/} Some facilities that are called dispensaries are in reality salles de soins.

^{C/} Estimate.

of the population, Gafsa Sud delegation has roughly 2/3 and 4/5 of all paramedical and medical personnel respectively of Gafsa Gouvernorat. The balance is strewn somewhat evenly over the remaining three delegations, with Gafsa Nord delegation being the most bereft and El Guettar the least. (See Table 2).

The same maldistribution of resources is true within Kasserine Gouvernorat. With 20 percent of the population, Kasserine delegation (the seat of the Regional Hospital) has nearly 75 percent of all doctors and 42 percent of all paramedical personnel. As with Gafsa Sud delegation, this is primarily due to the fact that the Regional Hospital absorbs a disproportionate amount of the personnel and commodities. On the other hand, Kasserine delegation does have only a small percentage of the gouvernorat's dispensaries, sal~~e~~ de soins and points de rassemblements (P.R.).^{1/}

With respect to the logistics system, current data on vehicles are available only for Kasserine Gouvernorat. Data collected in 1977 are available for Siliana and Sidi Bouzid. As a minimum standard for vehicles, Design Study II recommended that each delegation should have one dual purpose vehicle for transporting patients, personnel and supplies. Ultimately, each delegation would want to have two vehicles, one for emergency patient transport and one for transporting personnel and supplies.

When these standards were established in 1977, Siliana lacked three vehicles to meet the minimum requirement and Sidi Bouzid lacked five. Comparing this to Kasserine Gouvernorat today, with the exception of the two new delegations recently formed (Remada, Majel Bel Abbas), five delegations (Thala, Foussana, Feriana, Sbiba, Sbeitla) have one ambulance and Kasserine delegation has three. With regard to service

^{1/} A P.R. is a designated meeting place in a community (e.g., a mosque, tree, Omda's house) where some curative and preventive services are provided by a mobile team (equipe mobile). P.R.'s are visited 1-2 times /month and serve 300 - 1000 people.

Table 2
Distribution of Facilities and Personnel, Kasserine and Gafsa Governorates

	HOSPITALS		P.M.I. (as a separate facility)	Dispensary	Salles de soins	Points de Rassemblements (P.R.s)	Doctors	Paramedical's (includes service d' Hygiene)	Workers	Total Population (1979)
	Regional	Circonscrip- tion								
<u>KASSERINE GOVERNORAT</u>										
1. Kasserine Delegation	1	-	1	6	3	32	14	85	53	58,752
2. Sbiha/Remada	-	1	-	4	3	49	1	23	7	54,614
3. Thala/Foussana	-	1	1	5	5	93	2	30	13	101,869
4. Sbeitla	-	1	1	3	2	57	1	39	18	44,251
5. Feriana/Mejel Bel Abbes	-	1	-	3	3	84	1	23	6	40,370
Total	1	4	3	21	16	315	19	200	97	299,856
<u>GAFSA GOVERNORAT</u>										
1. 3 project delegations (El Guettar, Es Seneid, Gafsa Nord)	-	1	1	12	-	55	4*	40*	NA	53,351
2. Gafsa Sud	1	-	1	7	-	20	11*	183*	NA	57,312
Total	1	1	2	19^{A/}	-	75	15	223^{B/}	106	110,663

^{A/} Although most of these facilities were constructed as a salle de soin, since they are all visited by a physician, the technical term becomes dispensary.

^{B/} From observation, believe this number is too high; the actual figure might be closer to 200

Estimate

NA - Not Available

vehicles, Kasserine delegation has eight and Thala one. The Service d'Hygiene ^{1/} currently has five vehicles, two of which are based in Kasserine delegation. Comparing totals and without considering condition of the existing vehicles, in 1977 Siliana had five vehicles and Sidi Bouzid four. ^{2/} In 1980 Kasserine has 23. Given long travel distances, bad roads and the poor condition of some vehicles, 23 vehicles may not be the ideal number. However with some redistribution within the gouvernorat, the current availability of emergency and service vehicles seem sufficient to meet minimum standards.

In sum, although Siliana and Sidi Bouzid have made great strides since 1976/77 (see section V, for a more detailed manpower and financial trend analysis), Kasserine and Gafsa Gouvernorats are relatively better off in terms of availability of health personnel and facilities. Nonetheless, as part of the central Tunisia region, the two gouvernorats (along with Siliana and Sidi Bouzid) fall into that part of Tunisia which is most impoverished and hence bereft of health service resources. And as noted earlier, the health services that are available to the gouvernorats are maldistributed being largely concentrated in the gouvernorat capitals where the Regional Hospitals are located.

Finally, there is not only a problem of quantity of available resources but that of quality. Current medical and paramedical training is almost all curative; there is a general lack of understanding of prevention and health education. Mobile teams which provide much of the outreach and preventive services (sanitary and environmental health, health education, vaccinations, etc) are understaffed, inadequately trained and lack motivation. Facility planning is poorly coordinated and haphazard at best (see sections Particular Problem Areas p. 17, and Process for Facility Development, Annex B.)

1/ The Service d'Hygiene provides mainly preventive services (e.g. environmental health and sanitation, well disinfection, inspection of public places, health education, school health, vaccinations) within dispensaries, salles de soins, and schools as well as at P.R.s. The Service is made up of mobile teams (equipe mobiles) of 2 to 4 persons each (a sample team may include: nurse hygienist, sanitary aide, well disinfector and a family planning aide from the ONPFP).

2/ Although hard data are not available, given the great improvements in Siliana and Sidi Bouzid since 1977, one can assume that the number of operating health service vehicles has risen.

IV. Specific Program Suggestions - Recommended Grant and Loan Components

The problem areas and principles/planning assumptions guiding the RCH project and its extension into Kasserine and Gafsa lead to specific suggestions for the RCH Project Paper Amendment. First, however, as a frame of reference to consider program elements, several important points should be mentioned.

At the outset, the role of the technical assistance team will be crucial with regard to evaluating program progress in Siliana and Sidi Bouzid and its application to Kasserine and Gafsa. Program assumptions used in the original Design Study II document to project utilization rates and calculate manpower and facility needs will have to be reexamined in light of the project's experiences to date and redone where inappropriate or false. In addition, task definitions for workers will have to be redefined and/or clarified based on lessons learned in the first phases of the project.

With regard to the project extension, the team should go through the planning exercise of Design Study II to more carefully determine manpower and training requirements as well as more properly articulate types and locations of health facilities needed. Specific comments on the facilities component of the extension, including recommendations for facility planning, site selection, architectural and engineering services, lodging, construction and renovation are found in Annex B.

Technical Requirements

A.I.D. technical inputs to the existing RCH project are designed to assist the GOT and the governorats of Siliana and Sidi Bouzid to design and implement a restructured health manpower system. A contract team composed of two rural health physicians (3 years each) a non-physician practitioner (2 years), a health management/planner (18 months) and approximately 9 work months of short term consultants has been identified. If contract negotiations proceed satisfactorily they should arrive at post in October 1980. In addition, short term training of 5 Tunisian staff is planned. The U.S. grant budget totals around \$1 million.

Expansion of the activities of Kasserine and Gafsa should be able to be accomplished with the following additional elements:

A. PERSONNEL

- The U.S. non-physician practitioner and health services administrator should be increased to serve for the full 3 years.
- A health services administrator (preferably Tunisian) should be located in Kasserine to coordinate team activities in Kasserine and Gafsa.

- Approximately 18 months of U.S. short term technical assistance should be added in the following areas:
 - Architectural Services
 - Curriculum Design (Medical School)
 - Curriculum Design (Nursing School)
 - TBA (matron) Training Specialist
 - Health Education
 - Pharmaceutical Planning and Logistics
 - Equipment Planning
- Tunisian consultants should also be utilized in Architectural and Engineering Services, paramedical and intern training and other appropriate areas.
- Tunisian counterpart staff should be identified for Kasserine and Gafsa in addition to Siliana and Sidi Bouzid. This staff will work on a day-to-day basis with the U.S. technical assistance team in implementing the project activities.
- Tunisian staff for the new centers will be required (see Section V.C Impact on GOT Resources).

In country per diem should be increased for both long term U.S. and Tunisian staff to cover the additional travel requirements in Central Tunisia.

B. Training

Funds for short term U.S. and third country training and long term U.S. training should be increased to allow for up to 10 short term and 10 long term participants in the following areas:

- post graduate training for medical faculty
- continuing education in health service management and supervision for regional administrators, surveillants and other key staff at the regional and circonscription level.

- improved epidemiologic skills for key Ministry and regional staff.
- Associate Regional Health Directors (new cadre of primary health directors) should be exposed to principles of public health, preventive medicine and management.
- Nursing instructors
- Health education

The U.S. technical assistance team should identify training needs, suggest appropriate programs, coordinate and channel various trainees into their programs.

C. Other Inputs

- Funds for in-country training and materials development should be increased
- Library materials (a few basic medical texts and journals) for Kasserine and Gafsa should be added.
- Funds for evaluation and operational activities should be increased
- Expenses for interns and university teaching staff in the field will have to be met.

Capital Requirements

Clearly, a capital budget can only be as specific and accurate as the level of information it represents. Since a complete listing of all facilities needed in Kasserine and Gafsa does not exist at this time, a partial breakdown is provided. The intent of this illustrative and preliminary capital budget is to serve as a first step in refining plans and priorities. It is based on the availability of roughly 1.2 million TD from USAID and the GOT. Illustrative examples of specific capital components are based on preceding program priorities. The assumptions used in the preparation and costing of the tentative and partial listing of sites and the capital budget are found in Annex B.

A. Specific Observations on Sites Visited and Tentative Lists for Facility Construction and/or Renovation

During two field visits conducted during July 1980 the design team was able to visit only a limited sample of

existing facilities and potential sites for construction or renovation in Kasserine and Gafsa (an inventory of existing health facilities and personnel can be found in Annex A).

The team's architect focussed on some of the most complex and difficult sites, including the circonscription hospitals in Thala and Feriana delegations (Kasserine Governorate), potential sites for Type C's in the new delegations of Foussana and Majel Ben Abbes (Kasserine Governorate) and newly constructed (currently unoccupied) Maternité in El Guettar delegation (Gafsa Governorate).

As a result of these visits plus prioritization by MOPH central and regional staff and population and health service data, the team has compiled a list of what appears to be priority facility needs for Kasserine and the three delegations of Gafsa. Within the limited time and information available to the team, we were only able to make very tentative recommendations on site selections appropriate to provide basic coverage of health services to the population. In addition the team confirmed the appropriateness of criteria used for the RCH Siliana/Sidi Bouzid sites and recommends a project agreement be signed authorizing confirmation of the sites during project implementation.

In each case information on development plans for the delegation, roads, population, etc., must be confirmed and specific site visits made prior to start up of construction. Comments on this decision making process and next steps in confirming sites is included in Annex B.

B. Summary Listing (Tentative and Partial) of Types C1 and A1

Again, the following listing is not complete and must be revised according to the detailed assessments necessary for the final, site specific locational decisions. This preliminary listing reflects impressions from selected field visits, discussions with central and regional officials, and 1975 socio-demographic data.

Gafsa:

- Type C1 1. El Guettar/renovation

- Type A1 1. Lartas/new (El Guettar)
2. Mcheoua/new (El Guettar)
3. Sadok/new (Es Sened)
4. Majoura/new (Es Sened)
5. Daomaher / El Jedida area/new (Es Sened)
6. Sanouche/new (Es Sened)

- Sites in Gafsa Nord Delegation will probably be for lodging only, e.g., at El Fej and Guetis, since the population may be declining and small facilities are functioning.

- If appropriate, Type A1 Site #6 could be converted into lodging for nurses as there is an existing salle de soin building

Kasserine:

- Type C1 1. Feriana City/renovation
2. Thala City/renovation

- Type A1 1. Machrag El Charms/new (Sbeitla)
2. Es Skhirate/new (Majel Bel Abbas)
3. La Frane / El Hazza area/new (Foussana)
4. Megdouche/new (Kasserine)
5. El Mnachim/new
6. El Nadhour/new (Majel Bel Abbas)
7. Majel Bel Abbas City/new
8. Remada delegation area (site cannot be specified)/new
9. Lousaia/new (Sbeitla)
10. Oueljet Ed Dhol/new (Thala)
11. El Athar/new (Sbeitla)
12. Ain Zaine/new (Sbiba)
13. Bel Higete/new (Kasserine)
14. Foussana City - new (Expanded Type A1)

- Sites 2, 3, 4, 7 and 12 have existing but deteriorating salle de soin buildings that could be converted to lodgings for nurses if appropriate.

C. The architect's report follows:

1. KASSERINE GOUVERNORATE

a. THALA CITY/ TYPE C

-Need to determine renovation systematically if the existing circonscription hospital is worth renovating to a Type C.

-Important to assess the physical condition of the existing hospital and "dispensaire" in terms of all systems. (roof, walls, structure, electrical, plumbing, heating, etc.)

-Initial observations include:

1. Existing outpatient facility very crowded.
2. Possible conversion of existing PMI facility to an outpatient, primary care center. Need to determine new function for existing "dispensaire" if that occurred.
3. Consider relocating existing kitchen storage and laundry in an expansion facility. Perhaps the existing laundry may be demolished and free land can be used for this small addition.
4. Minor renovation and overall clean up and painting to existing hospital. Find a good use to the now unutilized area in the back section which was housing 5 (?) isolation beds plus toilet - both facilities for same.

-Preliminary conclusion is that the existing facilities could be renovated and with carefull, considerate design, and adapted to house the architectural program requirements for the Type C health center. Unless the physical structure is deemed obsolete and unsafe, and should be renovated.

b. FERIANA CITY/ TYPE C renovation

-In 1969 a "PMI" center was converted into a hospital.

-Need to determine if the existing facilities coupled with some expansion to the rear could be renovated to accommodate Type C functions

-Existing facilities are the hospital itself, housing for a midwife and a small dispensary currently under construction adjacent to the hospital on the left.

- To the rear of the existing hospital is a fair amount of room on the site to permit some expansion for support facilities.
- Current outpatient utilization is high: ± 100 patients /day.
- The new dispensary currently under construction is going to be far too small to accommodate the provision of out-patient services. Perhaps this new building can be used for lodging. If that were the case, a rapid decision is needed so that minor changes could be added during the construction to include bath and kitchen facilities. Even as a house, this facility is very small.
- Initial observations are that Feriana can be renovated adequately but will not accommodate any growth beyond a Type C center.

c. FOUSSANA CITY/ TYPE C1 new construction?

- Preliminary recommendation is a new Type C1 be constructed only if a careful analysis of the catchment area warrants it at this time. Foussana suggests that a new variation to the existing facility types model is needed. It appears that to meet the current health needs of the area, a Type A1 plus a few (4-6) hospital beds are all that is needed and that a new Type C1 is too large for today's situation.
- Planned development in Foussana is currently confirmed and in effect. As a delegation with a population of ± 34,000, there theoretically is a large enough catchment for a Type C1. The town however has only ± 3,000 people. This suggests that a phased development to a Type C1 occur as the population and urban development grows.
- The existing dispensary in Foussana might be converted into physician lodging if a few hospital beds are added to an A1 facility or if the detailed analysis confirms that it is wise to build a Type C1 in the near future.

d. MAJEL BEN ABBES/ TYPE A1? or C1?

- Initial observations indicate that a Type A1 primary care center would be adequate and that building a Type C1 would be underutilized at this time.

-The existing dispensary appears to be generally in good condition and could either be converted into housing or could be expanded and modestly renovated to house a Type A1 program.

-Since Majel Ben Abbes is a recently created delegation, it may be wise to carefully assess the actual location and distribution of the estimated 25,000 + people, their patterns of travel, marketing, how they relate to other villages and towns, etc., before deciding that a Type C1 is needed only because it is a delegation seat. The population is very dispersed here. There is public transportation along main roads to Gafsa City, (45 Km away), Feriana (25 Km away) and Kasserine City (60 km away). Also a railroad track with a station is located in the town. How people use public transportation and for what purposes needs to be included in the analysis.

2. GAFSA GOVERNORATE

a. EL GUETTAR/ TYPE C renovation

-The existing facilities in El Guettar includes a small, old dispensary located several blocks away from the PMI and unoccupied maternity, which are on adjacent sites.

-A preliminary approach to solving the building use problem through renovation and expansion is as follows:

Renovate the existing dispensary for nurse housing even though the lodging is not close to the existing facilities. Add new lodging for physician, next to the existing mid-wife house behind the existing PMI. Demolish the compound wall currently dividing the PMI site from the new "maternitee" site to free up the space for in-fill construction. Minor renovations only to the "PMI" to house integrated outpatient services.

Minor modifications to the new "maternitee" include adding showers for patients and relocating labor and delivery into the section that currently is a mid-wife residence. (to the left of entry) assuming that this new facility will house maternity patients. This would be done by expanding to the immediate right of the existing "maternitee" with new construction for housing male and female hospital beds, kitchen, storage and support. With new construction, an "in-fill" facility could be provided between the "PMI" and the new "Maternitee" to house laboratory, x-ray, subwaiting, and support.

-This existing inventory of buildings poses complex problems. Through very careful and imaginative design, they can be modified to accommodate the Type C1 program. Understanding the intent of the Type C1 program is essential in the design process for El Guettar. Circulation between and within the existing buildings and additions will be a critical problem to solve. Functional efficiency, e.g., proximity of certain functions, understanding staff functions as well as the range of services to be provided are interrelated factors affecting the design. The now separate and dissimilar buildings need to be related aesthetically (appearance) as well as functionally. El Guettar poses a unique design challenge.

D. Preliminary Capital Budget

The precise mix of Types A and C centers, the balance between renovation and new construction, how much lodging, the need for vehicles, as well as the requirement for additional funds (if any) to complete Siliana and Sidi Bouzid renovations will be progressively refined over the coming months.

E. Assumptions Behind Illustrative Capital Costs

1. Assume Type A1 and C1 only--same building types used in Siliana and Sidi Bouzid construction. Although discussion at the MOH indicates some modification may occur to the basic health center model, it is premature at this time to speculate what these changes may be. Only after the current model is evaluated should the revisions occur.
2. To determine a range for the unit cost per square meter, use the highest bid per each type plus A.E.U.D.'s final cost estimates as a way of accommodating the "slump" in the construction industry at the time bids were let.
3. Use 140-150 TD/m² as a check. (the World Bank project is using 146 TD/m² as the unit cost figure. Cost figures (July 17, 1980) based on the above assumptions for capital budget components are as follows:

1. Type C1 new construction

Final detailed cost estimate by A.E.U.D.

prepared 11/78: 145,000 T.D.

High bid (1979) 105.347 T.D.

Low bid 91.800 T.D.

World Bank using 146 td/M² - 150,380 T.D.

1030 M² x 146

Therefore, round off at 150,000 T.D. for Type C1 without new lodging.

Type C1 with new physician and mid-wife lodging

add 10,000 D.T. x2 = 20,000

2. Type C renovation - expansion

Use 1/2 of 150,00 T.D., the estimate for new construction = 75,000 T.D.

3. Type A1 new construction

Final A.E.U.D. cost estimate prepared 11/78:

High bid (1979) :	27,000 DT
Low bid (1979) :	21.200 DT
World Bank's 146 TD/M2	17.200 DT
180 M2 x 146 =	26.280 TD
(this is high)	

Type A1 will have a lower unit cost/square meter as bids demonstrated. Suggest using 125 T.D. /M2 or 1250 x 180 M2 - 22,500 T.D.

4. Type A1 renovation - expansion

Use 1/2 of 22,500 T.D. = 11.250

5. Lodging for Medical Student Interns

Assume 1 dormitory - type facility per governorate; provide place for 4 students to sleep, eat, study, bathe etc.

100 M2 x 100 T.D. = 10,000 T.D. each
4 governorates x 10,000 T.D. - 40,000

6. Lodging for physician or mid-wife

new construction: 10,000 @
(100 M2 x 10 T.D.)

renovation of existing: 5,000 @
(dispensary assumed to be + 100 M2 at
50 T.D. /M2 for unit cost)

7. Nurses lodging

new construction: 5,000 T.D.
renovation of an existing
Salle de soins 2,500 T.D.

8. Vehicles: 5 total @ 9,180 TD 1/

Assume 1 / governorate and 1 additional for expanded TA team.

9. Equipment and Furnishings

Medical Equipment bids will be received by the MOH by the end of July 1980. Use those figures, adjusting and relining totals.

1/ World Bank estimate (1980 prices) for Land Rover with GOT import tariffs.

ILLUSTRATIVE CAPITAL BUDGET ESTIMATES

	<u>TD(000)</u>	<u>US \$(000)</u> at 1TD=\$2.50
<u>Type C1 - New</u>		
No sites recommended by team ^{1/}		
<u>Type C1 - Renovations/Expansions</u>	225	562
-Thala		
-El Guittar 3 X 75,000 TD		
-Feriana		
<u>Type A with Beds - New</u>	55 ^{2/}	137
-Foussana ^{1/}		
<u>Type A1 - New</u>	428	1070
- Kasserine 13 19 X 22,500 TD		
- Gafsa 6		
<u>Intern Lodging</u>	40	100
- 4 dormitories X 10,000 TD		
<u>Physician/Nurses Lodging</u>	89 ^{3/}	200
- Physician - at 3 type C1 (30,000 TD)		
- Nurses: Kasserine 5		
Gafsa 5 10 X 5,000 TD		
<u>Vehicles</u>	46	115
- 5 Land Rovers X 9,180 TD		
<u>Equipment & Furnishings</u>	220	550
- 3 Type C1		
-20 Type A1		
- 4 Dormitories		
	<u>(1094)</u>	<u>(2735)</u>
<u>Contingency (10 %)</u>	109	274
<u>Inflation (20 %)</u>	218	547
	<u> </u>	<u> </u>
TOTAL	<u>TD 1421</u>	<u>\$ 3556</u>

FOOTNOTES TO ILLUSTRATIVE CAPITAL BUDGET:

1/ Foussana and Majel Ben Abbes in Kasserine Gouvernorat have been recommended by the MOPH for new Type C1 centers. From a preliminary review, the team feels Type A1 centers are more appropriate at this time. Foussana may warrant a modification of Type A1 to add some beds. Such an approach will allow for expansion of the centers to C1s at some future time if population needs warrant.

2/ This is a very rough estimate based on an expansion of Type A1 and physician lodging.

3/ Assumes all new lodgings. In some cases renovations may be appropriate which would allow for more lodgings since renovations are estimated to cost approximately half of new.

IV. ISSUES:

A. CTDA:

The respective roles and relationships of the MOPH and CTDA have not been clearly defined as yet. As suggested in other parts of this report, particularly related to facility planning, CTDA involvement is important. The MOPH and CTDA appear to have a cordial relationship and both are aware of the basic nature of the other's project activities related to A.I.D. For example, the CTDA sent a representative to Tunis to attend a presentation of team recommendations to the Ministry. Likewise, the Ministry assured that CTDA was the first to be aware of the team's 2 visits to central Tunisia; meetings were scheduled by the MOPH with CTDA on both occasions.

However, MOPH staff in the region did not seem aware of CTDA plans for the area in regard to agricultural development, electrification, roads, etc. From brief observation of the team, CTDA appeared to want the MOPH to take the lead in providing health related services, but we could see no attempt to fit such services into a total package of development plans for the area (with the exception of the desire to have a new health center built in every new delegation seat).

The technical team emphasized to the MOPH the importance of incorporating rural development plans into health facility planning for the region. Such plans extend further than just the "politics" of new regroupment areas, to understanding which areas are really expected to grow, which are receiving the services that are most likely to make them grow, etc.

The groundwork for such collaboration is in place. We suggest the relationship not be forced. But as plans are developed for health services and facilities in central Tunisia the MOPH must assure CTDA is involved in the decision making process in a very substantive way. At the same time CTDA must be encouraged to keep the MOPH abreast of all development plans for the region to assure scarce health facility resources are properly coordinated. USAID and the U.S. technical assistance team could play a role in this relationship. If a facilities planning committee is developed, CTDA should be a member.

B. ONPFP:

Coordination between the central MOPH and the ONPFP on the RCH project has been very limited. In the field, closer coordination is obvious because the same physical facilities are used and the mobile teams often work jointly due to lack of sufficient vehicles or fuel. However, as the project moves into retraining workers, experimenting with traditional birth attendants and increasing or redesigning facility plans, it becomes essential that regular and official coordination take place. The MOPH should be encouraged to take every opportunity to include the ONPFP in project planning, to draw on their resources for training and to include ONPFP in evaluations, project meetings and groups, such as the facility planning committee.

C. Impact on GOT Resources

1. Manpower

An improved and expanded primary care delivery system requires additional and properly trained personnel to keep it functioning efficiently and effectively. This is not only true for the primary (i.e. community) level but for the secondary and tertiary levels as well. If the first tier of the basic health service delivery system is operating effectively and utilization is high, it follows that referrals to the higher (more technically sophisticated) levels of the service chain increase. Thus, as the entire system is more heavily utilized the demand on, and need for, trained health manpower increases; this is true for all categories of medical and paramedical personnel.

We have undertaken an analysis of the effect of an expanded primary health care system on manpower levels in Siliana, Sidi Bouzid, Kasserine and Gafsa. In general the numbers of existing personnel are nearly adequate to meet the essential staffing requirements of an expanded and improved primary care system. Potential problem areas are summarized below:

- There will be a sharp increase in the number of technicians for the new laboratories and x-ray machines of the Type C (circonscription hospitals) facilities. Training at the paramedical schools that normally supply central Tunisia is insufficient to meet anticipated need;
- Overtime as the coverage and quality of the outreach system improves, the need for physicians will more than double. The number of medical school graduates are great enough to cover anticipated need. A stronger effort will have to be made by the GOT to attract Tunisian physicians to central Tunisia to (1) meet the increased demand for services and (2) replace expatriate personnel;
- Training requirements for midwives may be too rigorous. Current yearly output will not be great enough to meet anticipated increased demand from an improved primary care delivery system. In central Tunisia alone, the need for midwives over a period of time could triple;

- Current numbers of nursing graduates appear to be sufficient to meet the initial and short term requirements of an expanded/improved system in central Tunisia. Obtaining a more optimal level of staffing in outreach facilities will require more than doubling numbers of nursing personnel in time. This will mean either increasing the number of nursing students in the professional schools or transferring nurses from other areas to work in central Tunisia. Most important, graduates from paramedical schools that supply central Tunisia should not be seconded to other areas where demand for nurses is high (such as Tunis). The provision of lodging for nursing staff under the project extension should also assist in better distribution of staff.
- A potentially serious manpower problem exists in Kasserine Gouvernorat. The need for all categories of medical and paramedical personnel will sharply increase when the new regional hospital opens. This will correspond to a simultaneous increase in demand for personnel in the primary care system as it improves and expands services. The more obvious needs of the regional hospital should not predominate to the detriment of primary care service delivery. The MOPH may want to consider gradually "phasing in" the number of regional hospital beds put into service in order to avoid overtaxing the staffing capability of the health service system.

These conclusions are based on the following analysis, the intent of which is to examine the effect of an expanded primary care system on current levels of health manpower in Siliana, Sidi Bouzid, Kasserine and Gafsa. Much of the criteria and assumptions used in the analysis was adopted from the Design Study II, p.24-27 and 37-42. In the Design Study II, calculations of manpower and facility requirements for Siliana and Sidi Bouzid were done on an expected utilization (by age and sex) basis. From this (1) staffing requirements in terms of projected numbers of patients that could be seen and (2) visits per facility that could be made by paramedical personnel, were calculated.

The present set of calculations to ascertain manpower requirements were done in a somewhat different fashion from the method used in the Design Study II. Taking two sets of staffing plans, an initial plan that is the minimum requirement needed to keep the system in operation and a future plan that is more optimal -- a lower patient to health worker ratio (see Tables A,B,C Annex D for the specification of these plans), and setting that against the network of existing and proposed health facilities projected to be established in each gouvernorat by the end of the project,^{1/} manpower requirements of the system were calculated.

Table 3 on the following page summarizes numbers of existing health manpower and compares that with the initial and future requirements for the four categories of medical and paramedical personnel.

^{1/} See Tables E, F, and G in Annex D for proposed health facility networks. Facilities proposed for renovations, replacement or construction in Kasserine and Gafsa are tentative.

Table 3

Health Manpower Requirements in Central Tunisia

	SILIANA			SIDI BOUZID			KASSERINE			GAFSA			TOTAL		
	E	IR	FR	E	IR	FR	E	IR	FR	E	IR	FR	E	IR	FR
TOTAL REQUIREMENTS* (includes regional Hosps.)															
1. <u>Physicians</u> (includes general and specialized in the public health service only)	10	8	19	8	9	22	19	32	43	15	19	24	52	68	108
2. <u>Nurses</u> (includes general and specialized; excludes superior technicians)	42	24	48	60	28	56	71	133	191	90	86	118	263	329	413
3. <u>Midwives</u> (includes paramedical and superior technicians)	10	8	22	13	9	25	16	24	39	12	13	19	51	54	105
4. <u>Technicians</u> (includes X-ray, lab & Pharmacy)	3	12	18	4	14	21	10	23	31	11	13	15	28	62	85
REQUIREMENTS FOR PRIMARY CARE SYSTEM**															
1. Physicians							7	9	20	4	4	9	29	30	70
2. Nurses							---SAME AS ABOVE---			41	58	116	20	24	48
3. Midwives							8	9	24	3	4	10	34	30	81
4. Technicians							0	8	12	0	4	6	7	38	57

KEY: E = Existing
IR = Initial Requirement (This includes Existing Staff)
FR = Future Requirement to Optimize System Over Next 5 Years

* Does not include Service d'Hygiene

** Types A, B and C only; does not include the large Regional Hospitals in Kasserine and Gafsa

Sources: Tables 4 and 5 (following) and table 2. Data extrapolated (particularly for Gafsa and Kasserine Regional Hospital staff) from (1) The 1979 Annual Reports, Gafsa and Kasserine Governorates; (2) Existing Infrastructure (see Annex A) and MOH statistical data in: Rapport Sur Les Realisations Au Cours de La 2eme Decennie (1971-1980) Et du Veme Plan (1977-1 81) Annex Statistiques, Juin 1980, Ministere de la Sante Publique. Calculations of need based on Tables A-F from Design Study II and Table G (Existing and Hypothetically Planned Facilities - Kasserine and Gafsa).

Table 4

Calculation of Health Manpower Requirements
Sillana & Sidi Bouzid

	INITIAL		FUTURE	
	Sillana	Sidi Bouzid	Sillana	Sidi Bouzid
1. AMBULATORY				
<u>Type A</u>				
1. No. of facilities	28	33	28	33
2. No. of Physicians' visit/week	28	33	28 - 84	33 - 99
3. No. of midwives' visit/week	28	33	56 - 84	66 - 99
<u>Type B</u>				
1. No. of facilities	1	1	1	1
2. No. of physicians' visit/week	1	1	2 - 4	2 - 4
3. No. of midwives' visit/week	3	3	5	5
<u>Type C</u>				
1. No. of facilities	6	7	6	7
2. No. of physicians' visit/week	18	21	18	21
3. No. of midwives' visit/week	18	21	18	21
<u>Total No. of Visits</u>				
1. Physicians	47	55	48 - 106	56 - 124
2. Midwives	49	57	79 - 107	92 - 125
<u>Total No. Ambulatory Manpower Required</u>				
1. Physicians	8	9	8 - 18	9 - 21
2. Midwives	8	9	13 - 18	15 - 21
11. FULL TIME RESIDENT (Stationary)				
<u>Type A1</u>				
Front-line / nurse	28	33	56	66
<u>Type B</u>				
1. Front-line / nurse	1	1	2	2
2. Midwife assistants	1	1	1	1
<u>Type C</u>				
1. Front-line / nurse	24	28	48	56
2. Midwives	-	-	6	7
3. Physicians	-	-	6	7
4. Lab Technicians	3	3.5	6	7
5. X-ray technicians	3	3.5	6	7
6. Pharm. technicians	6	7	6	7
111. TOTAL NO. (Average) OF RESIDENTS AND AMBULATORY				
1. Front-line / nurse	24	28	48	56
2. Midwife assistants	1	1	1	1
3. Midwives	8	9	22	25
4. Physicians	8	9	19	22
5. Lab Technicians	3	3.5	6	7
6. X-ray Technicians	3	3.5	6	7
7. Pharm. Technicians	6	7	6	7

Assumptions: 1. Based on Tables A - F (in Annex) from Design Study II
 2. One visit (or block in Design Study II) is 4 hours
 3. Physicians and midwives can do 6 visits per week, maximum

Table 5

Calculation of Health Manpower Requirements
Kasserine and Gafsa

	INITIAL		FUTURE	
	Kasserine	Gafsa	Kasserine	Gafsa
I. AMBULATORY				
<u>Type A 1</u>				
1. No. of Facilities	42	16	42	16
2. No. of Physicians' visit/week	42	16	42 - 126	16 - 48
3. No. of Midwives' visit/week	42	16	84 - 126	32 - 48
<u>Type C</u>				
1. No. of Facilities	4	2	4	2
2. No. of Physicians' visit/week	12	6	12	6
3. No. of Midwives' visit/week	12	6	12	6
<u>Total No. of Visits</u>				
1. Physicians	54	22	54 - 138	38 - 54
2. Midwives	54	22	96 - 138	38 - 54
II. TOTAL NO. AMBULATORY MAN- POWER REQUIRED				
1. Physicians	9	4	9 - 23	4 - 9
2. Midwives	9	4	16 - 23	6 - 9
III. FULL TIME RESIDENT (Stationary)				
<u>Type A 1</u>				
1. Front line /nurses	42	16	84	32
<u>Type C</u>				
1. Front-line/nurses	16	8	32	16
2. Physicians	-	-	4	16
3. Midwives	-	-	4	2
4. Lab Technicians	2	1	4	2
5. X-ray Technicians	2	1	4	2
6. Pharm. Technicians	4	2	4	2
<u>Regional Hospital (1)</u>				
1. Physicians	23	15	23	15
2. Nurses (general and specialized)	75	70	75	70
3. Technicians (labs, X-ray, etc.)	15	9	15	9
4. Midwives	15	9	15	9
IV. TOTAL NO. (Coverage) OF RESIDENTS AND AMBULATORY				
1. Nurses (frontline and regular)	133	86	191	118
2. Physicians	32	19	43	24
3. Midwives	24	13	39	19
4. Technicians	23	13	31	15

(1) Assume estimated medical personnel at current 60 bed hospital in Kasserine expands 2.5 times, technicians 1.5 time for new 160 bed hospital which opens in 1981.

(Current personnel and initial/future requirements of the Service d'Hygiene are not included in the analysis since the teams are in place for the most part, and at present, additional requirements are not known.) Tables 4 and 5 are the worksheets from which initial and future manpower requirements are calculated. Note that there are two types of personnel considered, ambulatory and stationary. Also note that manpower calculations for Gafsa include the personnel of its relatively large (approximately 200 bed) regional hospital and for Kasserine, the new 160 bed regional hospital scheduled to open during 1981 (currently a 60 bed hospital is in operation). Regional hospital staffs in Siliana and Sidi Bouzid, about the size of a Type C, are also included.

a) Siliana and Sidi Bouzid

According to Table 3, with the exception of technicians (x-ray, pharmacy, laboratory) existing manpower appears to be sufficient in both Siliana and Sidi Bouzid to cover initial minimal requirements. The existing number of physicians in Sidi Bouzid (8) may pose a problem however. In 1977, the Design Study II indicated that most physicians (6 out of 7) in government service were found in Sidi Bouzid City. The report recommended that some redistribution take place and that overtime 3 additional physicians be recruited for the governorat. It is not clear that since 1977, this distribution problem has improved; additional physicians may be required.

If numbers of full time stationary personnel and ambulatory visits to facilities are increased sometime in the future to provide better coverage, the picture is not as favorable. Existing numbers of nurses will be adequate to meet the future need, however the numbers of midwives and physicians required to staff the system will roughly double, far outstripping present capacity. For both future and initial requirements, the number of existing technicians is insufficient. This could pose a real problem once circonscription hospitals (Type Cs) are provided with laboratory and x-ray equipment. Currently, only the regional hospitals have this capacity.

b) Kasserine and Gafsa

In Kasserine, (excluding the projected requirements of the new regional hospital) existing numbers of personnel staffing the outlying circonscription hospitals, Salles de soins, and dispensaries are nearly adequate to meet the initial (minimal) requirements of the proposed system but inadequate to meet projected future demands as coverage improves. The most serious problem will be shortages of nurses, midwives and technicians.

Including the projections of staff requirements for the new regional hospital magnifies the problem; acute shortages are in evidence (both initially and in the future) when compared to numbers of existing health personnel.

It can reasonably be assumed that the staffing requirements of the new hospital will be more easily met by the GOT as needs of larger hospitals are more pressingly obvious. However such action could have ominous implications for the primary care system. As discussed in Section III, Kasserine government already suffers from a maldistribution of personnel (see Table 2) who are concentrated in the regional hospital located in the gouvernorat capital. The impact of the opening of a new and much larger regional hospital could exacerbate existing inequalities by continuing to absorb additional personnel allocated to the gouvernorat.

Gafsa gouvernorat has some of the same problems but projected shortages for the outreach system will not be as acute, particularly at the outset. However, filling future requirements may be a problem for all categories of health personnel as Gafsa suffers from the same sort of maldistribution described for Kasserine: more than two-thirds of all personnel work in the regional hospital in the gouvernorat capital. Therefore, it is important that in the initial phases of the project, real increases in the allocation of health personnel to Gafsa be made only to the health outreach system (Facility Types A, B and C). Additionally, the availability of housing for health workers in rural areas is likely to influence distribution. On this basis, the proposed project extension includes several lodging facilities.

c) Training rates

Given the limited data available, we have prepared a rough examination of training rates of medical and paramedical personnel and the impact these rates may have on future levels and availability of health manpower in central Tunisia. This is not intended as an indepth trend analysis, but should prove useful to provide a rough idea of the current situation and to signal potential problem areas to the attention of MOPH officials.

The number of general Nursing graduates of the professional schools in Gafsa in 1979 (supplying primarily Kasserine, Gafsa and Sidi Bouzid) and El Kef (supplying, among other gouvernorats, Siliana) totaled roughly 29 and 28 respectively.^{1/} In 1980, the number of second year students expecting to graduate is approximately 27 in Gafsa and 35 in El Kef. There are currently 4 specialized nurses in their first year of training at the El Kef school. There are no specialized nurses studying in Gafsa nor are there nurses in advanced training in either the Gafsa or El Kef schools studying laboratory science and pharmacy preparation.

How does this look when compared to the projected personnel requirements of the expanded and improved primary care system? Take Kasserine as a "worst case" example. To staff health facilities other than the regional hospital, the gouvernorat will need roughly 17 extra nurses to meet the minimum required standard. In the future, Kasserine may need 75 additional nurses to meet a more optimal staffing pattern providing more intense coverage of the population. This is more than double the current yearly output of the Gafsa school.

Including the new regional hospital, Kasserine may need as much as an additional 62 nurses just to meet the initial minimum standard. The Gafsa school will be unable to provide this large number of nurses in the short time span required to keep up with the increased demand of the health delivery system. Nurses

^{1/}

Data are from the MOPH, Rapport Sur l'Evaluation de la Formation des Cadres Au Cour du Ve Plan, Janvier 1980.

already on the MOPH payroll may have to be transferred from other parts of the country in order to meet this estimate of anticipated need. We understand the MOPH now requires that all graduating nurses be initially assigned to their home gouvernorat (a 1980 regulation). The team did not have access to data that would indicate the impact on central Tunisia. It may mean, however, that a recruitment campaign for nursing students conducted in central Tunisia could prove fruitful in increasing future available staff.

With regard to midwifery training, students are now required to receive rather long term and advanced training (5 years after secondary school). The effect of this increased training requirement has been to cut the overall number of graduates which now runs roughly 90 - 100 a year for the entire country. For the purposes of meeting the minimal requirements of an expanded primary care system in central Tunisia, the small yearly output of graduates does not pose too great a problem as the existing number on the MOPH payroll is nearly sufficient to meet initial needs (see Table 3).

However, to meet future requirements, demand will far outstrip the national supply (54 additional will be required for central Tunisia alone). The MOPH may want to consider reducing the level of training for the midwife or consider training traditional birth attendants as a partial substitute in order to meet future need.

The number of physicians graduating from Tunisia Medical Schools totals well over 400 per year. MOPH officials often cite the fact that such a large number is bound to "trickle out" to rural Tunisia as the supply of physicians well exceeds demand in the large cities and the cost of living in urban areas is going up. This "trickle" effect may certainly occur as predicted, although faced with the choice of working in a rural area, the recent graduate may opt for leaving Tunisia altogether. A quick look at the trend of physician placement over a one year period (too small a sample to be significant) is somewhat encouraging (see Table 6). However it is

Table 6
Physicians by Governorats
1978-1979

	MOH			PRIVATE			TOTAL			TUNISIAN		EXPATRIATES		POPULATION		POP/PHYSICIAN		
	1/78	1/79	Δ	1/78	1/79	Δ	1/78	1/79	Δ	1/78	1/79*	1/78	1/79*	77	12/78	77	12/78	Δ
Kasserine	17	18	+ 1	2	1	-1	19	21	+ 2	5	5	14	13	230,328	235,106	13,175	11,195	-1,980
Silliana	9	10	+ 1	1	3	+2	10	11	+ 1	2	2	8	8	196,539	193,506	19,654	18,046	-1,608
Sidi Bouzid	9	8	- 1	2	2	NC	11	10	- 1	2	2	9	6	228,811	256,462	20,801	25,646	+4,845
Tunis	526	488	-38	171	211	40	697	699	+ 2	611	405	86	75	1.03M	1.03M	1,483	1,483	NC
Zaghouan	11	11	NC	7	5	-2	18	16	- 2	12	6	6	5	214,220	219,383	11,901	13,711	+1,810
Bizerte	72	62	-10	17	21	4	89	83	- 6	36	19	53	41	356,543	363,139	4,006	4,375	+ 369
Nabeul	57	65	+ 8	17	13	-4	74	78	+ 4	43	40	31	23	392,049	404,596	4,298	5,187	+ 889
Sousse	93	98	+ 5	27	28	+1	120	126	+ 6	85	62	35	36	268,534	275,785	2,238	2,188	- 50
Monastir	37	41	+ 4	5	9	+4	42	50	+ 8	13	15	29	26	236,051	242,778	5,620	4,855	- 765
Medina	16	18	+ 2	1	4	+3	17	22	+ 5	2	3	15	15	234,890	235,133	13,817	10,687	-3,130
Karlowan	32	33	+ 1	5	3	-2	37	36	- 1	13	8	24	25	355,057	364,723	9,596	10,131	+ 535
Sfax	74	86	+12	30	33	+3	104	119	+15	67	51	37	35	495,518	506,172	4,765	4,253	- 512
Gabes	38	37	- 1	8	9	+1	46	46	NC	17	6	29	29	275,768	274,333	5,995	5,963	- 32
Medenine	27	33	+ 6	14	14	NC	41	47	+ 6	24	12	17	21	304,506	310,445	7,427	6,605	- 822
Gafsa	10	16	+ 6	1	2	+1	11	18	+ 7	7	6	24	28	249,056	253,964	8,034	6,683	-1,351
Jendouba	21	27	+ 6	7	5	-2	28	32	+ 4	11	3	17	24	309,064	313,855	11,038	9,807	-1,231
Le Kef	28	33	+ 5	6	7	+1	34	40	+ 6	10	6	24	26	245,798	242,366	7,229	6,059	-1,170
Beja	22	26	+ 4	11	11	NC	33	37	+ 4	17	11	16	15	255,733	259,289	7,749	7,007	- 742
TOTAL	1,119	1,130		332	301		1,451	1,511		977	474	451		5.9M	5.99M	4,067	3,966	- 101

NOTE: * Includes only those practicing in the public (i.e. under the MOH) sector

NC = No change
Δ = Change
M = Million

Source: Office of Planning and Statistics, Ministry of Public Health

significant (and discouraging) that expatriate physicians overwhelmingly outnumber Tunisian in central Tunisia, a phenomenon the MOPH is attempting to reverse.

With regard to the initial requirements of the expanded basic health delivery system, there are sufficient numbers of physicians already in place. Over time, the requirement will roughly double. This need could easily be met by new graduates from the medical faculties. In Kasserine, however there will be an immediate and pressing need for additional physicians once the new regional hospital opens. As with the midwives, care must be taken that new graduates assigned to the gouvernorat will not completely be absorbed by the new hospital. Otherwise, health manpower needs of the outreach system will not be met and the quality of medical care provided in rural areas will suffer.

d) Summary

As stated earlier, in general the numbers of existing personnel are nearly adequate to meet the minimal staffing requirements of an expanded and improved primary care system although there are potential problems particularly related to the availability of midwives and to distribution of all personnel within the gouvernorats.

Finally, it is important to recognize that the demand for medical and paramedical nationwide should sharply increase over the next five years. In addition to the increased activity in central Tunisia, the World Bank project slated for implementation in eight gouvernorats is expected to place an additional demand for health manpower. Fortunately the eight gouvernorats in the World Bank project area appear to be more heavily endowed with medical and paramedical personnel than central Tunisia. This should help ease demand at the outset and keep any increase in need for additional personnel at a more manageable rate.

To avoid overburdening the system, the MOPH should be sensitive to these potential problem areas and prepared to respond to increases in demand for health manpower as the primary care system improves and expands.

2. Budget and Finance

The MOPH is cognizant of its limited budgetary resources (particularly foreign exchange) and is attempting to redress inequities in the health service delivery system through more cost-effective programming and a reallocation of resources.

To get an understanding of the existing MOPH system of budget and finance, a brief overview is outlined below. Following is a discussion of incremental expenditure associated with AID-financed project activity in the health sector and the impact of additional expenditure on the MOPH's budget. In addition, an overview is given of recent events effecting the MOPH's finance and budgetary management that could influence the direction and level of future resource flows in the health sector.

The GOT's annual budget is divided into three categories:

Title I - The functional or operating Budget (personnel, supplies, materials, some transport related expenditure), administered by the Ministry of Finance;

Title II - The investment or Capital Budget (construction, renovation, new equipment, equipment replacement, special programs - includes vaccination programs and health education campaigns) administered by the Ministry of Plan;

Title III - The corrections budget (not necessarily an annual occurrence).

a) Budgetary Process

The budgetary process of the MOPH involves the Director of the Office of Planning and Statistics along with the Directors and Administrators of the Institutes and the University and Regional Hospitals. To draw up the next year's budget, a negotiating process begins between the Planning Office and the various Directors; next year's estimated requirements are based on last year's budgetary allocation. Since information on program and facility costs as well as potential consumer demand for services (based on morbidity data) is not available, only a rough idea of what estimated requirements might be exists.

According to the Director of Planning, the recurrent budgets drawn up on the gouvernorat level (Title I) are badly done. Instructional information has been distributed to Administrators in order to improve the quality of the estimate and standardize budgetary procedures. In addition, in order to properly justify budgetary requirements and prioritize need, the Office of Planning is in the process of setting up the capacity for ascertaining, (1) trends in morbidity and mortality by province, and (2) costs of operating health facilities (especially dispensaries and Salles de soins.

Once the MOPH has put together provisional recurrent and investment budget requirements for the upcoming year, negotiations begin with the Ministry of Finance and Plan. The Director of Finance is responsible for the Title I budget (planning, expenditure and disbursement) and the Director of Plan for the Title II (planning and disbursement). Budget increases for all sectors are strictly set by the Prime Minister's Council which has final approval. Due to the GOT's severe foreign exchange constraint, allocations for the Title II (investment) budget are especially strict and increases difficult to get. Priorities for development investment closely follow those indicated in the GOT's National Five Year Development Plans.

With regard to investment in health sector development activities, the governor's office in each gouvernorat may play an important role. The governor's office is responsible for the development and execution of the of the Rural Development Budget which falls under the jurisdiction of the Ministry of Interior. Health centers and small rural hospitals are often built with Rural Development Money, but only with the express approval of the MOPH. In one case, by relying on volunteered local labor and obtaining construction materials at cost, the governor's office was able to finance the construction of a Type C in Es Sened City (Gafsa Gouvernorat) at roughly 30,000 TD (\$75,000) less than the normal market price.

With the exception of personnel which are paid directly by the Central Ministry, disbursements for Title I funds are the direct responsibility of the gouvernorat.

As part of the MOPH's efforts to decentralize its financial and budgetary operations, the regional and circonscription hospitals in each gouvernorat have their own budgets. Those budgets include allocations for the operations of dispensaries and Salle de soins located in the outlying areas of each circonscription. Eventually every circonscription hospital will have a medical director/administrator who will oversee disbursement for the circonscription. Currently, however, shortages of managerial personnel prevent this from becoming a reality and the regional hospital administrator usually maintains a great deal of control over disbursements (this includes payments for rents, utilizes, transport and equipment maintenance and supplies; drugs are channeled through the regional hospital's central pharmacy). Funds for the Service d'Hygiene are included in the budget of the regional hospital and are the primary responsibility of the regional administrator.

Because the administrator does have a great deal of control over disbursements, this often means the regional hospital will monopolize funds and commodities (particularly drugs and vehicles). For example, if a conflict of need arises between the regional hospital and the Service d'Hygiene, the former gets first priority to the detriment of the latter. The same can be said of the relationship between the regional and circonscription hospitals and the dispensaries and Salles de soins contained within their budgets; hospital needs take first priority. This bias is indicative of the entire health delivery system; in 1979 Institutes and University and regional hospitals located in urban areas absorbed 74 percent of the total Title I budget.

Unfortunately, a complete picture of the allocations for recurrent expenditure gouvernorat cannot be learned from the budget as not all expenditure is covered by the gouvernorat's regional and circonscription hospitals.^{1/} As mentioned earlier, personnel are now paid directly by the Central Ministry. In addition some commodities and other miscellaneous expenditure are included under

^{1/} This is the first year that circonscription hospitals have their own budget. Until CY 1980, Title I facility allocations for Salles de soins, dispensaries and circonscription hospitals were included under the budget of the regional hospital.

general budgetary line items not broken down by gouvernorat. Nor can it be ascertained with any precision what percentage of funds are absorbed by the various health service facilities located in rural and urban areas.

b) Budgetary Implications of RCH Project Inputs

Due to the difficulty in tracing budgetary allocations and the fact that the RCH project is not scheduled for start-up until October 1980, a comprehensive budgetary analysis of the impact of incremental expenditures from project implementation in Siliana and Sidi Bouzid and the impact of extending this activity into Kasserine and Gafsa is not possible. An update, however, of budgetary allocations to Siliana and Sidi Bouzid gouvernorats since the economic and financial analyses were first done in 1977 (see Design Study II, p. 71-78) is in order to get an idea of the commitment of the MOPH to increase allocations to a region deemed most in need. In addition, for illustrative purposes, rough calculations of what the project recurrent costs might be in Kasserine at the end of the project vis a vis estimated MOPH allocations to the gouvernorat would prove useful to ascertain what the future availability of funds might be to cover the costs of an expanding outreach system.

Using 1976 budget data, the Design Study II Report concluded that the recurrent cost impact of RCH project activity on the area's budget was reasonable. To meet planned expenditure, the budget for Siliana and Sidi Bouzid would either have to grow at a real rate of 12.7% per annum to absorb additional operating costs in three years or 7.4% per annum to absorb additional costs in five years.

To get a rough idea of the trend in the overall (MOPH) health sector budget as well as Siliana and Sidi Bouzid's health budgets since that time, an examination of the MOPH recurrent budget indicates a growth rate of approximately 10% per annum since 1976 (at constant 1976 prices) 1/. In addition, the health sector's share of the national budget has remained fairly constant at 8%. This is well above the average for developing countries which is around 5%. Crudely estimating Siliana and Sidi Bouzid gouvernorat budgets using the Design Study II methodology 2/, indicates a per annum growth rate of roughly

1/ Please refer to Annex D, Table H, for the MOPH Title I budget.

2/ That is, inflating the regional hospital budget by 125% to account for allocations out-side of this line item.

11% from 1976 to 1979 (at constant 1976 prices). Of course, it must be remembered that it cannot be ascertained where the increased budgetary allocations were spent (i.e., rural vs. urban health services, curative vs. preventive, etc.). But in any case, increased allocations are evidence of GOT commitment towards improving the health services in central Tunisia. Additional budget allowances to Siliāna and Sidi Bouzid are above the mid-range of what was estimated to be needed in order to meet projected incremental project expenditure.

To crudely estimate the impact of project expenditure on Kasserine Gouvernorat's Title I budget, rough calculations of personnel and commodity costs were made (see Table 7). Projected salaries are based on the personnel information in Table 3. Since data on projected increased commodity usage from an expanded primary care system currently are not available, the recurrent costs of commodity inputs (maintenance, drugs, supplies, equipment replacement, etc.) were guesstimated at 20 percent of the total cost of salaries. Operating costs of the Service d'Hygiene, inflation and contingencies were not included. Kasserine Gouvernorat budget data are found in Table I of Annex A.^{1/}

At 679,200 TD, the 1979 Title I budget for Kasserine Gouvernorat is sufficient to cover the estimated recurrent costs of an expanded health system that is staffed at a minimum standard (this includes the operating costs of the new 160 bed regional hospital). However, the costs of operating a system that is staffed more optimally (higher personnel to patient ratio) would be 30 percent greater than the (1979) recurrent budget allocation to the gouvernorat. This would imply that real increases (excluding inflation) would have to be made on the order of around 6 percent per year if the recurrent costs of an optimally staffed health system were to be met over a five year period. Given that the MOPH budget has been expanding at a real rate of 8 percent per year, it is not at all unreasonable to expect that these costs will be easily met.

^{1/} These budget figures are incomplete; they consist of allocations made directly to the gouvernorat and do not include other payments that may fall under general MOPH budget items.

Table 7

Yearly Recurrent Cost Estimates for
Kasserine Gouvenorat

(TD)

	SALARIES		
	E	IR	FR
1. Physicians	134520	169791	199635
2. Nurses	142000	229639	467577
3. Midwives	38176	54252	84395
4. Technicians	19900	38276	49605
TOTAL	334596	491958	801212

	Salaries	Commodities	Total
Existing	334596	66919	401515
Initial Reg.	491958	98392	590350
Future Reg.	801212	160242	961454

E = Existing
IR = Initial Requirements
FR = Future Requirements

Assume:

- Existing personnel are paid a mid-range salary (ten years experience) in each personnel category. Incremental personnel, assumed to be new, are therefore paid at the bottom of each categories pay scale.
- Inflation and contingencies are not included.

One important caveat should be mentioned, however. Reflecting the maldistribution of resources already mentioned in the discussion on manpower, budget allocations within Kasserine governorat are decidedly skewed in favor of Kasserine circonscription, the cite of the regional hospital. Containing only 30% of the population, in 1979 this circonscription absorbed 72% of the governorat's budget. Thus, it is crucial that future allocations to Kasserine be distributed more equitably in order to promote a better distribution of health resources throughout the governorat.

c) Events that will influence the direction and magnitude of MOPH resources

Since the Design Study II report, several events and policy changes have occurred that may influence future allocations to the area.

First, the World Bank sponsored project that is adjacent to Siliana gouvemorat will most probably have a significant impact on MOPH allocations for primary care services in rural and urban areas. With an investment cost of around \$16 million, recurrent costs are estimated to be between \$2 to \$3 million per year. To avoid competing for GOT resources (e.g., personnel, fuel, supplies, etc.) and straining the absorptive capacity of the area, it is crucial that coordination of donor efforts occur.

Secondly, the MOPH has recognized the importance of being able to account for program and facility operation costs and important budgetary revisions have been proposed. In January 1980, the MOPH removed all personnel expenditures from hospital budgets and shifted them to the budget for central administration. Eventually, an administrative capability will be established at the (health) regional level to take charge of the responsibility for determining budgetary requirements and making all (including personnel) payments. Requirements for the primary system will be kept separate from the hospitals. Budgetary line items are proposed to be broken down by facility (i.e., salle de soins, dispensary, etc.) and the capacity to do so will be developed over the next few years through an improved management information and medical records system. The direction of expenditure as well as the efficiency with which allocations are used can then be more readily obtained and used to reinforce and strengthen management/administration capability. In

addition, requests from the regions for increased budgetary allocations can be based on evidence rather than on the estimation.

Third, the MOPH realizes that the financing of health care (described below) is an important issue. The Office of Planning and Statistics is currently studying the financial base of the MOPH. Important revisions to increase services are being considered and include the following:

- Revising the criteria for indigent status (equivalent to medicaide) to make it more rigorous and selective. The rationale: abuses of the system are too high; those who can afford to pay for health services should pay;
- Restructuring hospital charges for services upwards to align them with costs;
- Restructuring the reimbursement payment from the National Social Security System (CNSS) which is currently inadequate. Reimbursement is \$10 million per year, however the estimated cost of health services for CNSS users is close to \$35 million.

d) Finance

The financing of health care is done through a variety of means. Most salaried employees are covered by the CNSS (National Social Security System), including government workers. Members of the CNSS are required to utilize the government provided health services that are under the auspices of the MOPH, and are reimbursed for 85 percent of the incurred expenses.

As the demand for private health services has increased, some private employers are being pushed into buying supplemental insurance (semi-private and private), thus creating an alternative to the CNSS and the public health system. Reimbursement under these plans ranges from 85 to 100 percent of consumer expenditure. In addition, increasingly significant out-of-pocket payments are being made for health services in the private sector.

Other modes of health services financing through special programs include: (1) the Caisse Franco-Tunisienne, a reciprocal agreement established with the French government that provides free care for French employees and their dependents who live in Tunisia and vice versa; (2) special services for the military (which has its own hospital system); (3) public insurance for university students, the national guard and the police; and (4) free services for the urban and rural poor (indigents). With the exception of the military, all are provided health care under the public health service system. Indigents identified by the omda (community leader), must carry a carte de soin (health card) to receive free medical care. The MOPH is not reimbursed by any external source for health service expenditure on indigents; costs are absorbed by the annual budget.

Looking at the source of finance for system users on the dispensary level in Silian Sidi Bouzid and Kasserine provinces, the bulk are indigents at 56.1, 71.5 and 62.5 percent of total consultations respectively. The next largest consumer category include the CNSS members who represent 26.6, 20.6 and 29.1 percent of total consultations at dispensaries in Siliana, Sidi Bouzid and Kasserine provinces respectively.

Those who pay out-of-pocket make up 1.0 percent of consultations in Siliana, 1.2 percent in Sidi Bouzid and 0.9 percent in Kasserine. ^{1/} The rest, who represent a minor percentage of the total, fall into other categories.

^{1/}
MOPH, Sur l'Activitie des Dispensaires Durant le 3eme Trimestre 1978, (October 1979).

EXISTING INFRASTRUCTURE: KASSERINE AND GAFSA (1)I. KASSERINE (1)A. Kasserine Delegation: Pop 58,700

1. Personnel (2)

a. Medical:

2	surgical doctors
1	hygienist doctor
1	school health doctor
2	pediatricians
1	OB/GYN
1	doctor (internal medicine)
1	microbiologist
4	doctors (generalists)
1	dental surgeon
<u>14</u>	total

b. Paramedical and auxiliaries:

2	anestheology techs
4	nurse specialists
8	midwives
3	X-ray techs
5	lab techs
2	pharmacy techs
32	nurses (general)
49	public health auxiliaries
41	workers
<u>114</u>	total

c. Administrative:
14 (administrators and economes)

(1)
Data presented (1979) are broken down into 5 delegations although there are now 8 (3 delegations were divided in half). Those delegation recently divided are indicated by 2 delegation names.

(2)
Personnel are not broken down in government statistics by facility. Salle de soin and dispensary personnel are included in staff listings of the 4 circonscription are
1 regional hospitals.

(3) Sources: 1. Annual Report (1979) for Kasserine and Gafsa Gouvernorats, Office of the Regional Administrators.
2. Service d'Hygiene, Regional Surveillants, Kasserine and Gafsa Gouvernorats.
3. GOT, National Population Census (1975).
4. On-site field visits to Kasserine and Gafsa Gouvernorats (July 3-8 and 14-15, 1980) .

- d. Service d'Hygiene:
 - 5 nurse hygienists
 - 7 public health auxiliaries(1)
 - 12 workers
 - 24 total

Note: Midwife based in Kasserine City joins hygiene equipe mobiles to provide family planning services and education.

- 2. Regional Hospital. + - Kasserine City * - Pop: 25,600
 - a. No. of beds:
 - 21 medical
 - 24 surgical
 - 8 maternity
 - 7 pediatric
 - 60 beds
 - b. No. of admissions (1979): 5,519
 - c. Percent occupancy: 95 (2)
 - d. No. of deaths: 134

Note: New 160 bed hospital under construction. Estimated completion date, 1981.

3. PMI - Kasserine City

(1) Auxiliaries attached to the Service d'Hygiene include sanitary technicians who inspect public places, disinfect wells, provide health education in schools, health facilities, etc. and provide infectious disease follow-ups in the community on cases that come into dispensaries for treatment.

(2) Unclear how occupancy rates are determined. A small sample of on-site observations indicates calculated rates may be too high.

+ Indicates a facility visited by the design team

* Indicates delegation seat

4. Dispensaries (5)
 - a. Dispensaire Cité Ennour
 - b. Dispensaire Cité Ezzouhour
 - c. Dispensaire Bouzguem
 - d. Dispensaire Khanguet-Zazia
 - e. Dispensaire Hessy ElFrid

5. Salle de Soins (3)
 - a. Salle de Soins Kamour
 - b. Salle de Soins Deghra
 - c. Salle de Soins Megdoudeche

B. Thala Delegation: Pop 67,000
Foussana Delegation (new): Pop 34,000

1. Personnel
 - a. Medical: 2 doctors (generalist) (1)
 - b. Paramedical:
 - 2 midwives
 - 8 nurses
 - 16 public health auxiliaries
 - 9 workers
 - 35 total
 - c. Administrative: none

(1)
 Doctors spend roughly 1/2 to 1/3 of their staff time giving consultations at dispensaries.

- d. Service d'Hygiene:
- 2 nurse hygienists
 - 2 public health auxiliaries
 - 4 workers
 - 8 Total

Note: Equipe Mobile encountered in field included:

- 1 nurse hygienist
- 1 sanitary aide
- 1 sanitary technician
- 1 assistant sociale (gives family planning messages).

2. Circonscription Hospital + - Thala City * - Pop: 8,000

- a. No. of beds: 24 medical
 5 maternity
 29 Total

b. No of Admissions: 668

c. Percent occupancy: 50

d. No. of deaths: 8

Note: Old hospital, clean but in poor repair, with attached dispensary. No laboratory.

3. PMI+ - Thala City

4. Dispensaries (6)

- | | <u>Delegation</u> |
|--|-------------------|
| a. Dispensaire de Quartier + | (Thala) |
| b. Dispensaire Foussana (1) +
Foussana City* Pop: 3,000 | (Foussana) |
| c. Dispensaire Ouled Ghida | (Foussana) |
| d. Dispensaire Boulaneche | (Thala) |

(1) Although the number of persons living in the city totals only 3,000, there is evidence of a much larger population living in areas surrounding it. The city population has grown fairly rapidly in recent years and appears to be an important commercial center attracting large numbers on market days. Urban planning is in evidence with well laid streets, a great deal of construction, water, electricity, etc. Dispensary staff includes 2 full-time nurses and 1 doctor and 1 additional nurse 5 time per week. Consultations average around 80/day when doctor is in. The family planning equipe mobile visits 1 time /week, the equipe hygiene 2 times per week.

- e. Dispensaire Haidea (Thala)
- f. Dispensaire Bouderies (Foussana)
- 5. Salle De Soins (5 -open, 2 -closed)
 - a. Salle de Soins Khemouda + (Foussana)
 - b. Salle de Soins Henchir Sahraoui (Foussana)
 - c. Salle de Soins Sidi Shil (Thala)
 - d. Salle de Soins M'Kimen (Thala)
 - e. Salle de Soins Tbagua (Thala)
 - f. Salle de Soins Lajred (closed) (Thala)
 - g. Salle de Soins Chaker (closed) (not known)
- C. Sbiba Delegation - Pop 27,000
 - Remada/Jedeliane Delegation (new) - 27,000
 - 1. Personnel
 - a. Medical: 1 doctor (generalist) (1)
 - b. Paramedical: 2 midwives
 - 8 nurses
 - 10 public health auxiliaries
 - 4 workers
 - 24 Total
 - c. Administrative: 1 economé
 - d. Service d'Hygiene: 1 nurse hygienist
 - 2 public health auxiliaries
 - 3 workers
 - 6 Total
 - 2. Circonscription Hospital - Sbiba City * Pop 2300
 - a. No. of beds: 22 medical
 - 4 maternity
 - 26 Total

(1) Spends 3 days/week at the hospital, 2 days/week giving consultations at dispensaries.

- b. No. of admissions: 668
- c. Percent occupancy: 82
- d. No. of deaths: 2

Note: Facility was originally built as a P.M.I. and was converted into a hospital. No laboratory.

<u>3. Dispensaries (3)</u>	<u>Delegation</u>
a. Dispensarie de Quartier	(Sbiba)
b. Dispensarie Djedilienne	(Remada)
c. Dispensarie Brahim Zaher	(Sbiba)
<u>4. Salle de Soins (4 open, 2 closed)</u>	
a. Salle de Soins Remada City * (1) Pop 1800 (1975)	(Remada)
b. Salle de Soins El Grine	(Remada)
c. Salle de Soins Ain Zayan	(Sbiba)
d. Salle de Soins H'Madua	(Remada)
e. Salle de Soins Abar Taghout (closed)	(Remada)
f. Salle de Soins El Brik (closed)	(Remada)

D. Sbeitla Delegation - Pop 44,000

1. Personnel

- a. medical: 1 doctor (generalist) (2)
- b. paramedical: 2 midwives

5 nurses

12 public health auxiliaries

9 workers
28 Total

C. Administrative: none

(i) Although Remada village has been named as the new delegation seat of Remada/Djedilieene, it is a regroupment of very small population. New construction stands largely empty, there is no electricity. There appears to be a large number of persons living around the village, but these persons (at present) are not moving into the new housing. Consultations at the Salle de soin which qualifies as a dispensary since it is visited by a physician, remain low, i.e. the average is around 20 when the doctor is in - less than half of that when only the nurse is present.

(2) Doctor spends 3 days/week at the hospital, 2 days/week giving consultations at dispensaries.

55

- d. Service d'Hygiene: 3 nurse hygienists
 - 5 nurses
 - 12 public health auxiliaries
 - 9 workers
 - 29 Total

2. Circonscription Hospital - Sbeitla City * Pop 10,000

- a. No. of beds: 24 medical
 - 6 maternity
 - 30 Total

- b. No. of admissions: 894
- c. Percent occupancy 51
- d. No. of deaths 2

Note: No laboratory

3. P.M.I. - Sbeitla City

4. Dispensaries (3)

- a. Dispensarie de Quartier
- b. Dispensarie Cheraya
- c. Dispensarie El Gonna

5. Salle de Soins (2 open, 1 closed, 1 status unknown)

- a. Salle de Soins Sammama
- b. Salle de Soins Garaa Hamra
- c. Salle de Soins Gallel (closed)
- d. Salle de Soins Rakhmet (closed)
- e. Salle de Soins Machrag El Charns (status unknown)

E. Feriana Delegation - Pop 35,000

Majel Bel Abbes Delegation (new) - Pop 25,000

1. Personnel

a. medical: 1 doctor (generalist) (1)

b. paramedical: 2 midwives

5 nurses

12 public health auxiliaries

4 workers

23 Total

c. Administrative: none

d. Service d'Hygiene: 1 nurse hygienist

1 public health auxiliary

2 workers

6 Total

e. other: 1 Assistant Sociale (2 days/week)

-provides nutrition education at the circonscription hospital.

2. Circonscription Hospital⁺ - Feriana City * Pop. 9000

a. No. of beds: 13 medical

3 maternity

16 Total

b. No. of admissions: 581

c. Percent occupancy 40

d. No. of deaths 2

Note: no separate P.M.I.; was originally designed as a P.M.I. and converted into a hospital. Dispensary being constructed adjacent with Government Rural Development Funds. No laboratory.

(1) Spends 3 days/week at the hospital, 2 days/week giving consultations at dispensaries.

3. <u>Dispensaries</u> (5)	<u>Delegation</u>
a. Dispensarie de Quartier	(Feriana)
b. Dispensarie Bouchebka	(Feriana)
c. Dispensarie Thelepte + (1)	(Feriana)
d. Dispensarie Magel Bel Abbes - Magel Bel Abbes City *, Pop 5100	(Magel Bel Abbes)
e. Dispensarie Bounderies	(Feriana)
4. Salle de Soins (3 -open, 1 -closed)	
a. Salle de Soins Umali	(Feriana)
b. Salle de Soins Skhirat	(Magel Bel Abbes)
c. Salle de Soins Oum Lagsab	(Magel Bel Abbes)
d. Salle de Soins Garaa Naam (closed)	(Feriana)
F. <u>Service d'Hygiene Scheduling</u> (2)	
Equipe Mobiles (Mobile Teams)	
a. PMIs and Urban dispensaries	1-2 x /Week
b. Rural dispensaries:	1-2 x /Month
c. PRs (Points de Rassemblements)	1- x /Month

(1) The new delegation seat of Magel Bel Abbes appears to have a stable and growing population. The dispensary which has the following staff, 1 nurse, 1 nurse's aide, 1 doctor 2 x /week, appears to be under-equipped and under utilized. That is, there is a large patient volume when the doctor is in (average is roughly 80 patients /day and little activity on other days (i.e., average is less than 10 patients /day.) Also due to the good roads and the close proximity of the dispensary to the regional hospital at Gafsa (about 40 Km away) and to the circonscription hospital at Feriana (about 25 Km away), there is every indication the facility is being by passed.

(2) Official schedules/records not available. Was advised by Regional Surviellant.

G. Potable Water Data (1)

1. No. of public wells to improve (i.e. needing caps) :roughly 300
2. No. of public cisterns :roughly 150
3. No. of springs (of which 30 need improvements, such as caps) :roughly 50

G. Vehicles

<u>Delegation</u>	<u>Ambulances</u>	<u>Service Vehicles</u>	<u>Service d'Hygiene (Land Rovers)</u>
Kasserine	3	8	2
Thala	2 -1 Thala 1 Foussana	1	1
Sbiba	1	-	-
Sheitla	1	-	1
Feriana	1	-	1
TOTAL	<u>8</u>	<u>9</u>	<u>5</u>

H. Number of Points de Rassemblements Peripheriques (P.R.S.)

<u>Delegation</u>	<u>No. of Points de Rassemblements Peripheriques</u>
Kasserine	32
Sheitla	57
Feriana (including Majel Bel Abbes)	84
Sbiba	18
Remada (Djedilienne)	31
Thala	63
Foussana	30
Total	<u>315</u>

(1) Official schedules/records not available. Was advised by Regional Surveillant.

10

I. Budget Data (see Table I)

J. Number of Vaccinations Administered (see Table J)

K. Number of Activities in Environmental Health (see Table K)

Table I

Kasserine Province Title I Health Sector
Budget by Circumscription¹

Circumscription	1974			1975			1976			1977			1978			1979			1980		
	P	M	T	P	M	T	P	M	T	P	M	T	P	M	T	P	M	T	P	M	T
KASSERINE	145.3	39.4	184.7	181.6	47.2	228.8	230.6	49.8	280.4	235.7	53.3	289.0	322.9	66.2	389.1	417.8	73.2	491	NA	79.0	NA
SBEITLA	185.5	11.3	298.5	25.5	12.1	37.6	39.1	12.9	52.0	54.6	13.9	48.5	49.2	14.6	63.8	59.7	15.9	75.6	NA	16.6	NA
THALA	9.3	10.9	20.2	11.6	11.7	23.3	17.0	12.4	29.4	15.1	13.4	28.5	26.2	14.1	40.3	31.5	15.5	47.0	NA	17.1	NA
FERIANA	3.9	5.8	9.8	4.7	8.5	11.2	10.1	7.2	17.3	7.9	8.1	16.0	19.5	8.6	28.1	22.8	10.0	32.8	NA	14.0	NA
SBIBA	31.7	8.3	11.5	11.5	4.0	13.2	7.9	10.0	17.9	7.0	11.0	18.0	15.6	11.6	27.2	20.0	12.8	32.8	NA	10.7	NA
TOTAL	180.5	75.7	255.9	227.6	86.7	314.2	304.7	92.3	397.0	300.3	99.7	400.0	433.4	155.1	548.5	551.8	127.4	679.2	NA	137.4	NA

DINARS

^{1/} In '000 dinarsKEY:

1 Dinar = \$2.50

P = Personnel

M = Material

T = Total

NA= Not available

Source: Office of the Regional Hospital Administration, Kasserine Province

Table J

Preventive Medicine in KasserineProvince: Number of Vaccinations Administered

CHOLERA					SMALL POX					RABIES					POLIO					DPT					BCG					TYPE OF VACCINE
74	75	76	77	78	74	75	76	77	78	74	75	76	77	78	74	75	76	77	78	74	75	76	77	78	74	75	76	77	78	YEAR
45	276				3	091				482					49	067				15	312				20	120				Number of Vaccinations
68	788				6	697				443					36	987				6	889				34	576				
60	364				5	843				566					38	949				36	728				51	994				
57	373				8	492				623					46	923				55	469				54	409				
NA					2	928				913					34	425				34	425				11	709				

Source: Office of the Regional Health Administrator, Kasserine Province (1979)

Table K

Preventive Medicine in Kasserine Province: Number
of Activities in Environmental Health¹

Kasserine	Sbeitla	Feriana	Thala	Sbiba	DELEGATION
74 75 76 77 78	74 75 76 77 78	74 75 76 77 78	74 75 76 77 78	74 75 76 77 78	YEAR
2289 3000 2709 3056 1899	2286 2520 2587 3082 2422	2273 2300 1328 2802 1264	2085 2100 2205 2741 1778	1649 2000 1453 2145 1204	Number of Activities

^{1/} disinfecting wells,
dumps, etc.

inspection of public places, i.e., restaurants, butcher shops, garbage

Source: Office of the Regional Health Administrator, Kasserine Province (1979)

II. GAFSA (1)

A. El Guettar Delegation: Pop 23,500

1. El Guettar East (Cheikhhat)

a. Mcheoua sector; Pop: 2500

-no facilities

b. El Guettar East sector - El Guettar City *;

rural population: 2500, urban population: 1200.

- 1 P.M.I.⁺

Staff: 1 Doctor (Ped.) 2 x /week (2)

1 Doctor (Gyn.) 2 x /week

1 Nurse (Generalist)

1 Midwife

2 Family Planning aides

1 Health Care aide

1 Worker

- (1) A. Staff at facilities are full time unless indicated otherwise;
 B. All population figures used are rough estimates based on 1975 census data and guess-estimates;
 C. Quantity of information gathered varies per site; i.e. a note indicating no water or electricity does not imply that other facilities without this note have access.
 D. Includes only the 3 delegations planned for project activity.
- (2) Doctors average 3-4 hours per dispensary per visit and see roughly 70-120 patients.

* indicates delegation seat

+ indicates site visited by team

-1 Dispensary +

Staff: 6 Nurses (24 hr. coverage = 3 shifts @ 2 nurses/
shift.

1 Doctor 4 x /week

2 Workers

Average number of consultations: 100 when Doctor
is in; 20 when Nurse is alone.

-1 Maternity Hospital

Note: Recently completed (built with Gouvernorat rural development
money). Not equipped - not functioning.

2. Bel Khir (Cheikhat); Pop: 3500

a. 1 dispensary

Staff: 1 Nurse

1 Doctor 1 x /week

3. Talah (Cheikhat); Pop: 5000

a. 1 Dispensary

Staff: 1 Nurse

1 Doctor 1 x /week

Note: Located on main road to Gabes.

4. Es Saket (Cheikhat); Pop: 3000

a. 1 Dispensary

Staff: 1 Nurse

1 Doctor 1 x /week

5. El Ong (Cheikhat); Pop; 2000

a. 1 Dispensary

Staff: 1 Nurse

1 Doctor 1 x /week

6. El Ayarcha (Cheikhat): Pop: 3000

a. 1 Dispensary

Closed - not functioning

B. Es Sened Delegation: Pop 18,000

1. Es Sened (Cheikhat) - Es Sened City*

Population (rural and urban): 6000

a. 1 Circonscription hospital + - Es Sened City

Staff: Inpatient; 1 Doctor 3 x /week

1 Specialist Nurse

2 General Nurses

1 Midwife

1 Hospital aide

3 Workers

Outpatient; 2 Nurses

1 Health Care aide

Administrative: 1 Administrator

Note: This 13 bed hospital recently opened last May. The hospital does not have a laboratory. Gafsa City is 50 Km away.

b. 1 Dispensary - Es Sened Jebel Villiage; Pop: 1,000

Staff: 1 Health Care aide

1 Doctor 1 x /week

Note: 12 Km away from Es Sened City.

2. Sanouche (Cheikhat) +; Pop: 4,000

a. 1 Dispensary

Staff: 2 Nurses

1 Doctor 2 x /week

Note: 20 Km away from Es Sened City.

3. Alim (Cheikhath): Pop: 3,600

a. 1 Dispensary

Staff: 1 Hospital aide

1 Doctor 1 x /week

Note: 18 Km away from Sened City.

C. Gafsa Nord Delegation: Pop: 11,000

(Delegation seat currently Gafsa City - GOT plans to transfer the delegation seat to Sidi Ayech village).

1. Rehiba (Cheikhath) +; Pop: 2,000

a. 1 Dispensary

Staff: 1 Nurse (commutes from Gafsa City)

1 Doctor 1 x /week

Note: No electricity, water; 15 Km away from Gafsa City on mainroad; Low number of consultations - sick usually bypass and go to Gafsa City.

2. Sidi Ayech (Cheikhath)+; Pop: 4,500

a. 1 Dispensary

Staff: 1 Hospital aide

1 Doctor 1 x /week

Note: On main road to Gafsa City. Electricity and running water.

3. El Fej (Cheikhath); Pop 3,000

a. 1 Dispensary

Staff: 1 Hospital aide

1 Doctor 1 x /week

1 Worker

4. Guétis (Cheikhath)

a. 1 Dispensary (Ouled Cherate - Pop: 1500)

Staff: 1 Nurse

1 Doctor 1 x /week

Note: No water, not well equipped, has lodging but needs renovation.

b. 1 Dispensary (Ouled Zid - Pop: 1500)

Note: Closed, not equipped.

5. Metkides (Cheikhath); Pop 2,000

a. 1 Dispensary

Note: Closed, not equipped

6. M'Riba (Cheikhath); Pop: 1,500

a. 1 Dispensary

Note: There is question whether this facility actually exists, and if so whether it is functioning.

D. Regional Hospital + - Gafsa City (In Gafsa Sud delegation)

a. Number of beds: 63 medical
 48 surgical,
 14 maternity
 14 gynecological
 23 pediatric
 24 ophthalmologic
 Total 186

b. Number of admissions (1979) = 7,705

c. Percent occupancy = 73

E. Service d'Hygiene

1. 1 Equipe Mobile (Mobile team) per delegation
 - Staff: a. El Guettar and Es Sened delegations:
 - 1 Hygiene nurse (each)
 - 1 Sanitary agent (each)
 - b. Gafsa Nord delegation:
 - 1 Hygiene nurse.

Vehicles: 2 cars (peugeot 404 Station Wagon)

2. Approximate number of visits by team:
 - 1 x /month for each dispensary and P. R.

3. Number of Points de Rassemblements (P.R.)

<u>Delegation</u>	<u>Number</u>
Gafsa Nord.....	20
El Guettar.....	20
Es Sened.....	15
Gafsa Sud.....	20

F. Family Planning

1. Permanent services provided at:
 - a. El Guettar P.M.I.
 - b. Es Sened circonscription hospital
 - c. Gafsa City P.M.I.

2. Mobile Team (1 in governorate)

Staff: 1 Midwife

1 Family Planning animatrice

1 Health Care aide

3. Approximate number of visits of mobile team:
 - 1 x /month /dispensary.

ANNEX B

COMMENTS ON FACILITIES COMPONENT OF RCH PROJECT EXTENSION

- A. The facilities component should continue to be an integrated part of the entire project. To assure that the health centers are functionally, culturally, and economically appropriate for the provision of integrated primary care services, the dynamic relationship between program planning and facility design must continue.
- B. There is no need to build if a health center cannot be staffed, equipped, supplied, resupplied and administered at a reasonable cost.
- C. Lodging for physicians, midwives and nurses continues to be a priority for both the existing project (renovations) and the proposed extension.
- D. New construction vs renovation: It is critical to develop and utilize existing buildings unless they are physically obsolete and costs are greater to renovate than build new. Major renovations are inherently complex from the process, design and construction points of view. Minor renovations are easier and when coupled with some expansion tend to be adequate in most situations. Each potential/existing facility needs to be assessed by a technical team (architects - engineers) before a final decision is made to renovate. (See discussion on Thala in particular in Section IV)
- E. A RCH facility/project team needs to be formed and should represent all key participants at a decision-making level. (The team may change with the different governorates.)
WHO: Key central and regional MOH participants, USAID, technical assistance team, project architect/engineers and consultants.

WHY: decision-making, communication, coordination and responsibilities.

WHEN: critical phases in the facility development process include:

Planning and Program

Schematic Design

Design Development

Contract Documents

Bids and Negotiations

Construction

Occupancy

Evaluation

HOW: Simply and effectively. Once a decision is made, e.g., schematic design drawings approved, then it is clear to the architect/engineer what the next tasks are; that he is expected to provide greater detail to the schematics incorporating any revisions noted in the review process.

F. Architectural/Engineering Services:

- 1) Construction administration by both the architect and engineers on a regular basis for each site in Kasserine and Gafsa is essential.
- 2) Clearly define how, when and by whom the renovation designs will be prepared for the renovation sites in Kasserine and Gafsa.
- 3) Develop and implement a strategy to recruit a Tunisian counterpart for facility planning and design activities.
- 4) Clearly determine what the Ministry of Equipment's (MOE's) role is, what are the responsibilities of the architect and engineers.

G. General discussion of building obsolescence, renovation vs new construction should include consideration of the following factors. Although the MOH clearly believes that using existing buildings wherever possible is a priority, a careful assessment should be made of each existing building.

This is particularly true for circumscription hospitals that will be renovated into a Type C health center. (Thala is a prime example.)

In considering potential disadvantages to renovation, one must consider ultimate costs involved as well as the existing physical constraints such as: location and proximity to other buildings; site characteristics and limitations for growth and expansion; structural limitations or clear spans and all points -of-departure available for future growth and change, planned or not, within and beyond the existing shell.

There are basically four levels of renovation that can occur to buildings. These are generic to any building type and are listed from least to most complex:

- 1) Basic lay-out and function not changed. Space is painted and re-furnished with not alteration to walls, floors, ceilings, fixed equipment.
- 2) Basic lay-out and function not changed. Wall floor, ceiling finishes may be altered, as well as changes to electrical fixtures, built-in equipment.
- 3) Basic lay-out is altered but not the function. Walls may be moved, finishes changed, electrical and/or mechanical systems altered accordingly.
- 4) Basic lay-out changed to accommodate a new function. Walls moved or added, built-in equipment, fixtures, finished provided.

Renovations occur for numerous reasons, one of which is some form of obsolescence, i.e., something is no longer appropriate. Obsolescence may be of one or a combination of types, which include:

- 1) Locational obsolescence -- of an entire building or a part of a building; no longer a need for this building;

- 2) Functional obsolescence -- disparity between purpose and design;
- 3) Physical obsolescence -- materials, systems, simply wear out or are "old";
- 4) Economic obsolescence -- the costs of replacement and more economical than the cost of repair or maintenance;
- 5) Symbolic/aesthetic obsolescence -- the image is no longer appropriate;
- 6) Catastrophic obsolescence -- natural disasters like earthquakes, or a useless structure resulting from war, fire, or flood.

Whether one is renovating or constructing a new building, careful attention to the various types of obsolescence is obviously important.

Obsolescence is a product of change, and there are ways to anticipate change, even though a new building is designed for a 40 - 50 year useful life. Flexibility in design is one way of enabling various desired changes to be accommodated. For instance:

- with technology and special systems which tend to be capital-intensive, e.g., interior, moveable wall systems that are relocatable;
- designing for replacement, i.e., designing for a relatively short life span rather than the 40 - 50 year life a building is assumed to have;
- grouping "like" spaces, i.e., spaces that house rapidly changing functions which easy access to those physical systems such as electrical, mechanical;
- programming and providing a certain amount of "unassigned" space to allow for some change.

K. Evaluating an existing building should include the following items:

EXAMPLE CHECKLIST FOR EVALUATING
AN EXISTING BUILDING

ITEM	BUILDING OR PART OF BUILDING
age or date built type of construction number of floors gross floor area, total gross square meter area, each floor structure - type and condition roof floor ceilings interior walls exterior walls floor plan for each floor elevators stairs fire and safety heating, ventilating, air- conditioning system plumbing electrical finishes (paint, tile, etc.) fixtures - lighting fixed equipment site size, configuration, topography orientation potential expansion	(enter information in this column)

continued

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I. Issues related to the proposed evaluation include the following:

- a) Coverage: If one assumes minimal coverage to all rather than more coverage to selected communities, then one must ask:
- What are the minimal integrated services?
 - What is minimal coverage?
 - Where can minimal coverage occur -- homes, schools, meeting places, health centers?
 - What services can occur where, by whom, when?
 - Where can full-time minimal coverage realistically occur.
 - What are the next levels and coverage? Etc.
- b) Flexibility in terms of a) planning and b) design and expansion
- internal flexibility to accommodate changing functions, multi-use areas.
 - flexibility in terms of future expansion is critical. Important to know what the various types of expansion are, what direction(s) they can go, and when is it desirable to do so. For example: if a dispensary is very crowded but is only open when a physician is there, say 2 mornings/week, then the choice is a) extend the hours of service and see how crowded, b) scheduled special services.
 - planning flexibility to permit more responsive combinations for the very diverse and community specific situations.
- c) Functional efficiency and appropriateness, i.e., patient flow, circulation, special requirements for privacy, etc., primary care services to be provided; all issues in the architectural program.

d) Program of primary care services

What is the program of services for each type? What are the roles of the permanent and outreach staff? What are the "core" services, the next level and so on for each type of facility. (See "coverage")

e) Investment and the return

How can one maximize the construction costs/capital costs and minimize the operating replacement and maintenance costs? What is a balanced relationship between first costs (capital budget) and operating costs (a different budget). For example: In the current types several items were built-in by the contractor rather than purchased as equipment/furnishings--benches, desks, counters, shelves, storage units. They increased the construction costs, limit flexibility, somewhat, and minimize replacement costs. Is it worth looking at the life cycle cost of each type of facility?

f) Acceptability (and Accessibility)

Acceptable from the providers point of view as well as the patients and the administrator's perspectives. Accessible for the patient in terms of seeking care and entering the health system at the community level.

g) Integration of Health Services into total Development Plan

h) Names or labels for facility types

i) Criteria or guidelines for

- a) Location by town, village
- b) Site selection - parcel of land
- c) Renovation vs new construction

ANNEX C

ASSUMPTIONS USED IN THE COSTING AND PREPARATION OF TENTATIVE AND PARTIAL LISTING OF SITES

Included in this section are assumptions for the various components in the capital budget: Type C health center; Type A1 health center; lodging for physicians, mid-wives, nurses and interns; vehicles and equipment. (The equipment assumptions and cost estimates are to be inserted by USAID.)

A. Assumptions for Type C Health Center

- 1a) If circumscription hospital exists, no new construction for total replacement to existing facility. (Renovation design may include a phased replacement of overtime.)
- 1b) If circumscription hospital exists, then the following criteria are applicable:
 - provide laboratory as per RCH project program,
 - provide space for X-ray even though purchase of equipment may occur at later date.
- 2) All delegations without a circumscription hospital get a new Type C1 if the population served is greater than 10,000 ++, and distance (time and kilometers) from other Type C, circumscription or regional hospitals warrants it. (Note: Variation in population assumptions occurs with distribution and density, i.e., dispersed, semi-dispersed, concentrated; nomadic, semi-nomadic, stable.)
- 3) Presence of water and electricity essential for Type C. Telephone is desirable.
- 4) If "salle de soins" or "dispensaire" exists, this facility will be converted into lodging for physician or midwife assuming a) the condition is satisfactory, b) location is proximal to Type C, c) general environs are acceptable.

B. Assumptions for Type A1 Health Center

- 1) Each "secteur" (cheikhat) should have a Type A1 facility or an equivalent if population and distance from other health facilities warrants it. One population range served is +2,000 - 5 - 6,000 for concentrated or semi-dispersed communities. In certain remote areas the catchment size may go as high as 10,000. One distance assumed to be minimal between existing and new health centers is 10 kilometers.
- 2) Type A1 new construction:
 - a) If no existing facility then build a new Type A1; lodging for the nurse is to be located in the exam room/office on the upper left of the plan drawing. Only after utilization increases should separate lodging be provided.
 - b) If there is an existing "salle de soins", it can be converted into lodging and a new Type A1 built.
 - c) If there is an existing "dispensaire" then consider minor renovations and/or expansion to meet the critical program elements of the Type A1 assuming the site, location and condition of the existing building permit.
- 3) Location of all Type A1 health centers should coincide with existing or planned rural development activities.

Notes:

1. At this preliminary stage in determining potential site locations, no consideration was given to socio-cultural -economic factors and patterns.
2. Due to highly individualized situations, the degree of flexibility in the planning criteria should be significant. Diversity between existing sites is high. The planning responses need to adapt to very site specific conditions.

gl

C. Assumptions for Lodging

1) Intern lodging:

Provide a dormitory type facility with kitchenette, toilet and bath, place to sleep, study, discuss, and personnel storage for 4 student interns.

2) Physician lodging:

All Type C health centers shall provide housing for 1 physician and his/her family. If there is an existing "dispensaire" that no longer will serve an outpatient function and it is adequate, then assume it will be renovated for physician or midwife housing. If not, build new RCH model.

3) Mid-wife lodging:

All Type C health centers shall provide lodging for mid-wife also. Same assumptions as No. 2.

4) Nurse lodging:

Each A1 facility shall provide housing for at least 1 recycled nurse.

a) If a new Type A1 center is built and the catchment size and initial utilization is not substantial then, 1 nurse can live in the second exam /office as a first phase solution.

b) If an existing "salle de soins" is available, it can be renovated for nurse housing.

c) If it is necessary to provide new nurse housing, then several questions need to be asked to determine the requirements. For example, how many nurses will be housed?, ~~what~~ about families?, how separate should facilities be for male and female nurses?

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D. Approaches for Estimating Construction Costs

Estimates will be prepared throughout the facility development process for both capital and operational costs. Estimating costs is an imprecise task. Often wide variation exists for new construction; even wider variation is found in renovations. The uncertainties of cost estimating can be reflected in the units selected.

At the programming stage a unit cost/gross square meter of floor area is a typical approach, e.g., 100TD/M². Factors affecting this simple unit cost are: quality of construction, the market for materials, the size of the building. Often unit costs are determined by surveying recent, similar construction in an area, and adjusting the unit for anticipated inflation up to the time the construction is expected to begin. At this early stage the components of costs included in the estimate might be: land acquisition, site survey, site preparation, building construction, landscaping, architectural and engineering fees, equipment and furnishings, contingency for construction (10 - 15 % for new construction, 20 - 40 % for renovations.)

At the schematic and design development stages, much more detail is known about the design. This finer level of detail can be reflected in the cost estimate. One approach for estimating at this stage applies a factor to the basic unit cost. This can be used for new construction as well as for various levels of renovation. For example, an exam room with built-in counter and sink costs more to build per square meter than an equal amount of circulation or storage space. Using 100TD/M² as the basic unit, laboratory space might be 1.20 times 100 TD/M² and the circulation or storage might be .80 times 100 TD/M². If the project can be fragmented into manageable parts, this approach of differentiating costs estimates of these parts is useful.

Factors affecting this approach include the reliability of the unit costs; the quality and size of the project; the local, national and/or international markets; the factors used for each fragment; the time at which the actual

work will be done; and extra administrative work that may be required by funding sources.

A third approach is called detailed cost estimating; this is usually done when working drawings and specifications are prepared. The project is broken down into components or building trades. Normally, this estimate is the most accurate because of the degree of development of the design. Factors affecting detailed cost estimates are similar to those previously listed. Components of cost may be subdivided to as much separation as the project permits. These components include: site acquisition, site development, demolition, utilities, surface improvements, landscaping; construction work may be broken down into building trades, e.g., electrical, mechanical, or the work may be segmented into a listing of discrete items like elevator, new roof, exterior plastering, fixed equipment. For renovations, separate estimates can be prepared for those areas with minor modification and those involving major change and expansion. Detailed estimates for moveable equipment, furnishings and supplies can be done at this time, Contingencies for both construction and equipment must be adjusted. Life cycle cost analyses concerning the impact of the building on operating cost should reflect the new levels of detail. During this stage, decisions will be made on the selection of materials of various quality. For instance, if there is a desire for long life, lower operating costs, less maintenance and later replacement costs, then high quality and higher initial cost may be a good choice.

D. Assumptions for Vehicles

1. A total of 5 vehicles are required; the type is to be determined at a later date
2. 1 vehicle/governorate for the intern program = 4
1 vehicles added to the RCH project technical assistance team.

9/1

F. Assumptions for Equipment and Furnishings

1. Bids will soon be received for equipment and furnishings for the health centers in Siliana and Sidi Bouzid. In preparing the final estimates for Gafsa and Kasserine sites, these figures should be utilized.
2. One MOH has prepared equipment lists for Types A1 and C1. It is assumed that these lists with minor revision, if any, are appropriate and adequate.

Prepared by: Susan Christie Shaw
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ANNEX D

MANPOWER AND BUDGET TABLES

Table A
STAFFING PATTERN

<u>TYPE C CENTER</u>	<u>INITIAL</u>	<u>FUTURE</u>
Physician (on-site and also doing Type B and A visits)	1 (3 visits/week)	2 (1 in-patient and emergencies) (1 out-patient and ambulatory)
Midwife (on-site and also doing Type A visits)	1 (3 visits/week)	2 (1 in-patient and emergencies) (1 out-patient and ambulatory)
Front-Line Workers	4	6-8
Clerk	1	1
Lab Technician <u>1/</u>	1/2	1
X-ray Technician ^{1/}	1/2	1
Pharmacy	1	1
Custodian	1	1
Cook	1	1
Cook Helper	-	1
Econome	-	1
Driver	<u>1</u> 12	<u>2</u> 20-24

^{1/} One technician could be trained to do both functions.

TABLE B

STAFFING PATTERN

<u>TYPE B CENTER</u>	<u>INITIAL</u>	<u>FUTURE</u>
Front-Line Worker	1	1-2
Physician ¹	2 blocks/week	2-4 blocks/week
Midwife ¹	3 blocks/week	5 blocks/week
Midwife Assistant	1	1
Maintenance/Cleaning	1	1
Cook	1/2	1/2
 <u>TYPE A₁ CENTER (Large)</u>		
Front-Line Worker	1	1-2
Physician	1 block/week	1-3 blocks/week
Midwife	1 block/week	2-3 blocks/week
 <u>TYPE A₂ CENTER (Small)</u>		
Front Line Worker	1	1-2
Physician	-	1-2 blocks/week
Midwife	-	1-2 blocks/week

1. See planning assumptions concerning the definition of "blocks" on page 24 and Table 3 following. Essentially, one block is equivalent to a facility visit.

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TABLE C

HEALTH WORKER PRODUCTIVITY PROJECTIONS

Front-Line Worker

$$25 \text{ visits/day}^1 \times 5 \text{ days}^2 \times 48 \text{ weeks} = 6,000 \text{ visits/year}$$

Midwife

$$30 \text{ visits/4-hour block} \times 6 \text{ blocks/week} \times 48 \text{ weeks} = 8,640 \text{ visits/year}$$

Physician

$$50 \text{ visits}^3 \text{/4-hour block} \times 6 \text{ blocks/week} \times 48 \text{ weeks} = 17,280 \text{ visits/year}$$

-
1. Includes visits conducted in a centre de santé de base and in the community.
 2. Four full days, plus two 1/2 days.
 3. Substantially higher than the United States visit rate, but substantially lower than many current visit rates, which may approach 40 visits/hour. (NOTE: It is important that physician time is available in clinic settings for supervision of front-line workers.)

TABLE D

PROJECTED INITIAL AMBULATORY VISIT CAPACITY
OF CENTRES DE SANTE DE BASE
TYPES A, B, AND C

TYPE C

4 front-line workers x 52 weeks ¹ x 125 visits/week	=	26,000 visits/year
3 physician blocks/week x 52 weeks ¹ x 60 visits/block	=	9,360 visits/year
3 midwife blocks/week x 52 weeks ¹ x 30 visits/block	=	<u>4,680 visits/year</u>
		40,040 visits/year

TYPE B

1 front-line worker x 52 weeks ¹ x 125 visits/week	=	6,500 visits/year
1 physician block/week x 52 weeks ¹ x 60 visits/block	=	3,120 visits/year
3 midwife blocks/week x 52 weeks ¹ x 30 visits/block	=	<u>3,120 visits/year</u>
		12,740 visits/year

TYPE A

1 front-line worker x 52 weeks ¹ x 125 visits/week	=	6,500 visits/year
1 physician block/week x 52 weeks ¹ x 60 visits/block	=	3,120 visits/year
1 midwife block/week x 52 weeks ¹ x 30 visits/block	=	<u>1,560 visits/year</u>
		11,180 visits/year

-
1. Assuming coverage arrangements (and overtime) allow year-round (52 week) staffing and operation.

TABLE E
SUMMARY OF EXISTING, PROPOSED, AND
FINAL SERVICE NETWORK
SILIANA

EXISTING

<u>Delegation</u>	<u>Salle de Soins</u>	<u>Dispensary</u>	<u>Maternity</u>	<u>PMI</u>	<u>Hospital</u>
El Krib		4			
Gafour	1	5		1	1
Bou Arada	2	1	1	1	1
Siliana		5		1	1
Robaa		2			
Maktar	5	2			1
Rohia	3	1			
	<u>11</u>	<u>20</u>	<u>1</u>	<u>3</u>	<u>4</u>

PROPOSED

NEW / RENOVATED

NEW / RENOVATED

<u>Delegation</u>	<u>Type A</u>	<u>Type B</u>	<u>Type C</u>
El Krib	1 / 1		1 /
Gafour			/ 1
Bou Arada	/ 2		/ 1
Siliana	1 / 1		/ 1
Robaa		1	
Maktar	1 / 1		/ 1
Rohia	3 / 1		- 1 /
	<u>6 / 6</u>	<u>1</u>	<u>2 / 4</u>

UNALTERED EXISTING TYPE C CENTERS¹ AFTER COMPLETION OF THE PROJECT, BY DELEGATION

El Krib	2
Gafour	4
Bou Arada	2
Siliana	3
Robaa	1
Maktar	3
Rohia	1
Total	<u>17</u>

FINAL NETWORK

<u>Delegation</u>	<u>Type A</u>	<u>Type B</u>	<u>Type C</u>
El Krib	4		1
Gafour	4		1
Bou Arada	4		1
Siliana	5		1
Robaa	1	1	
Maktar	5		1
Rohia	5		1
	<u>28</u>	<u>1</u>	<u>6</u>

TABLE F
SUMMARY OF EXISTING, PROPOSED, AND
FINAL SERVICE NETWORK
SIDI BOU ZID

EXISTING

<u>Delegation</u>	<u>Other¹</u>	<u>Salle de Soins</u>	<u>Dispensary</u>	<u>Maternity</u>	<u>PMI</u>	<u>Hospital</u>
Jelma			8			
Sidi Bou Zid	2		5	1	1	1
Ouled Haffouz			3			
Er-Regueb			4		1	
Si. Ali Ben Aoun			6		2	
Maknassy			4	1	1	1
Mezzouna			5			
	<u>2</u>	<u>0</u>	<u>35</u>	<u>2</u>	<u>5</u>	<u>2</u>

PROPOSED

<u>Delegation</u>	<u>NEW / RENOVATED</u>		<u>NEW / RENOVATED</u>
	<u>Type A</u>	<u>Type B</u>	<u>Type C</u>
Jelma	1 / 1		1 / 1
Sidi Bou Zid	2 / 1		1 / 1
Ouled Haffouz	1 / 1		1 / 1
Er-Regueb	2 / 1		1 / 1
Si. Ali Ben Aoun	2 / 1		1 / 1
Maknassy	2 / 2	1	1 / 1
Mezzouna	1 / 3		1 / 1
	<u>9 / 8</u>	<u>1</u>	<u>3 / 4</u>

UNALTERED EXISTING TYPE C CENTERS² AFTER COMPLETION OF THE PROJECT, BY DELEGATION

Jelma	6
Sidi Bou Zid	3
Ouled Haffouz	1
Er-Regueb	2
Si. Ali Ben Aoun	3
Maknassy	0
Mezzouna	1
Total	<u>17</u>

FINAL NETWORK

<u>Delegation</u>	<u>Type A</u>	<u>Type B</u>	<u>Type C</u>
Jelma	7		1
Sidi Bou Zid	6		1
Ouled Haffouz	3		1
Er-Regueb	4		1
Si. Ali Ben Aoun	5		1
Maknassy	4	1	1
Mezzouna	4		1
	<u>33</u>	<u>1</u>	<u>7</u>

1. Sidi Bou Zid Regional Hospital includes a free-standing tuberculosis clinic and a separate family planning center.
2. Currently referred to as either dispensaries or salles de soins.

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Table G

Existing and Tentatively Proposed Facilities, Kasserine and Gafsa
Gouvernorats

	Regional Hospital	Type C	Type B	Type A1
Kasserine	1 (160 beds)	4	0	42 ^{A/}
Gafsa (El Guettar, Es Sened, Gafsa Nord)	1 (200 beds)	2	0	16 ^{B/}

A/ Calculation of this number is as follows: Assume 14 new Type A1s-- 8 new sites and 6 replacements. Number of renovations is unknown. Currently there are 37 Dispensaries and Salle de Soins. Assume in process of converting these into A1s, approximately 9% are permanently shut down and not replaced. Given these assumptions, the derivation for 42 Type A1s is as follows: $37(\text{existing}) + 14(\text{new}) - 6(\text{replacements for existing}) = 45 - 3(9\% \text{ of existing permanently closed}) = 42$

B/ Likewise as above, 12 dispensaries currently exist. Assume 5 new A1s, 1 replacement and 9% closed permanently. $12(\text{existing}) + 6(\text{new}) - 1(\text{replacement}) = 17 - 1(9\% \text{ of existing shut down}) = 16$

Table H

<u>Ministry of Health Recurrent Budget</u>			
<u>Breakdown</u>			
<u>(000' Dinars)</u>			
	<u>1977</u>	<u>1978</u>	<u>1979</u>
I. <u>Total GOT (Recurrent Budget)</u>	441 500	541 200	625 100
II. <u>MOH (Recurrent) Budget</u>			
A. Authorized expenditure	35 417	44 130	51 462
B. Unforeseen expenditure	3 826	2 640	NA
C. Total (consolidated) Budget	39 243	46 770	51 462
II/I in %	9.0%	9.0%	8.23%
<u>Detailed MOH (Recurrent) Budget</u>			
<u>breakdown</u>			
I. <u>Minister of Health & Cabinet</u>	30	35	22
II. <u>Operations</u>			
(Article 30) Civil Servants	4 831	6 299	5 570
(Article 31) Temporary/contractual personnel	159	172	177
(Article 32) Permanent unskilled workers	683	369	430
(Article 33) Ad-hoc/temporary personnel	4	4	4
Subtotal (Salaries)	5 677	6 844	6 181
(Article 40) (Administrative) Supplies/Materials (i.e., rents, utilities, fuel, furniture, uniforms, etc.)	584	510	592
(Article 41) Transportation/Per Diem	173	166	193
Subtotal	757	676	785
(Article 50) Hospitals (includes institutes, centers, regional hospitals, etc.)	28 158	35 580	43 370
Total (III)	34 592	43 100	50 336
III. <u>Public Interventions</u>			
(Article 61) Office of Family Planning	NA	484	554
Office of Thermal Spas	NA	420	450
Subtotal	706	904	1 004
Cultural Activities	87	89	100
(Article 80) Contributions to International Organizations (transferred to Ministry of Foreign Affairs since 1979)	2	2	0
Total (IV)	795	995	1 104

Source: Budget de l'Etat (Titre 1er), Ministère
de la publique

NA = Not Available

* Percentage does not include unforeseen expenditure

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ANNEX E

INITIAL ENVIRONMENTAL EXAMINATION

INTEGRATED RURAL COMMUNITY HEALTH PROJECT FOR GAFSA AND KASSERINE PROVINCES, CENTRAL TUNISIA -- Proposed Extension to the Rural Community Health Project in Siliana and Sidi Bouzid.

As per AID requirement, attached please find a completed Impact Identification and Evaluation Form along with discussion.

GENERAL IMPACTS

The only adverse impact anticipated will be during actual construction and will be minor and temporary in nature and will include:

1. Inconvenience in traffic near and on the construction site.
2. Inconvenience of noises due to construction and machinery.
3. Inconvenience due to storage of materials.

The objectives of this project will far outweigh any minor inconveniences caused during construction. Providing access to integrated health care in these very rural provinces is worth the minor adverse consequences of a few months.

Culturally and socially, the impacts anticipated are significantly positive:

1. Reinforcement of the policy of regroupment by coordinating the location of small basic health centers with centralization of other social and human services as per the policy by the Government of Tunisia.
2. Augmenting the policy of the Ministry of Health to integrate the curative and preventive services in the homes, schools, public places as well as within the walls of the proposed basic health centers.
3. Integration of health program planning with total existing and planned rural development in Central Tunisia.
4. Restructuring or recycling of the front-line workers as a means for more efficient use of existing personnel is indeed of social benefit along with the creation of new positions.

LAND USE

With few, if any, exceptions the proposed sites for new construction are designated by the municipalities for health services. No significant uses of land should be foreclosed. Improvements to the sites should result from the construction -- maintenance of grounds, landscaping will result in a visually more attractive place. In the area of sandy soil, a certain degree of stabilization is anticipated.

WATER QUALITY

In every instance, precaution should and will be taken to assure that the effluent, after the sewage is properly treated, discharges into areas where there is no possibility of water contamination. Storm and sewage disposal, whenever possible, will be connected to collectors from existing systems. Since the proposed facilities are relatively small, there should be no significant adverse impact on the water quality either during or after construction.

ATMOSPHERE

The use of equipment that would pollute the air and the production of polluting fumes or by-products is not anticipated.

NATURAL RESOURCES

No diversion or altered use of water is foreseen. The natural and/or produced resources relevant to this project are the use of gravel, stone, cement, concrete, brick, tile, reinforcing steel and sewer pipe. These materials are in ample supply in Tunisia and are locally available in the two provinces where the construction will occur.

CULTURAL

No possible adverse consequences are foreseen.

SOCIO ECONOMIC

No significant adverse impacts are anticipated. Primarily, existing workers will be retrained in addition to a relatively small number of new workers trained. The impacts are favorable in terms of new employment and market utilization for foods and other products. The social impact is significant to the population being served.

HEALTH

A highly favorable impact on the health of the peoples to be served is indicated.

GENERAL

No international or controversial impacts are foreseen.

OTHER

A comparatively small increase in electrical energy as well as local water supplies is anticipated by the new basic health centers.

IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub-areas

Impact
Identification,
and Evaluation¹

A. LAND USE

1. Changing the character of the land through:

a. Increasing the population

N

b. Extracting natural resources

N

c. Land clearing

N

d. Changing soil character

N

2. Altering natural defenses

N

3. Foreclosing important uses

N

4. Jeopardizing man or his works

N

5. Other factors

B. WATER QUALITY

1. Physical state of water

N

2. Chemical and biological states

N

3. Ecological balance

N

4. Other factors

- 1
- N - No environmental impact
 - L - Little environmental impact
 - M - Moderate environmental impact
 - H - High environmental impact
 - U - Unknown environmental impact

IMPACT IDENTIFICATION AND EVALUATION FORM

C. ATMOSPHERIC

- 1. Air additives N
 - 2. Air pollution N
 - 3. Noise pollution N
 - 4. Other factors
-
-

D. NATURAL RESOURCES

- 1. Diversion, altered use of water N
 - 2. Irreversible, inefficient commitments N
 - 3. Other factors
-
-

E. CULTURAL

- 1. Altering physical symbols N
 - 2. Dilution of cultural traditions N
 - 3. Other factors
-
-

F. SOCIO ECONOMIC

- 1. Changes in economic/employment patterns N
 - 2. Changes in population N
 - 3. Changes in cultural patterns N
 - 4. Other factors
-
-

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ANNEX F

LIST OF SOURCE MATERIAL

K A S S E R I N E

Listing
Code

- AK 1. Number of ambulances (by delegation) (1980).
2. Number of Landrovers (per physician) (1980).
(for Service d'Hygiene).
3. Number of Salles de Soins unopened waiting for equipment (by delegation) (1980).
- BK 1. Number of facilities by delegation (8 delegations) (1980).
2. Number of water points (approx.) to improve (1980).
a. Wells.
b. Cisterns.
c. Springs.
3. Number of SONEDE networks (districts).
- CK 1. Map of Kasserine Governorate (1980).
a. With facility locations.
b. Broken down by Cheikhat.
- DK Annual Activity Report of Kasserine Governorate (1979)
1. Capital investment realized during 1979 (salles de soins et dispensaires) p. 10-11.
2. Activities of health facilities (salle de soins, dispensaire, circonscription hospitals, regional hospital) by delegation p.12-17.
a. Number of consultations.
b. Number of injections.
c. Number of bandages.
*d. Number of interventions (medical).
*e. Number of analyses (lab.).
3. Description of Service d'Hygiene Activities p.18-20.
4. Table: Infrastructure (Hospitals, P.M.I., dispensaires, salles de soins, P.R.S.) and service d'hygiene personnel by delegation (7).
5. Transport for Service d'Hygiene p.22
6. Table: Epidemiological situation (1979) p.23
- Typhoid
- Viral Hepatitis
Number of cases: - Meningitis
- Syphilis
- Small-pox
7. Table: Conjunctivities campaign statistics p.25
8. Table: Anti Tuberculosis campaign statistics p.27
9. Table: Environmental Health; Buildings and public places inspected (1979) p.29
10. Table: Vaccinations of children (0-2 years), 1979 p.30

* Only applies to regional hospital.

11. Table: a. Water control p.31
b. Bacteriology analyses (by hygiene sector) p.31
12. Table: Disinfection of water points in rural areas (1979) p.33
13. Table: School Hygiene (by month) p.35
14. Table: School vaccinations (by sectors) p.36 (1978-1979).
15. Table: Number of Health/Nutrition education group sessions held by delegations (in health facilities, public places, P.R.S.).

EK Service d'Hygiène, Dispensary Inventory, (1979-80).

G A F S A

Listing Code

- AG Number of Points de Rassemblements by delegation (1980).
- BG Map of Gafsa Gouvernorate (1980).
1. Location of facilities.
 2. Broken down by cheikhats.
- CG Annual Activity Report of Kasserine Gouvernorat (1979), Office of the Regional Administrator.

Listing
CodeN A T I O N A L (All Gouvernorates)AN Tunisia Manpower Inventory

1. Report concerning the evaluation of paramedical/medical training under the V^e Plan (January 1980).
 - a. Paramedical training school budgets (1978-1979).
 - b. Number and list of techniciens superieurs trained (by category) since 1970-71 to 1979-80.
 - c. Number of medical students 1976-77 to 1978-79 by discipline and Medical faculty.
 - d. Number of stagiaires (interns) in Medicine 1976-77 to 1979-80. (Foreign and Tunisian).
 - e. Number of residents in Medicine (Foreign and Tunisian) 1976-77 to 1979-80.
2. Table: Number of students (1979-80) in paramedical training schools by discipline and sex.

BN National Budget Data and Budget Information

1. Total GOT/MOPH Recurrent Budget 1977-1979.
2. Detailed MOPH Budget (Recurrent) breakdown for 1979 and 1980.
3. Analyses (3) of financial (MOPH) data for 1979.
4. Table: Evaluation of Recurrent Budget 1971-1978.

CN General Statistics (MOPH) (by gouvernorate) for 1978; concerns:

1. Personnel (paramedical and medical).
2. Facilities.
3. Consultations/facility utilization.
4. Incidence of disease.

DN Dispensary activities during the second quarter of 1978 (by gouvernorate).EN Average Salary for MOPH personnel (Dinars/annual).FN Standard Dispensary Equipment List (GOT/MOPH) for 1979.GN Health Facilities in Tunisia, 1979 (by gouvernorate).HN Health Facilities in Central Tunisia, 1977-78.IN Physicians by Gouvernorate (1977-79), including population and POP/Physician ratio (by Gouvernorate).

- JN Paramedical Personnel by Category and Province, 1979.
- KN Senior Medical Technicians Enrolled (1978-79) (by category, year).
- LN Students Enrolled in Public Health Professional Schools (by Category, year, sex).
- MN Graduates of the Schools of Public Health and the Medical Faculties in Midwifery (1957-78).
- NN Rapport Sur Les Realisations Au Cours De La Deuxième Decennie (1971-80) et Du Vème Plan (1977-1981), Preparation du VIème Plan, Commission Nationale Sectorielle de la Sante, V.1. (Report), V.2. (Statistical Annex).
- ON Recensement Général de la Population et des Logements, Institut National de la Statistique, Ministère du Plan, 8 Mai 1975.

S I L I A N A A N D S I D I B O U Z I D

Listing
Code

- AS Equipment Lists for Type A, B, and C, Health Centers (Including price).
- BS Personnel (Medical and Paramedical) 1979-1980.
- CS Construction Lists of Type A, B, C facilities.

ANNEX G

LIST OF INDIVIDUALS INTERVIEWED

1. Ministry of Public Health

A. Central Ministry

Mr. Zavadi, Secretary General
Dr. Ben Ammar, Chef du Cabinet
Dr. Habib Rejeb, Director, RCH Project
Dr. Farah, Director of Preventive Medicine
Dr. Habib Omar, Department of Health Education
Mr. Mekki Chekir, Director of Planning
Mde Glenza, Department of Planning
Dr. Ben Youssef, Director of Hospital Services
Dr. Hamza, Director of MCH Services
Mr. Tata, Division of the Budget

B. Kasserine

Surveillant Regional, Mr. Zarrougui

C. Gafsa

Medical Director, Gafsa Region, Dr. Daly
Surveillant Regional, Mr. Zarrig Brahim
Chef de Secteur Sanitaire a Gafsa, Mr. Heidi Amrousera
Chef de Secteur Sanitaire a Essened, Mr. Lassonel Chaobane

D. Siliana

Regional Hospital Administrator

E. Medjez el Bab

(Former) Project Director, Dr. Belgacem Sabri
(now - Medical Director, Jendouba Region)
Chief Physician, Medjez el Bab Hospital, Dr. Zemzarti
Regional Hospital Administrator, Mr. El Gharbi

F. ONPFP

Director, Medical Division, Mr. Rafat Dali

2. Medical Faculty of Tunis

Dean, Dr. Ben Ayad

3. Central Tunisia Development Authority

CTDA Director, Mr. Bougatef
Director, Human Resources Division, Mr. Derbali Abderrazak
(Title Unknown), Mr. Nafti Bechir