

INTER-AMERICAN DEVELOPMENT BANK
OPERATIONS DEPARTMENT - PREINVESTMENT SECTION

THE COMMONWEALTH OF THE BAHAMAS

Plan of Operations for Technical Cooperation for the
Improvement of the Health Delivery System in The Bahamas
(TC-87-04-18-3)

I. SUMMARY OF PRINCIPAL DATA

- 1.01 Amount, Nature of Bank Contribution and Source of Funding: The total cost of the project is estimated to be the equivalent of US\$3,650,000. Of the proposed Bank contribution of the equivalent of US\$2,500,000 (68.4%), the equivalent of US\$1,500,000 million would be provided for Subproject I on a non-reimbursable basis and the equivalent of US\$1,000,000 for Subproject II on a contingent recovery basis. The Bank's contribution would come from the net income of the Fund for Special Operations. The Beneficiary would be responsible for the equivalent of US\$1,150,000, that is 31.6% of the total estimated cost.
- 1.02 Objectives and Description: The overall objective of the proposed technical cooperation is to increase the effectiveness and efficiency of the allocation and utilization of human and financial resources in the health sector and to improve the quality and coverage of health care in the Commonwealth of the Bahamas. This objective would be achieved through the provision of financing for the preparation of studies relating to the development of physical infrastructure and institutional strengthening.
- 1.03 Participants in the Project: (a) Applicant: The Government of the Commonwealth of The Bahamas; (b) Date of the request: By letter of October 22, 1987, the Ministry of Finance requested technical cooperation for this project, indicating also that the Government has accorded high priority to the improvement of the management and delivery of health care throughout The Bahamas; (c) Executing Agency: Ministry of Health (MOH); (d) Beneficiary: The Commonwealth of The Bahamas.
- 1.04 Priority: The Government of the Bahamas, building upon its efforts to improve the efficiency of the health care delivery system, has identified the need for a comprehensive examination of the sector's institutional and physical facilities. Given the importance of maintaining adequate health care not only for the Bahamian, but also for the tourist population which constitutes a major source of income for the country, the Government has accorded high priority to the strengthening of the MOH as well as to studies leading to an eventual investment project.

- 1.05 Periods for Execution and Disbursement: (a) Deadline to commence execution: The executor will select and hire a consulting firm from a short list of prequalified firms approved by the Bank, within 6 months from the date of signature of the Technical Cooperation Agreement; (b) Period for execution, including presentation of the Final Reports: The project will be executed within 20 months from the date of signature of the Technical Cooperation Agreement; (c) Request for final disbursement: The final disbursement request would be made within 25 months from the date of signature of the Technical Cooperation Agreement; (d) Last Disbursement: The final disbursement shall be made within 28 months from the date of signature of the Technical Cooperation Agreement.
- 1.06 Responsibility within the Bank: At Headquarters: (a) Basic administrative responsibility would be channelled through the Preinvestment Section of the Operations Department; and (b) Technical responsibility would be exercised through the Public Health Section (PSD/HLT) of the Project Analysis Department. The Field Office in The Bahamas would be responsible for the coordination of activities in the field on behalf of the Bank.
- 1.07 Technical Cooperation Agreement: The Agreement will be signed between the Ministry of Finance and the Bank.
- 1.08 Project Classification for Statistical Purposes: (a) Sector: Public Health; (b) Field: Preinvestment; (c) Modality: Advisory services and training; (d) Relationship with loans: Project preparation.

II. BACKGROUND

A. The Request

- 2.01 The concept of a programme to improve the health delivery system in The Bahamas was first discussed with Bahamian officials during a Project Identification Mission which visited the country in May, 1987. The Mission was informed that through Government financing and assistance from the Pan American Health Organization (PAHO), various studies were undertaken, based upon which a review of the health sector (and related services) was made. Through these studies, needs were identified, recommendations were made regarding the improvement of the health delivery system as a whole, long range planning aspects were addressed, and several areas requiring immediate attention were defined. Resulting from these studies, MOH officials indicated that technical cooperation was needed to develop institutional capabilities and to assist with the preparation of an investment programme, including projects for possible Bank financing.
- 2.02 In July 1987, the Bank sent a Special Mission to The Bahamas to review previous studies and available data and to assist with the formulation of Terms of Reference for a technical cooperation project to analyse

the most cost effective alternatives for the development of health infrastructure and supporting institutional improvements.

- 2.03 The Mission noted that existing facilities are overcrowded and often substandard, especially at the secondary and tertiary levels. This situation has resulted from a rapid growth of demand not accompanied by similar growth in the health services network. In addition, a change in disease patterns has placed new stress on the system (as for example, in the case of aging, traumas, drug and alcohol related diseases and AIDS), which has in turn created new demand for facilities and services. On the other hand, decreases in communicable diseases and diarrhea, among others, have reduced the pressure for services in certain areas. Expansion and adaptations of capacities at the secondary level through ad hoc and unplanned construction (less than the required level and below acceptable technical standards) have affected efficiency and disrupted the functional relationship between services provided. In some areas, facilities are totally inadequate (e.g. storage of drugs and supplies at the Princess Margaret Hospital) or deficient, such as intensive care units, pediatric wards and others. Inadequate water supply and sewerage disposal also threaten the functioning of facilities and have increased the risk to patients and personnel.
- 2.04 In addition to the deteriorating physical and poor functional conditions of existing health facilities, the Mission recognized that the institutional framework has to be strengthened and adapted to changing demands. In this regard, the Mission identified the following major priority areas for improving the efficiency of the sector: policy formulation, planning and programming; organizational and managerial reforms; human resource development; information systems; financial management; supply management and maintenance programmes; and legal and regulatory reform.
- 2.05 Subsequently, during a DPL Mission to The Bahamas in mid-January, 1988, the health sector was identified as an area where the Bank could play an important role. Limited resources allocated to recurrent costs and institutional arrangements were discussed as possible constraints to the future development of the sector.
- 2.06 The priority of improving the delivery of health care in The Bahamas was reaffirmed in the Prime Minister's Budget Speech for 1988. While the analyses of corrective measures for long term solutions are being studied, limited but immediate rehabilitation of existing facilities has to be undertaken in order to continue the provision of basic hospital services and to correct easily identifiable deficiencies. In the interim, maintenance works and modest upgrading of services in specific areas are planned for 1988 at Princess Margaret Hospital (PMH), the main health care institution in The Bahamas. Efforts are also being directed to minor improvements in the maternal and child health care areas, as well as in emergency and accident- related services.

- 2.07 At the Rand Memorial Hospital (RMH), the acute general hospital for Grand Bahama and the Northern Family Islands, some renovations are being made at the obstetrics unit, the newborn nursery and physiotherapy department. Maintenance of plumbing and mechanical engineering plant is also being provided. These renovations, modifications and minor repairs, as well as those for PMH, are only short-term in nature and are required to sustain operations affected by mounting strains on current levels of services rendered. However, these rehabilitation works will not eliminate structural problems related to dysfunctionality or nonconformance with acceptable medical standards.
- 2.08 The Bahamas has a basic ambulatory and emergency care network, which delivers both preventive and curative care. The health care network has evolved with a view towards providing the best possible resolution capacity, given the archipelagic configuration of the country. The Ministry of Health is strengthening infrastructure by building and equipping new clinics in New Providence and the Family Islands. Cases which cannot be resolved at the clinic-level are referred either to PMH or RMH.
- 2.09 Investment financing for the construction of the two hospital is included in the Bank's pipeline of projects for The Bahamas for consideration in 1989. This technical cooperation operation will enable MOH to receive the benefits immediately of the institutional strengthening and training component, which is integral to the infrastructure development component. Thus, while focussing on the improvement of the sector, project preparation activities will be undertaken simultaneously. The infrastructure development component is expected to produce the requisites for a functional programme in approximately three months after initiation of activities by the consulting firm. Thereafter, as the complete set of preliminary designs (architectural plans and electromechanical components) are being prepared, a loan request could be submitted towards the end of 1988.

B. Status of Development of Health in The Bahamas 1/

- 2.10 While the overall level of health is relatively high, compared to other Caribbean countries, and the quality and availability of health care for the general population is good, incidence rates for accidents, violence, degenerative diseases and mental and social illnesses have climbed rapidly during the last two decades. A detailed analysis of health indicators highlights the need for improvement through concentrated efforts to provide more specialized services and better primary, secondary and tertiary care in more efficient institutions.

1/ Background information and supporting data are located in Annex 1.

C. Existing Health Infrastructure

- 2.11 The health system in The Bahamas consists of both Government and private services and facilities. Public sector services are provided by three government hospitals and a number of health centers and clinics strategically placed throughout the islands. Ambulatory medical care is generally available in the country from private physicians and through the Government's primary health care network. However, the population, especially the low income groups, relies on Government institutions to obtain basic hospital and specialized care as well as diagnostic and therapeutic support services.
- 2.12 Hospital services are the responsibility primarily of the Ministry of Health, which manages the 454-bed acute care Princess Margaret Hospital in New Providence; the 457-bed chronic geriatric and psychiatric care institution, Sandilands Rehabilitation Centre in New Providence; and the 74-bed acute care Rand Memorial Hospital in Grand Bahama. In addition, a privately owned and operated 24-bed acute care hospital exists in New Providence; plans have been approved by the Government for the expansion of this hospital to 75 beds as well as for the construction of another private hospital of 100 beds. These private hospitals provide highly specialized medical care, in some areas such as X-ray scanning and oncological treatment. Regulatory norms for professional registration and certification of private hospitals are not standardized, such that the Government's ability to monitor these health care facilities is constrained.
- 2.13 PMH is the principal institution, providing the gamut of curative services covering primary, secondary and tertiary care. PMH also serves as the prime referral center for the entire country. Superspecialty services such as therapeutic radiation and open heart surgery are not available locally and, when needed, institutions in Florida or at the University of the West Indies Hospital in Jamaica are utilized, with the Government bearing part or all of the expenses depending on the case.

1. Princess Margaret Hospital (PMH)

- 2.14 PMH occupies a 12.9-acre site situated in downtown Nassau, New Providence and provides general acute care and specialized services, as well as secondary and tertiary level and diagnostic services. The facility dates back to 1952 when the central main wing was officially opened. Successive expansion and additions have occurred since that time, notably the Eye Wing in 1960, the Chest Wing in 1962 and the Emergency and Out Patient Wing in 1976. There are now approximately seven major buildings in addition to approximately 16 smaller separate buildings either in use or in an abandoned, deteriorated state. The entire hospital is short of space, with poor functionality for present demands.

- 2.15 There are three pedestrian and vehicular entrances to the site. However, access to the hospital is difficult, especially at peak periods extending throughout the day, due to traffic congestion.
- 2.16 In 1986 PMH registered a total of 16,752 admissions and a 74% annual average occupancy rate with an average length of stay of seven days and 596 deaths. During peak periods the basic service show occupancy rates above 90% and frequently early discharge of patients is necessary. The Special Care Baby Unit and the Surgery Department experienced the highest occupancy rates of 116% and 88% respectively. Some wards at PMH also have very high occupancy rates which affect the quality of the services provided. Current and projected demand by catchment areas according to the type and level of services, further illustrates the pressure now being sustained by PMH. It is important to point out that all the above mentioned occupancy rates are underestimated since additional beds have been installed well beyond the original design capacity (some in corridors and other inadequate places).

2. Rand Memorial Hospital

- 2.17 The Rand Memorial Hospital, originally constructed as a private health care facility in 1967, was taken into Government operation in 1971 and basically has been used in its original form since then. The land on which the facility is located is still privately-owned however. The hospital has a capacity of 74 beds and provides limited diagnostic, therapeutic and secondary care for a catchment area including Grand Bahama and the Northern Family Islands (that is, Bimini, Cat Cay, Berry Islands and Abaco). The physical design of the hospital does not allow for possible reconfiguration of space to change ward utilization. In any case, the existing buildings need refurbishment and repair. Because the present structure was expanded in a piecemeal fashion in an effort to meet increasing demands, the additions are below required levels and acceptable technical standards. In general, the electromechanical components (water supply, sewage disposal, electricity, and filtration system) are obsolete and should be replaced entirely.
- 2.18 In 1986 Rand Memorial registered a total of 3,876 admissions, an average 58% occupancy rate, an average length of stay of 4.1 days and 66 deaths. However, during the peak periods the average occupancy rates increase by 20%. The overall occupancy rate is low due to the decreasing need for pediatric hospitalization (15 beds with 54% occupancy) and the reduction in the birth rate (maternity with 18 beds at 38% occupancy). On the other hand, the Intensive Care Unit is overcrowded. As in PMH, the overall number of beds exceeds the optimum level and therefore affects the reported rates of occupancy.

D. Financing of the Health Sector

- 2.19 Funding for health care in the public sector comes mainly from general revenue (Consolidated Fund). The Ministry of Health's budget is allocated from two sources, the Government's Recurrent Budget and Capital Development Budget. The former is approximately 15% and the latter is less than 3% of the total budget allocation. From 1986 to 1987, allocations for recurrent expenditures grew 13.1% from Bh\$65.9 million to Bh\$74.5 million ^{1/}, while the capital development budget declined 28% from Bh\$5.3 million to Bh\$3.8 million. Due to overall budget restraints estimates for recurrent costs in 1988 are slightly lower amounting to Bh\$73.5 million, and for capital development the estimate of Bh\$4.1 million is slightly higher because of needed emergency repairs. Funds from the collection of fees have more than tripled since 1985, and at the present time they cover about 10% of the overall level of recurrent costs of all health care facilities.
- 2.20 Affecting the functioning of health facilities are limitations in the allocation of resources to finance recurrent costs. Staffing is affected by budgetary constraints; medical supplies, which while generally available in sufficient quantity, are affected as well because control, storage and distribution systems are not functioning properly. Future expansions of health facilities and services will depend substantially on the introduction of new financing mechanisms, since it is unlikely that additional resources could be mobilized from the national budget. A recent agreement reached with the National Insurance Board (NIB) to finance capital investment provides some possibilities for much needed improvement programmes and the growth of the sector.
- 2.21 With the enactment of the National Insurance Act in 1972, the National Insurance Fund was created in October 1974. The National Insurance Board (NIB) was established to administer and invest contributions collected under this Government-sponsored mandatory social security scheme. With a one-time endowment of the equivalent of US\$40.6 million transferred from the Industrial Benefits Reserve, a Medical Benefits Reserve was created in 1985 to assist in providing capital financing required to improve and expand public health care facilities. Although the Industrial Benefits Reserve began to receive contributions in 1974 from employees and employers for industrial injury benefits, the funds remained idle until legislation was enacted in 1981 formalizing these obligations. Prior to 1981, injuries were covered informally under workers' compensation arrangements wherein the respective employer assumed the liability. Given the difficulty involved in returning earlier contributions made to the Industrial Benefits Reserve, the Government decided to earmark the funds for social-type investments for the entire population, to be administered

^{1/} US\$1.00 = Bh\$1.00.

by NIB. From the Medical Benefits Reserve, \$30.0 million is available for hospital development and \$10.6 million for the construction of clinics throughout The Bahamas. Monies earmarked by NIB as a contribution to the improvement of hospital facilities would be invested in Government bonds and used as counterpart funding for the possible loan. In the case of clinics, NIB finances the construction and equipping of the physical structure and then for a nominal fee leases the building to the Government through the Ministry of Health which assumes the responsibility for operating and staffing the clinics. Seven community clinics are presently under construction and are due for occupancy in 1988.

2.22 Complementarily, a publicly-administered National Health Insurance Plan, at present being considered by the Government, is expected to generate the necessary resources to finance recurrent costs. Feasibility studies for such a plan have been completed and reviewed by the Ministries of Health and Finance and have also been submitted to the Cabinet for discussion. Public debate to discuss various aspects of the Scheme will commence in late June 1988, based upon which draft legislation would be prepared by January, 1989. Parliamentary consideration and full implementation is expected by the beginning of 1990. Initially, insured benefits that are recommended for inclusion are in-patient hospital services at public and private hospitals, air evacuation, ground ambulance and the institutional costs of certain procedures (such as renal dialysis, chronic peritoneal dialysis and CAT scans) when undertaken on an ambulatory basis in approved facilities in the public and private sector. Over the longer term, it is anticipated that the range of insured services covered by the Plan would be broadened based upon cost and administrative considerations. The Plan would reimburse public hospitals on the basis of a flat-rate daily charge in respect of each day's hospitalization; the rate would be established at an economic level that would cover the hospitals' operating costs as well as depreciation.

2.23 This Plan, and that provided under the agreement with the National Insurance Board, will enable the financing of capital and recurrent costs and are thus, crucial elements in the viability of new programmes in the sector. The proposed programme objective of this request constitutes the basic element for discussing a rational utilization of existing and new resources for the health sector.

E. Previous Health Related Studies and Activities

2.24 Since 1973, the Government of The Bahamas has financed numerous studies of the health sector and services which analyse the problems and provide a foundation on which the health system can be further developed and strengthened. Subsequently, specific consultancies were initiated, facilitated through collaboration with PAHO/WHO and other international agencies.

- 2.25 Expanding on these studies, in 1986, the Ministry of Health began to take steps to improve its health information and financial management systems because existing manual systems lacked the capacity to collect and process data on a timely basis. The manual systems are also contributing to extensive weakness in internal and administrative controls. For example, substantial wastage occurs especially in the area of supplies management; this situation in turn, is affecting the quality of service rendered.
- 2.26 For these reasons, a User Requirement Study was executed by the Ministry, assisted by a consulting firm. The purpose of the study was to plan for the development of an integrated health information system, which would include financial, health delivery and health statistical components, to be utilized by PMH, Rand Memorial, Sandilands Rehabilitation Centre, the Public Health Department and the Ministry of Health. Systems currently in place were reviewed and the degree to which these were meeting the needs of key activities in the Bahamian health system were analyzed; the requirements of the system were determined; and necessary system changes identified within the context of possibly adapting any present systems. Recommendations were then developed for the improvement of the information system having four phases. The scope of Phase I would include Patient Accounting, Admissions/ Discharge/Transfer and Medical Records, as these are areas with the greatest potential for increased revenue, improved productivity, more comprehensive reporting and better internal control. Phase II would automate the Materials Management function (including inventory control and supplies management). Phase III would incorporate other financial functions, including General Ledger, Accounts Payable and Fixed Assets. Phase IV would automate Pharmacy, Laboratory and Radiology.
- 2.27 With regard to the need for improved hospital facilities, two studies were undertaken to examine alternative investments. The first study was prepared in September 1981, when the Government of The Bahamas contracted with its own resources an architectural and hospital planning consulting firm to prepare a structural master plan for the future development of PMH and Rand Memorial Hospital. The consultants assessed the structural condition of facilities already existing in the older hospital buildings on site and their suitability of purpose to meet future health standards and projected needs. Consideration regarding the age, condition and dysfunctionality of the building led the consultants to recommend the phased new construction of both hospitals on their respective sites. Although some of the recommended investments were undertaken by the Government, changing utilization patterns of the hospital services, particularly the major increases in traumatic incidences and infectious diseases coupled with the further deterioration of the physical plant necessitated reassessment of this position; in addition Government officials wanted a more detailed analysis which would incorporate economic and financial considerations. Towards this end, the Government requested in April 1987 the Bank's assistance with the formulation of a technical

cooperation proposal. As a first step, the Bank sent a Special Mission to The Bahamas in July, 1987. 1/

2. The IDB

- 2.28 In August, 1987, with resources provided under PAHO/IDB ATN/SF-2629, advisory services were provided through a team of consultants, the first of whom was a Public Health Planning Specialist who assisted the Government with the preparation of the technical cooperation request for institutional strengthening and feasibility studies. Based upon the analysis of data collected in the country and the investments being made with local resources, the consultant noted that the expansion or improvement of the ambulatory care network was being covered with local resources, but that improvements in the secondary and tertiary levels would require substantial funding and Government attention. This consultant also suggested that a hospital architect, a civil engineer and an electromechanical engineer visit The Bahamas to consider whether hospital services would best be served (a) by building completely new hospitals on different or existing sites or (b) by renovating existing hospital facilities. An evaluation methodology was established to identify critical areas and services of PMH and Rand Memorial and to assess the respective levels of functionality.
- 2.29 Based upon an appraisal of the degree of functioning and of the adequacy of PMH, the consultants concluded that the physical structure and functional service relationships and flows are below acceptable standards and are beyond upgrading for extended use as an acute care hospital and should therefore be replaced. The present situation and main problems at PMH may be summarized as follows:
- a. the major infrastructure problems are: (i) in-patient and other services and buildings, are inadequate and obsolete; (ii) out-patient services, X-ray and central sterile supply are short of space for existing requirements; and (iii) general services or storage areas (drugs & supplies stores), laundry and others are located in obsolete and deteriorating old building;
 - b. mechanical/electrical systems are substandard and are in poor physical condition, for example air conditioning and ventilation systems were designed inadequately and are operating poorly, with major deficiencies found in the burn ward, morgue and surgical theatre and serious danger of cross contamination to and from other areas existing.

1/ See paragraphs 2.02 to 2.04.

- 2.30 Due to poor accessibility of the existing hospital and the high opportunity cost of maintaining the hospital at the present site, the consultants proposed the construction of a new hospital in Nassau of approximately 650 beds, with a total area between 420,000 square feet and 470,000 square feet depending upon the level and type of services to be provided as a result of feasibility studies. The consultants considered the earlier recommendation to build the hospital on the same site by phases and maintained that this alternative would involve greater risk to patients because of contamination problems; would further disrupt critical relationships between services and internal flows of patients, staff and supplies; and would involve a higher cost of approximately 30% more than a new facility. The new PMH location would also improve the accessibility and quality of the health care service.
- 2.31 In the case of Rand Memorial, there is a shortage of space in critical areas, with no opportunity for expansion on the present site. In addition, technically unacceptable flows exist which unnecessarily expose patients and staff to contagious environments. Inadequate sewage disposal is exacerbating this situation. In addition, the owners of the existing site would now like to use the property for commercial purposes and have deeded to the Government at no cost a 15-acre site (three times larger than the present area) with comparable accessibility, in exchange. For these reasons, the consultants have recommended the construction of a new hospital in Freeport of approximately 90 beds, modular in design to accommodate possible future expansion to 120 beds.

III. THE PROJECT

A. Objectives

- 3.01 The general objective of the proposed technical cooperation is to increase the effectiveness and efficiency in the utilization of human and financial resources in the health sector and to improve the quality and coverage of health care. This objective would be achieved through the provision of financing to assist with the execution of the following Subprojects: (a) Subproject I would involve institutional strengthening activities for the Ministry of Health; (b) Subproject II would include feasibility studies and preliminary designs of two new hospitals (to replace PMH and RMH), forming part of an integrated long-term investment programming process to improve the provision of primary, secondary and tertiary care. 1/

1/ The Terms of Reference for Subproject I and II are attached as Annex 2(A, B and C).

B. Description

- 3.02 The project would involve the hiring of a consulting firm experienced in operational, administrative, engineering, planning, economic and financial aspects of health care projects, and complementarily would involve the provision of pre-identified short-term training abroad.

1. Subproject I

- 3.03 Subproject is to establish the framework for the following administrative subsystems of the Ministry of Health: policy formulation, planning and programming; organizational and managerial reforms; human resources development; health information; financial management; supply management; maintenance; and regulatory activities. Overall objectives to be achieved are:

- a. To improve the formulation of health care delivery policies and plans, as well as to implement programming and evaluation procedures in order to provide elements for technical, administrative, financial and political decision making;
- b. To implement organizational reforms and managerial modernization (including the development of appropriate software applications) needed for improving the efficiency and the effectiveness of the health care delivery;
- c. To prepare a comprehensive manpower development plan (with long-term training requirements) and personnel administration subsystem;
- d. To improve the relevance, quality, coverage and timeliness of health data to be utilized in reviewing priorities, resource allocation, evaluation, supervision and control;
- e. To set financial administration procedures in order to opportunistically determine unit costs of production, implement cost control measures and identify alternative mechanisms for cost recovery;
- f. To permit rational acquisition, stock control and distribution of drugs, medical supplies, laboratory reagents, and other materials utilized by the MOH, by facility and programme;
- g. To develop a preventive and corrective maintenance subsystem for biomedical and electromechanical equipment; and
- h. To recommend basic national legislation for health care activities.
- i. To assist with the implementation process in all areas and provide on-the-job training to strengthen the Ministry of Health's capability in techniques applied and coordinate the short-term

overseas training programme in the areas of hospital administration, maintenance, financial management, human resource development, health planning and project development (including long-term investment programme).

- j. To prepare terms of reference for further improvement of the managerial capacity at the proposed new hospitals in the areas of administration, supply management, financial management and maintenance.

2. Subproject II

3.04 Feasibility and Preliminary Designs of Two Hospitals to prepare studies which will determine and analyse alternatives for investments to be made to support the country's long term investment programme for the development and growth of new hospital infrastructure in The Bahamas. The consulting firm will prepare feasibility studies and preliminary designs for the construction of two new hospitals that will replace PMH in New Providence and RMH in Grand Bahama. 1/ The work would involve the following activities:

- a. study the demand and the supply of health services and project specific deficits by geographic areas and health programmes;
- b. prepare a functional analysis of the health service network, defining the role and assessing the efficiency of primary, secondary and tertiary health care and of each facility in the system and projecting supply and demand;
- c. define the role of each establishment in meeting projected demand, and identify needs for capital investments;
- d. prepare functional and space programmes for the new buildings to be constructed and identify buildings to be maintained at PMH;
- e. propose alternative uses for these buildings;
- f. select the least cost (investment, operation and maintenance) alternative and prepare schematic drawings 2/ and estimate the cost of construction, equipment, as well as operations and maintenance;

1/ Feasibility studies and designs for primary health care facilities are being prepared with local resources.

2/ See Annex 2.

- g. develop preliminary architectural and engineering designs 1/ and prepare a detailed list of equipment; and
- h. prepare socio-economic and financial studies according to the Bank's guidelines and methodology for the preparation of projects in the health sector.

IV. PROJECT EXECUTION

- 4.01 The executor of this operation would be the Ministry of Health which would contract the services of a consulting firm in accordance with the Bank's procedures. In its detailed proposal of work, the consulting firm would designate a full-time Project Coordinator to liaise with the Executing Agency and the Bank.
- 4.02 A counterpart Project Director would be designated by the Minister of Health, prior to first disbursement to liaise with the consulting firm and the Bank. The Project Director would be responsible for coordinating the execution of the project through the office of the Under Secretary and for carrying out all the administrative tasks related to selecting, contracting and supervising the consulting firm for procuring of equipment; and for preparing disbursement requests and maintaining the accounts for the project; and for preparing periodic evaluations and reports in accordance with the Bank's procedures. Prior to initiation of work by the consulting firm, the Ministry of Health will designate 3 technical persons from existing staff to work full-time with the consulting firm throughout the execution of the project.
- 4.03 In addition, the Ministry of Health would contract for one year an engineer as counterpart staff. The engineer is necessary because of local staff limitations in hospital engineering within the Ministry of Works, which would normally have this responsibility, and the absence of engineering capability within the Ministry of Health. Advisory services related to the improvement and installation of computer hardware will also be engaged by the Ministry of Health as counterpart activities.
- 4.04 Subprojects I and II will be executed simultaneously 2/. It is estimated that the selected consulting firm will be required to provide approximately 66 consulting months of advisory services over twelve months for Subproject I, while Subproject II would require 54 consulting months over eight months.

1/ See Annex 2.

2/ See chronogram of work in Annex 4.

- 4.05 To complement the institutional strengthening component, MOH has requested that a programme of training be undertaken to upgrade mid-level and senior professional staff capabilities. In the absence of this level of training locally, the training would be undertaken through relatively short-term studies at academic or specialized institutions abroad qualified to provide training in hospital administration and maintenance, health planning and development, financial planning and human resource development. The consulting firm would schedule and arrange the programme of overseas short-term training for MOH staff. Longer term training (one year), to be funded with counterpart resources, would also be coordinated by the firm. Within two months of initiation of work, the consulting firm would submit through MOH the training programme, confirming the course content, institutional identification and schedule of individual training.
- 4.06 Based upon the estimate of consulting months and the proposed scope of work required, the following is a tentative breakdown of advisory services required for each component of the project.

Subproject I (Institutional Strengthening)

<u>Area of Specialization</u>	<u>Consulting Months</u>
- Project Coordinator (with experience in the administration of health projects)	12
- Health Planner/Policy	6
- Health Service Administration	10
- Human Resources	8
- Health Information Systems (with experience in maintaining medical records)	4
- Health Systems Programming	5
- Financial Management Systems	5
- Supplies Management Systems	4
- Financial Analyst	4
- Economist	3
- Biomedical Engineer	2
- Health Legislation Expert	3
TOTAL	<u>66</u>

Subproject II (Hospital Infrastructure)

	<u>Consulting Months</u>
- Functional Programmer	8
- Economist	8
- Architect	8
- Civil Engineer	8
- Electro-mechanical Engineer	8
- Hospital Equipment Specialist	4
- Financial Analyst	6
- Hospital Administrator	4
TOTAL	<u>54</u>

- 4.07 The Executing Agency will also provide necessary office space and secretarial assistance as well as any other support personnel, equipment and supplies for all work undertaken in The Bahamas.
- 4.08 Essential to the execution of the institutional strengthening subproject, the Executing Agency started the bidding process for the acquisition of computer equipment and software packages subsequent to the submission of the technical cooperation request. The information system to be installed is based upon recommendations (related to improvements in medical records, patient information and billing and materials management) resulting from the User Requirement System, is an integral component of the effort to improve the internal functioning and structure of the health sector and is consistent with the activities proposed for the consulting firm since the timing of the institutionally related aspects is dependent upon the availability of data to be generated with this equipment, the Beneficiary has requested that the Bank recognize as part of the local counterpart the cost of this equipment up to an amount equivalent to US\$340,000. This equipment and related services are being procured and contracted in accordance with the Bank's policies and procedures.
- 4.09 Mid-Term Review Missions would be sent to The Bahamas approximately five months after the initiation of work by the consulting firm upon completion of the functional programme (see TOR) and schematic drawings and at the final stages of the feasibility studies.

V. COST AND FINANCING

- 5.01 Total cost of the proposed project is estimated to be the equivalent of US\$3,650,000. Of this amount, financial assistance from the Bank of the equivalent of US\$1,500,000 would be granted on a non-reimbursable basis for Subproject I and the equivalent of US\$1,000,000 would be provided on a contingent recovery basis for Subproject II, both from the net income of the Fund for Special

Operations. The Beneficiary would provide the equivalent of US\$1,150,000 as local counterpart financing. Of the Bank's contribution, it is estimated that 30%, that is approximately the equivalent of US\$750,000, would be in local currency and the balance in foreign exchange. The following table shows the proposed cost and financing of the operation: 1/

(in equivalent US\$)

	<u>I D B</u>	<u>G O B H</u>	<u>TOTAL</u>
A. <u>SUBPROJECT I</u>	<u>1,364,640</u>	<u>166,180</u>	<u>1,530,820</u>
1. <u>Consulting Firm</u>	<u>1,317,000</u>	<u>55,000</u>	<u>1,372,000</u>
3. <u>Fellowships</u>	<u>47,640</u>	<u>111,180</u>	<u>158,820</u>
B. <u>SUBPROJECT II</u>	<u>902,400</u> ^{2/}	<u>30,000</u>	<u>932,400</u>
1. <u>Consulting Firm</u>	<u>902,400</u>	<u>30,000</u>	<u>932,400</u>
C. <u>SUBPROJECTS I AND II</u>			
5. <u>Other Staff (Counterpart professionals and consultants)</u>	<u>-</u>	<u>170,000</u>	<u>170,000</u>
6. <u>General Supports</u>	<u>-</u>	<u>676,160</u>	<u>676,160</u>
98. <u>Contingencies</u>	<u>232,960</u>	<u>107,660</u>	<u>340,620</u>
Subproject I	<u>135,360</u>	<u>-</u>	<u>-</u>
Subproject II	<u>97,600</u> ^{2/}	<u>-</u>	<u>-</u>
TOTAL	<u>2,500,000</u>	<u>1,150,000</u>	<u>3,650,000</u>
Percentage	68.4	31.6	100.0

VI. JUSTIFICATION

- 6.01 The Bahamas has a relatively high level of health and the availability and the quality of care provided to the general population is of good standard. The Government is currently in the process of constructing some new polyclinics in Nassau and improving the ambulatory care network. However, at the hospital care level which is essential to support the primary care activities there is a strong need to improve physical facilities and equipment in order to maximize the operating capacity of the country's public hospitals. During the last decade, a series of piecemeal additions, expansions and changes in the physical facilities were made to accommodate urgent and increasing demands for service mainly for emergency situations. As a result, the functional relationship has been disrupted and inadequately locked-in services

1/ Annex 5 provides a detailed breakdown of costs.

2/ This amount is of a contingent recovery nature, such that the Bank would be reimbursed from the first disbursement of the investment project pursuant to Bank policy.

have not been able to respond effectively to demand. Services are currently below minimum acceptable medical standards in several areas with overcrowding and the hospitals have, in many areas, become obsolete and inadequate for the type of service of today's diseases and medical technology. Thus, major problems have evolved that are affecting the efficiency of financial and manpower resource utilization and the performance of existing infrastructure and services.

- 6.02 The PMH is the only established tertiary care institution nationally, which handles not only the needs of the entire resident population but also that of those transient (visitor) population. However, due to the increasing number of cases in some areas, demand has outgrown the site of existing units within the hospital and because of the consequent overcrowding, many instances arise when ill patients must be discharged prematurely to accommodate more seriously ill patients. This situation often occurs in the Intensive Care Unit, which in 1986 reported the highest number of deaths (143) for the hospital. Another example involves the Special Care Baby Unit, which has only twenty beds and an occupancy rate of 116% for 1986; here there is an urgent need for trained staff, specialized equipment and space. There is also a lack of neonatal intensive care.
- 6.03 Replacement of the physical infrastructure of the Princes Margaret and Rand Memorial hospitals is justified on both technical and economic grounds. From the technical standpoint, the main consideration is the need to respond to the increased demand for health services, both quantitatively (coverage) and qualitatively (complexity), which has resulted from population growth and changes in the profiles of morbidity and mortality. From the economic point of view, remodeling of existing installations is not the recommended alternative because of the high cost, contamination possibilities and the interruption that such projects would entail in the provision of health services.
- 6.04 There is general recognition that it would be possible to increase services in both quantitative and qualitative terms with resources currently available to the Ministry of Health (about 15% of the overall recurrent budget). Thus, strengthening the institutional framework is an essential component of this project in order to ensure that the services will operate efficiently and that the maximum return is achieved from the prospective investment. Institutional development, focussing upon improving the functions of policy formulation, planning and programming, organizational and managerial reforms, human resource development, health information systems, financial analysis, supply management and maintenance, forms an integral part of the hospital development component. The process of strengthening health subsystems would provide empirical data and generate operational norms and standards which will be used in the assessment of the appropriate mix of service for optimum health care and in the preparation of the investment programme. The institutional strengthening will also

assist in streamlining the administration of the network of clinics throughout The Bahamas.

6.05 The Government of The Bahamas is committed to the provision of satisfactory level of health care to all Bahamians and visitors and has therefore, commenced the process to ensure that an adequate level of primary, secondary and tertiary services are available. The following activities are underway:

1. In the 1988 Budget, funds have been assigned to expand the Sandilands Rehabilitation Centre by 100 beds for psychiatric and geriatric care. This will alleviate pressure on PMH and Rand Memorial.
2. The Ministry of Health has initiated a programme to improve primary health care through the construction of clinics financed with domestic resources mobilized under the NIB Medical Reserve fund.
3. The Government has commenced the process towards implementation of the proposed National Health Insurance Scheme.
4. The Government has embarked on a policy to decentralize public hospitals in order to improve financial and administrative management.

6.06 As a project in the field of health involving the improvement of capabilities through institutional strengthening and training activities in areas of policy formulation, planning and programming and human resource development, the use of non-reimbursable resources is recommended for Subproject I in light of Bank policy permitting this treatment in operations of this type.

VII. DISBURSEMENTS

7.01 The disbursement of the Bank's contribution would be made over a period of 28 months from the date of signature of the Technical Cooperation Agreement. The above-mentioned periods may be extended by the Bank at the request of the Beneficiary in order to facilitate execution of the project. The Bank may establish an Advance of Funds which shall not exceed 10% of the proposed Bank contribution.

VIII. REPORTS

8.01 The Technical Cooperation Agreement to be signed between the Bank and the Government of the Commonwealth of The Bahamas, and the consultancy contract to be signed between the Executing Agency and the selected consulting firm, will specify that at least four copies of each of the following reports will be submitted to the Bank for approval:

1. Within 30 days from the date of initiation of work, an Initial Report will be submitted that would include a revised activity programme, tentative work schedule, and Terms of Reference for each consultant. The Executing Agency will forward observations to the Bank within 10 days from the date of receipt of the Initial Report, after which the consulting firm would revise the report incorporating any observations or comments made by the Bank and the Executing Agency.
 2. Quarterly reports will be submitted covering both Subprojects, listing the activities, results obtained and progress made during the period. The first report will be submitted 90 days after the Initial Report. These reports, will be reviewed by both the Executing Agency and the Bank.
 3. Special reports or other information requested within reason by the Government of The Bahamas and the Bank on the development of the activities under the project.
 4. A draft final report would be presented, for Subproject I within 12 months from the date of initiation of work and for Subproject II within 9 months from the date of initiation of work. Both would examine in detail the respective activities undertaken, problems encountered, results obtained and necessary follow-up actions. Each report will be preceded by a summary of no more than 500 words. The Executing Agency and the Bank will review the reports, and comments will be presented to the consulting firm by the Executing Agency within 30 days of receipt of the draft Final Report. Any changes or modifications proposed by the Bank and the Executing Agency would be included by the consulting firm in the Final Report to be submitted 30 days thereafter.
- 8.02 Within 60 days from the date of final disbursement of the Bank's contribution, the Beneficiary will present to the Bank a statement of expenses chargeable to the Bank's contribution and to its own resources, certified by auditors satisfactory to the Bank.

IX. AGREEMENT

- 9.01 The Commonwealth of The Bahamas will sign a Technical Cooperation Agreement with the Bank stipulating the terms and conditions of the financing, within 30 days following the approval of the Plan of Operations by the Board of Executive Directors of the Bank.

X. RESPONSIBILITY WITHIN THE BANK

- 10.01 The Operations Department, through the Preinvestment Section (OPS/PRI), would have the basic responsibility for the operation while

the Project Analysis Department, through its Social Development Division (PRA/PSD), would have the technical responsibility. Administrative supervision in the field would be performed by the Bank's Field Office in The Bahamas.

XI. RECOMMENDATION

- 11.01 The Manager of the Operations Department, through the Loan Committee, recommends that this Plan of Operations be submitted to the President of the Bank so that, if approved, it should be presented to the Board of Executive Directors together with the corresponding resolution.

PROPOSED RESOLUTION

BAHAMAS. TECHNICAL COOPERATION FOR IMPROVING THE HEALTH
CARE SYSTEM

The Board of Executive Directors

RESOLVES:

1. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such agreements as may be necessary and to adopt such other measures as may be pertinent for the execution of the plan of operations referred to in Document AT-763 with respect to technical cooperation with the Government of the Commonwealth of the Bahamas for carrying out a Program for improving the health care system, which includes: (a) institutional strengthening of the Ministry of Health and training of its staff (Subprogram I); and (b) preparation of feasibility studies and preliminary designs of two new hospitals (Subprogram II).

2. That up to the sum of US\$2,500,000 or its equivalent, is authorized for the purpose of this resolution, chargeable to the net income of the Fund for Special Operations.

3. That from the above mentioned amount: (a) up to US\$1,500,000 or its equivalent, is to be provided on a nonreimbursable basis, for financing Subprogram I; and (b) up to US\$1,000,000 or its equivalent is to be provided on a contingent repayment basis, in accordance with the respective conditions which shall be set forth in the agreement to be signed for this operation, for financing Subprogram II.

BACKGROUND INFORMATION ABOUT THE
HEALTH SECTOR IN THE BAHAMAS

A. Overview

1. The geophysical nature of The Bahamas comprises an archipelago of 700 islands and cays, of which 29 are inhabited. With a land mass of 5,382 square miles, The Bahamas spans an area of 100,000 square miles of sea. The unit costs of public administration, social services and economic infrastructure are high because of the wide geographic dispersion of the country and the very small populations served. This configuration also presents many logistical problems for the organization and delivery of a comprehensive health care service, that is with respect to travel, communication and supplies.
2. The 1980 census places the resident population at 209,505. In the decade between 1970 and 1980, the population of The Bahamas increased by 39,971 people at an average annual growth rate of 2%. In 1980 New Providence, where the capital of Nassau is located, accounted for 64.7% of the resident population, compared with 60.2% in 1970. Overall population growth throughout the 80's has been steady at 1.5% per year, with the concentration in New Providence continuing. New Providence has experienced the highest annual growth rate of 2.1%, with Grand Bahama, Abaco, and Eleuthera showing moderate increases. The majority of the other islands suffered a loss of population. ^{1/} By the year 2000, population is projected to grow by 1.4% to reach 292,000.
3. The archipelagic configuration of The Bahamas requires a unique administrative approach. For economic and social reasons, the Government is pursuing a policy to keep the Family Islands populated through the development of basic amenities, services and employment opportunities in order to alleviate migration to New Providence, where strains are already appearing upon the provision of various services. Although the population in the Family Islands is sparse and widely dispersed, the Government is mandated to provide adequate infrastructure to ensure that urban as well as underserved rural populations have access to health care which is technically sound, culturally acceptable and financially feasible. Towards this end the Government maintains three hospitals, that is two in New Providence and one in Grand Bahama and clinics (at least at the level of pre- and post-natal care) in all the Family Islands.

^{1/} Apart from the island of Grand Bahama, which has a population of approximately 41,382, the remaining islands have populations ranging from 50 to 8,000.

B. Health Statistics

1. Crude deaths in The Bahamas per thousand inhabitants rose from a rate of 5.0% in 1982 to 5.7% in 1985. Of total deaths in 1985 for all ages, 18% for males and 20% for females, were caused by heart disease.
2. While the infant mortality rate (number of deaths of children under one year of age per thousand live births) over the 1975-1982 period declined significantly from 34.7 deaths to 21.6, it started increasing since then, reaching 26.3 in 1985. The mortality structure of this age group in 1985 shows that over 44.5% of deaths were related to conditions originating in the perinatal period followed by pneumonia, other ill-defined conditions and cerebrovascular diseases. Perinatal deaths could be significantly reduced by better antenatal and perinatal care in Maternity Services with concomitant neonatal in Newborn Care as well as in the Intensive Care Unit. Deaths resulting from pneumonia and other diseases of the respiratory system would also diminish with better primary and secondary care during the first months of life.
3. Mortality rates from age 1 to 14 were low in 1985. Higher rates occurred in the 15 to 33 age group, with the leading cause of death for males and females being accidents and injuries. Heart disease and malignant neoplasms were the second and third leading causes for males; for females the order of significance was reversed. In the 45 to 64 age group, the leading causes of death for both sexes were malignant neoplasms and heart disease, followed by accidents and injuries for males and cerebrovascular diseases for females. Possibly these deaths could be reduced gradually through health education and cultural changes in lifestyle. However, for those deaths related to disease, better curative care activities could be delivered at the hospital level.

C. Primary Health Care

1. Primary health care services on New Providence are delivered from Government health centres, the ambulatory care department at PMH and private physicians' offices. In the Family Islands primary care is delivered by physicians, community nurses, midwives and health aides through a network of twelve (12) health centres, thirty-five (35) main clinics and fifty-one (51) satellite clinics. These are arranged into nineteen (19) health districts, each staffed by a team of physicians, nurses and other health support staff. 1/

1/ The health resources in a district vary but each district contains at least one health centre and/or a major or satellite clinic. See attached map showing the location of Government health facilities and accompanying table with information about the dispersion of these facilities.

2. As a complement to these hospital services, Community Health Clinics are maintained by the Government in New Providence, Grand Bahama and throughout the Family Islands. Those in New Providence traditionally offer maternal and child health services, except in the outlying areas where some all-age services are available. Community Clinics in Grand Bahama utilize Rand Memorial Hospital as the referral centre. They offer ambulatory care services for the respective catchment areas and are serviced by a resident nurse and doctor. In one location, which is most distant from Rand Memorial Hospital, uncomplicated deliveries are performed by the resident nurse.
3. The remaining islands are attended by the Family Island Services, which essentially comprise primary care activities. Services are provided through a network of clinics which, for operational purposes, are classified as follows:
 - Health Centres or Level 3: Staffed by a district medical officer, these clinics provide all-age ambulatory and emergency care and also have facilities for overnight accommodation, usually two to four beds. Nurses are resident at the clinics or in the community.
 - Main Clinics or Level 2: These are headquarters for nursing areas, and in some cases a resident doctor is also available. Regular clinic sessions are held for ambulatory care, maternal and child health, and so forth. Deliveries are done at these clinics, and emergency care is available on a 24 - hour basis.
 - Satellite or Level 1: Clinics are visited by the staff of main clinics on a periodic basis. No deliveries are done here as there is usually no registered nurse or midwife in residence.
4. Hospital care is not provided at these facilities, although some clinics have observation beds for short stay. Patients requiring hospitalization are referred to PMH.

D. Institutional Aspects

1. The Ministry of Health has a total staff of approximately 4,000 assigned to various clerical, administrative and professional activities. The Minister of Health, assisted by a Permanent Secretary, has the overall responsibility for directing health related activities in The Bahamas. The administrative responsibility of the Ministry is vested with the Permanent Secretary who delegates various functions. Financial and materials management are also handled directly by the Permanent Secretary. Health promotion, planning, health information, manpower planning, project management, infrastructure development and personnel administration are the responsibility of and are coordinated by the Under Secretary. Clinical coordination and policy information are handled by the Chief Medical Officer (CMO), who is the main technical advisor to the Minister on professional health matters.

Within the Ministry, separate Hospital Management Committees now oversee the operations of PMH and Rand Memorial, although the Government is planning to convert these hospitals into corporate-type structures, having their own Boards and administrative and financial autonomy.

2. The Department of Environmental Health Services is the lead agency in all matters pertaining to environmental health; however, other government departments collaborate on most major environmental projects. The Department is headed by a Director, who reports to the Minister of Health through the Permanent Secretary.

E. Other Agency Assistance

1. Pan American Health Organization (PAHO)

The Bahamas has had an ongoing relationship with PAHO since 1978 when a health management consultant was posted in the country. In 1982, PAHO's resident office was upgraded to Programme Coordinator Status and another professional staff member, a bio-statistician commenced full-time duties in December, 1983. Cooperation from PAHO is facilitated through the country budget for The Bahamas, which in more recent years was US\$686,600 in 1984/85, US\$785,000 in 1986/87 and US\$867,600 proposed for 1988/89. The country's budget is supplemented from time to time by additional funds from PAHO Regional programmes and extra-budgetary financing for special projects

2. The World Bank

As part of a vocational and technical education loan, approved by the World Bank in March 1981, a new School of Nursing was constructed at a total cost of the equivalent of US\$2.0 million. Of this amount, the World Bank provided US\$1.44 million. In addition, US\$.9 million was provided for advisory services and staff development and US\$.4 million for the acquisition of furniture and equipment. The project enabled The Bahamas to improve its teaching programme and to increase its enrollment from about 180 to about 240 trainees --180 trainees for basic nursing courses (registered and clinical nursing) and 60 trainees for advanced nursing (community, midwifery and psychiatric).

3. European Economic Community (EEC)

Under Lome II, the EEC approved 200,000 European Currency Units of account to The Bahamas in 1980 for health development activities. These funds were utilized to construct three Level 1 clinics in High Rock (Grand Bahama), Wemyss Bight (Eleuthera) and Forbes Hill (Exuma). Construction was completed in 1986. With a balance of funds of \$80,000, consideration is now being given to the construction of a fourth clinic in Roses, Long Island.

Legend:

- + Public Hospital
- △ Private Hospital
- Community Clinics (Types)
- * Clinic under Construction

Map Labels:

FLORIDA
STRAITS OF FLORIDA
ANDROS
GRAND BAHAMA
BERRY ISLANDS
ABACO
NEW PROVIDENCE
ELEUTHERA
CAT ISLAND
SAN SALVADOR
LITTLE SAN SALVADOR
GREEN CAY
GREAT EXUMA
RUM CAY
CONCEPTION ISLAND
LONG ISLAND
CROOKED ISLAND
ACKLINS
BANDERS CAY
CAY SANTIAGO
CAY VIEJO
CAY LOLOS
CAY SALT
NEW PROVIDENCE

THE
JOURNAL
OF
THE
ROYAL
ANTHROPOLOGICAL
INSTITUTE
OF GREAT
BRITAIN
AND IRELAND
PART 1
1901

1953

DISPERSION OF GOVERNMENT HEALTH SERVICES FACILITIES, BAHAMAS

- 1986 -

ISLAND	COMMUNITY HEALTH DISTRICTS	LAND AREA (SQUARE	POPULATION 1980	FACILITIES LEVEL*			
				4	3	2	1
New Providence	1. Annes Town	2	19,394		1	—	—
	2. Blue Hill	4	24,924		1	—	—
	3. Coconut Grove	8	82,468		1	—	—
	4. Carmichael	16	9,621		—	1	1
	5. Fox Town	10	18,597		—	1	—
	6. Gambier	40	6,528		—	1	—
	SUB-TOTAL	80	136,437	2	3	3	1
Grand Bahama	1. West End	}	9,173		1	—	—
	2. Eight Mile Rock				1	—	1
	3. Hawksbill/ East-End		23,929**		1	2	4
	SUB-TOTAL	630	33,102	1	3	2	6
Abaco	1. North Abaco		3,886		1	3	2
	2. South Abaco		3,385		—	4	5
	SUB-TOTAL	649	7,271		1	7	7
Acklins, Crooked Is. and Long Cay	Acklins/ Crooked Island	285	1,171		—	4	4
Andros	1. North Andros		3,434		—	3	1
	2. Central Andros		2,710		1	2	3
	3. South Andros		2,163		1	1	1
	SUB-TOTAL	2300	8,307		2	6	6
Berry Island	Berry Island	12	609		—	1	1
Bimini	Bimini	11	1,411		—	1	—
Cat Island	Cat Island	150	2,216		1	2	6
Eleuthera Harbour Is. and Spanish Wells	1. North Eleuthera		3,676		—	4	2
	2. Central Eleuthera		3,155		1	1	4
	3. South Eleuthera		3,799		1	—	2
	SUB-TOTAL	200	10,631		2	6	8
Exuma & Ragged Is.	Exuma/ Ragged Is.	126	3,834		1	3	3
Inagua & Mayaguana	Inagua/ Mayaguana	709	1,388		1	1	2
Long Island, San Salvador & Rum Cay	1. Northern Long Is./ San Salvador/ Rum Cay		1,414				
			825		—	2	7
	2. Southern Long Is.		1,990		1	1	3
	SUB-TOTAL	320	4,229		1	3	10
TOTAL WITH OTHER CAYS ADDED		6382	209,505	3	15	38	62

*LEVEL OF FACILITIES
 4 — Hospital
 3 — Health Centre
 2 — Main Clinic

**Population for Hawksbill and East End includes Freeport.

INSTITUTIONAL STRENGTHENING OF THE MINISTRY OF HEALTH

TERMS OF REFERENCE FOR SUBPROJECT I

I. PURPOSE

The purpose of this subproject is to establish the framework for the development of the following administrative subsystems of the Ministry of Health: policy formulation, planning and programming; organizational and managerial reforms; human resources development; health information; financial management; supply management; maintenance; and regulatory activities. A component would also be designed for the improvement of operational capacity at the hospital level, to be executed as part of the investment project in the areas of hospital administration, supply management, maintenance; and for the consolidation of hospital financial administration. Overall objectives to be achieved are:

1. To improve the formulation of health care delivery policies and plans, as well as to implement programming and evaluation procedures in order to provide elements for technical, administrative, financial and political decision making;
2. To implement organizational reforms and managerial modernization needed for improving the efficiency and the effectiveness of the health care delivery;
3. To prepare a comprehensive manpower development plan (including training requirements) and personnel administration subsystem;
4. To improve the relevance, quality, coverage and timeliness of health data to be utilized in reviewing priorities, resource allocation, evaluation, supervision and control;
5. To set financial administration procedures in order to opportunistically determine unit costs of production, implement cost control measures and identify alternative mechanisms for cost recovery;
6. To permit rational acquisition, stock control and distribution of drugs, medical supplies, laboratory reagents, and other materials utilized by the MOH, by facility and programme;
7. To develop a preventive and corrective maintenance subsystem for biomedical and electromechanical equipment; and
8. To establish basic national legislation for health care activities.

II. SCOPE OF WORK

The following tasks would be undertaken:

1. Assistance in the formulation of health care delivery policies, in the design of health care planning subsystems, including:
 - (a) the formulation of objectives, establishment of priorities and targets, determination of resources, budgets, and budget control and evaluation;
 - (b) the definition of the roles of the private and public sectors in the provision of preventive, curative, and rehabilitative health care in the country; and
 - (c) design and implementation of the planning/programming/evaluation process in the areas of health activities, financial resources, human resources, and capital investment (annual, medium and long run targets).
2. Assessment of the existing health service administrative structure that will provide the basis for the necessary organizational and managerial reform to be designed and implemented by this consultancy, which will cover:
 - (a) description and analysis of existing health management structure and identification of "key actors" and potential for administrative improvements;
 - (b) revision of the implications of decentralization and preparation of a conceptual/operational frame of reference;
 - (c) design and development of a new administrative structure for decentralized management, and determination of human, fiscal, and physical resources to implement it; and
 - (d) support for the implementation of the new structures and procedures.
3. Improvement of health care cost recovery, which would encompass:
 - (a) studies and proposals of alternate methods of financing the health care system, including fees for services and health insurance; and
 - (b) development a financial policy and plan for secondary and tertiary care facilities.
4. Study and implementation of a hospital financial accounting system consisting of:

- (a) determination of the actual efficiency in terms of physical productivity and production costs and projections for the new facilities;
 - (b) recommendations and support for the implementation of cost control measures; and
 - (c) improvements in patient admission, discharge, transfer control and billing procedures, including the installation, training and implementation of a phased computer based software package as part of the health information system.
5. Assessment and implementation of a human resource development plan for the health public subsector, in the areas of:
- (a) diagnosis of the existing human resource systems: training, utilization, policies, management, including classification system;
 - (b) development of a comprehensive manpower development programme and policy to meet the current and future needs of the Ministry; and
 - (c) provision of overseas training in selected areas where adequate training possibilities are not available in the country, such as hospital administration, maintenance, financial management, human resource development, health planning and project development.
6. Assistance with the implementation of the new health information system designed by the Ministry with PAHO support, which will incorporate:
- (a) revision and improvement of the medical records;
 - (b) installation and implementation of a phased programme to build a computer-based comprehensive health information system; and
 - (c) provision of the necessary training for the users.
7. Design and implementation of a supply management subsystem which would include the identification of needs for supplies by establishment through the acquisition, training and implementation of appropriate software to allow:
- (a) programming, budgeting and acquisition;
 - (b) control of stocks and minimum safety levels; and
 - (c) control and auditing of supply management.

8. Organization and implementation of a preventive and corrective maintenance programme for biomedical and electromechanical equipment and health care buildings, which would encompass:
 - (a) design of a computer based maintenance subsystem which would include at least: inventory of equipment and spare parts; preventive maintenance schedules, procedures and responsibilities; equipment performance evaluation, analysis of maintenance control expenditures; control of contractual services;
 - (b) training of the equipment and maintenance users, including on-the-job training and seminars; and
 - (c) preparation of norms and procedures manuals.
9. Establishment of health legislation and standards for licensing and accreditation of health care facilities, services, and professionals in the public and private sectors, which would cover:
 - (a) review of existing legislation;
 - (b) review of existing sector policies;
 - (c) determination of needed legislation fields; and
 - (d) draft of legislative proposals.
10. Design of a component to consolidate subsystems at the operational level, to be executed as part of the investment programme, focussing on the proposed project hospitals, and covering at least:
 - (a) hospital management;
 - (b) hospital financial administration;
 - (c) maintenance of buildings and equipment;
 - (d) continuation of on the-job training; and
 - (e) hospital infection control.

DEVELOPMENT OF THE PHYSICAL INFRASTRUCTURE AND HEALTH SERVICES

TERMS OF REFERENCE FOR SUBPROJECT II

I. PURPOSE

The purpose of this subproject is to determine:

1. The appropriate mix and type of services necessary to deliver optimum health care in the Commonwealth of The Bahamas.
2. The most suitable location and dimension for any new and/or additional health care facilities (hospitals and clinics).
3. The design of suitable structures for two replacement hospitals on new sites, one in New Providence and the other in Grand Bahama.
4. Type and quality of the equipment for new hospital facilities.
5. Appropriate staffing levels by type and number suitable for the Bahamian situation.
6. An appropriate system of patient referral and networking between the primary, secondary and tertiary care institutions.

II. SCOPE OF WORK

1. Assessment of the health sector, which will provide the frame of reference of the project, developing basic information related to the following:
 - (a) Resources: facilities, human resources and financial resources, for the public and private sectors.
 - (b) Health status with emphasis on characteristics of disease patterns, age structure and trends.
 - (c) Health institutions, both private and public.
 - (d) Coverage by type of services and institutions.
 - (e) Adequacy of present health delivery systems in terms of resources and needs. Efficiency in the utilization of resources vis-a-vis the present level of health care delivery.
2. Analysis of the demand and supply should be detailed to the degree necessary to obtain empirical basis to prepare the project. It should cover:

- (a) Current satisfied demand: volume by catchment area and type of services, characteristics, variations.
 - (b) Supply: by institutions, types of services by catchment areas target population.
 - (c) Current deficits: by facilities and services to provide acceptable level of care to meet the current volume and type of demand at acceptable health care and efficiency levels.
3. Determination of productivity norms should focus upon the dimensioning of the services effected by their efficiency. It will be important to control some of the contributing factors to increase the productivity and eliminate the constraints. This should cover:
- (a) Current productivity levels by type of facilities and services.
 - (b) Identification of constraints.
 - (c) Establishment of new productivity norms (parameters for planning and projections).
4. Projections of demand, supply and deficits should be undertaken for both the public and private sectors for the short (to year 1995) and long term (to year 2000).
- (a) Demand: volume by institution, both public and private; geographic area and types of services.
 - (b) Supply: by institution, geographic area and types of services.
 - (c) Deficit: by geographic areas, for the MOH, and by types of services.
5. Identification of alternative ways of meeting the projected deficits in health coverage by area and type of service; study different combinations of technical and administrative solutions, such as:
- (a) Changes in health care patterns.
 - (b) Higher resolution polyclinics to reduce the pressure on the hospital out-patient services.
 - (c) Nursing homes and chronic care facilities to transfer elderly patients from acute care hospitals.
6. Selection of the long run least cost alternative investment programme on the basis of economic present value calculated at a 12% discount rate, based on simulation models for different mix of services, which demonstrate:

- (a) Number per type of facilities, location and dimensioning (primary, secondary, tertiary care facilities).
 - (b) Total annual investments in the short run (next five years) and in the long run (to year 2000), for construction and equipment.
 - (c) Total and annual increase in the operation and maintenance costs associated with these levels of investments.
7. Selection of site for the PMH on basis of technical and economic analysis, and preparation of site plans taking into consideration:
- (a) Accessibility by public transportation and rapid access by ambulance.
 - (b) Trends, policy or plans for land uses (population settlements, special districts, etc.).
 - (c) Type of terrain.
 - (d) Availability of electricity, water and sewerage.
 - (e) Location and boundaries.
 - (f) Soil analysis.
 - (g) Topographic studies.
 - (h) Location and orientation of the buildings in the site.
8. Functional Programming, including:
- (a) Definition of role and technology to be provided at each of the hospitals, including the outpatient polyclinics which would be kept at the existing site of PMH.
 - (b) Estimates of workloads (peaks and average) for each specific activity and task.
 - (c) Flow chart of each activity, identifying each step to be performed in the medical, nursing, administrative, support and other services.
 - (d) Identification of working stations and the desirable and required relations to other services.
 - (e) Preparation of schematic drawings of each work station.
 - (f) Definition of the general setting up and design parameters and preparation of the overall schematic designs.

9. Preparation of Detailed List of Equipment, based on the functional programming and least cost simulation. It should cover the following major areas:
 - (a) Electromechanical: boilers, electricity, emergency plant, air conditioning system, laundry, kitchen, etc.
 - (b) Fixed medical equipment X-ray, ultra-sound, etc.
 - (c) semi-mobile equipment.
 - (d) Medical and surgical utensils.
 - (e) Nursing equipment.
 - (f) Furniture.
 - (g) Communication equipment.
 - (h) Ambulances and other vehicles.
10. Preparation of the Preliminary design for the Selected Alternative, (see Appendix), once the type and volume of services are defined for each location and the facility needed is identified. The preliminary design will be prepared according to the following steps of project definition:
 - (a) Production by each department or service and specific types and volumes of activities.
 - (b) Physical area requirements to perform the projected types and volumes of activities.
 - (c) Indispensable, recommended and desirable physical and functional relationships.
 - (d) Major equipment by functional areas.
 - (e) Floor plan to accommodate the requirements and make adjustments.
 - (f) Preliminary areas and costs by functional areas.
11. Determination of Investment and Recurrent Costs and Sources of Financing. This is the final stage of the costing exercise. With final construction and equipment definition by department, service and functional areas, it will be necessary to review the need for personnel by category and adjust other recurrent cost estimates. The personnel needs will be estimated by:
 - (a) Category and profession.

(b) Activity area (administrative or technical).

(c) Service (e.g. laboratory, X-ray, emergency out-patient intensive care, laundry, kitchen, transportation, etc.)

Other recurrent costs such as drugs and supplies, materials, etc., will be estimated by service. Utilities and other expenditures will be estimated for the facility as a whole. A projection of the recurrent cost should be made for the short (next five years) and long term (to year 2000).

Sources of financing of the investment and recurrent costs will be identified, taking into consideration fees to be charged, transfer from national government revenues and forms of financing.

12. Preparation of the Investment Schedule: The calendar of investments for those facilities included in the loan request to be financed by the Bank and by national resources will be defined. The schedule will include:

(a) Construction by specific areas, volume and costs per year.

(b) Acquisition of equipment by type and costs per year.

13. Socio-economic Analysis, which will cover at least the following aspects:

(a) Demonstration that the least cost alternative to provide the projected services has been selected (capital, operation and maintenance).

(b) Identification of benefits attributable to the projects and their quantification as possible (e.g. savings in treatment, abroad, reduction in maintenance expenditures, increases in the rate of successful treatment and case resolution, reduction in hospital infection rates).

(c) Comparison of projected unit costs by type of service to be provided, with those of comparable services provided by similar facilities which are known to be efficient.

(d) Distribution of beneficiaries by income levels on the basis of specifically designed surveys, if registered data are not available.

DEFINITION OF DESIGN STAGES

I. SCHEMATIC DRAWINGS

- a) Architectural:
- Narrative scope of project.
 - Planning & Design Process (upgrading, rehabilitation and new construction).
 - Site grading information and landscape concept (existing structures, parking traffics, etc.). Scale: 1:500.
 - Architectural functional diagram.
 - Building floor plans, elevations and sections, with alternative solutions, including layout of physical existing facilities. Scale: 1:200.
- b) Structural:
- Soil investigation and boring data.
 - Structural concept and technical report including evaluation of existing structures.
- c) Mechanical:
- Room data sheets.
 - Mechanical equipment room diagram.
 - Air distribution and exhaust system.
 - Electrical, sanitary and special services distribution.
- (d) Preliminary Cost Estimates

II. PRELIMINARY DESIGN

- a) Architectural:
- Complete site layout.
 - Scale: 1:250.
 - Department Room detailed plans.
 - Building plants, elevation and sections. Scale: 1:100.
 - Project manual: partitions, doors, windows, preliminary sample architectural details, specifications and cost estimate.
 - Fixed medical equipment details.
- b) Structural:
- Foundations, framing and schedules.
- c) Mechanical:
- Plumbing equipment layouts (schedule).
 - Roof drainage plans.
 - Fire protection layouts (schedule).
 - Mechanical equipment layout (schedule).
 - Air distribution/exhaust layouts (schedule).

- Power distribution diagram.
- Lighting fixtures layout.
- Communications systems (scheme).
- Plumbing fixtures (description).
- Specifications.
- Cost estimate.

(d) Cost Estimates by components within 15% accuracy

PROPOSED TRAINING OF MOH STAFF

<u>COURSE</u>	<u>NUMBER OF PARTICIPANTS</u>	<u>TRAINING PERIOD</u>	<u>LOCATION</u> ^{1/}	<u>SOURCE (US\$) AND AMOUNT OF FINANCING</u>			
				<u>I D B</u>		<u>G O B H</u>	
				<u>FEES</u>	<u>SUBSIST ALLOWANCE</u>	<u>FEES</u>	<u>SUBSIST ALLOWANCE</u>
al Maintenance Engineering (Diploma)	1 (mid-level technician with undergrad degree)	1 year	United States	-	-	20,000	. 50
l Administration (Diploma)	1 (mid-level manager)	1 year	United Kingdom			16,000	21
lth Planning	1 (senior manager)	6 months	United Kingdom or Canada	2,000	5,580	-	
an Resources Development	1 (mid-level administrator)	6 months	United Kingdom or Canada	2,000	5,580	-	
al Maintenance electronics, boiler maintenance, air conditioning)	2 (mid-level technicians)	6 months	United States	2,000	12,720	-	
ct Development	1 (senior administrator)	6 months	Caribbean	700	4,560	-	
cial Planning	1 (senior administrator)	6 months	United States	1,000	6,360	-	
TOTAL	<u>8</u>			<u>7,700</u>	<u>34,800</u>	<u>36,000</u>	<u>72</u>

upon preliminary contacts made by the Executing Agency.

TENTATIVE TIMETABLE FOR THE EXECUTION PERIOD
AFTER INITIATION OF WORK BY THE CONSULTING FIRM

EXECUTION PERIOD										
1st. Quarter			2nd. Quarter			3rd. Quarter			4th. Quarter	
1	2	3	4	5	6	7	8	9	10	
SUBPROJECT I 1/										
Diagnostic Works	XXXXXXXXXXXX									
Subsystem Designs	XXXXXXXXXXXX									
Formulation of Norms & Procedures	XXXXXXXXXXXXXXXXXXXX									
Implementation	XXXXXXXXXXXXXXXXXXXX									
Evaluation/Readjustment	XXXXXXXXXXXXXXXXXXXX									
Final Report	XXXXXXXXXXXX									
SUBPROJECT II										
Diagnostic Works	XXXXXXXXXX									
Functional Programming	XXXXXXXXXXXXXXXXXXXX									
Space Programmes	XXXXXXXXXXXX									
Schematic Drawing	XXXXXXXXXX									
Study of Alternatives	XXXX									
Preliminary Designs	XXXXXXXXXXXX									
Final Report	XXXXXXXXXXXXXXXXXXXX									

1/ Timetable will vary according to each subsystem.

DETAILED BUDGET
(in equivalent US\$)

	<u>I D B</u>	<u>G O B H</u>	<u>TOTAL</u>
1. Consulting Firm			
a. Subproject I	<u>1,317,000</u>	<u>- 55,000</u>	<u>1,372,000</u>
1.1 <u>Fees</u> [66 c/m x \$4,000 = \$264,000 + 1.5 (\$396,000) = \$660,000]	<u>660,000</u>	<u>-</u>	<u>660,000</u>
1.1.1 <u>Business Travel</u>			
1.1.1.1 Tickets (14 trips x \$600)	8,400	-	8,400
1.1.1.2 Per Diem (30 days x \$200 x 66 c/m)	435,600	-	435,600
1.1.1.3 Inter-Island Travel	-	15,000	15,000
1.9 <u>Other</u> (software programming)	213,000 ^{1/}	40,000	253,000
3. Fellowships	<u>47,640</u>	<u>111,180</u>	<u>158,820</u>
3.1 Course Fees	7,700	36,000	43,700
3.2 Subsistence	34,800	72,720	107,520
3.3 Business Travel	2,800	1,200	4,000
3.4 Insurance (\$40 per month)	1,440	960	2,400
3.5 Teaching Materials	900	300	1,200
b. Subproject II	<u>902,400</u>	<u>30,000</u>	<u>932,400</u>
1.1 <u>Fees</u> [54 c/m x \$4,000 = \$216,000 + 1.5 (\$324,000) = \$540,000]	<u>540,000</u>	<u>-</u>	<u>540,000</u>
1.1.1 <u>Business Travel</u>			
1.1.1.1 Tickets (10 trips x \$600)	6,000	-	6,000
1.1.1.2 Per Diem (30 days x \$220 x 54 c/m)	356,400	-	356,400
1.1.1.3 Inter-Island Travel	-	10,000	10,000
1.9 <u>Other</u> (Surveying and drafting)	-	20,000	20,000
5. Other Staff (counterpart professionals and consultants)	<u>-</u>	<u>170,000</u>	<u>170,000</u>
5.1 <u>Fees</u> (30 mos. x \$5,000/month) ^{2/}	-	150,000	150,000
5.2 <u>Business Travel and Per Diem</u>	-	20,000	20,000
6. General Support	<u>-</u>	<u>676,160</u>	<u>676,160</u>
6.1 Office Space	-	20,000	20,000
6.2 Furniture	-	6,000	6,000
6.3 Equipment (computer hardware)	-	555,160	555,160
6.4 Supplies and office materials	-	42,000	42,000
6.5 Support Personnel (24 mos. x \$2,000/month)	-	48,000	48,000
6.6 Communications	-	5,000	5,000
98. Contingencies	<u>232,960</u>	<u>107,660</u>	<u>340,620</u>
98.1 Subproject I	135,360	-	-
98.2 Subproject II	97,600	-	-
TOTAL	<u>2,500,000</u>	<u>1,150,000</u>	<u>3,650,000</u>
Percentage	<u>68.4</u>	<u>31.6</u>	<u>100.0</u>

^{1/} Includes software programming essential to the implementation of the institutional strengthening component (Subproject I).

^{2/} This figure represents the overall monthly costs of the counterpart engineers and computerization consultants to be contracted by the Government.