

The National Aquatic Resources Agency of Sri Lanka

by

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BACKGROUND

Established in 1981 the National Aquatic Resources Agency of Sri Lanka represents an innovation in national institutional structures dealing with the marine sphere. Now better known by its acronym 'NARA', the National Aquatic Resources Agency is a direct outgrowth of the emergent new international legal order of the oceans shaped in the context of the Third United Nation Conference on the Law of the Sea.

Endowed with a 200 mile Exclusive Economic Zone and exceptional continental shelf jurisdiction in respect of a continental margin extending several hundreds of miles beyond the limits of the Exclusive Economic Zone, Sri Lanka was confronted almost overnight with the challenge of dealing with a significantly high water-to-land ratio in terms of generally recognised national jurisdiction. As an island state, Sri Lanka has had a long tradition in coastal fisheries which today constitutes the principal source of animal protein for over 15 million people inhabiting a total land area of 25,000 square miles (65,610 sq. K.M.) This land area has now been augmented through the relevant developments in the Law of the Sea by maritime territory of approximately 500,000 sq. miles comprising of approximately 190,000 sq. miles of Exclusive Economic Zone and the remainder in continental shelf jurisdiction beyond. It represents maritime territory in excess of twenty times the land territory. At the time of the establishment of the Agency, offshore activities were principally confined to the field of fisheries in the coastal waters superjacent to a narrow continental shelf (an average width of 15 to 20 miles at the 200 metre isobath). In the last two decades limited attempts have been made in the field of offshore hydrocarbon exploration, particularly in the common continental shelf area at Palk Bay and Palk Strait between India and Sri Lanka. The assumption of jurisdiction over the new vast offshore territories made it imperative that the country gear itself for the proper management of these areas with a view to integrating the marine dimension in our development strategies. Principally, deep sea fisheries beyond the shelf edge and limited mineral resource potential (in terms of immediately realizable options) emerged as areas of primary interest. Perhaps a more important need was to provide an institutional framework within which the country could gear itself to meet the inevitable challenge of managing an enormous offshore territory through development of national skills. The task was even more daunting given the limited expertise available in the country in the relevant fields and which was essentially limited to modest marine biological expertise that had developed in the context of fisheries research. The absence of a national institution responsible for oceanography precluded the development of individual expertise in this field as career prospects could not hold any promise for those pursuing specialised studies abroad. Clearly the principal thrust needed was in the field of oceanography. However, the establishment of a National Institute for oceanography could only have taken Sri Lanka part-way towards developing the requisite expertise in the much broader spectrum of marine affairs. Clearly what was needed for modern marine affairs management was an integrated multi-disciplinary institutional framework which provided sufficient scope not only horizontally - in terms of encompassing all relevant substantive disciplines, but also vertically - with an appropriate structure in terms of an administrative managerial system that would enable the country to harness all relevant sectors of the national framework with a view to meeting this monumental challenge.

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This was particularly important when viewed in the context of a small developing country like Sri Lanka which was then grappling with major problems of development and would continue to do so for the foreseeable future and which precluded the commitment of adequate financial, material and manpower resources for dealing with and supporting a fully dedicated independent entity invested with the total responsibility and capabilities for marine affairs management. There was also the reality of an existing governmental framework which had established well consolidated administrative and operational activities in certain sectors relevant to marine affairs.

The basic concept of an integrated multi-disciplinary marine affairs management institution emerged through the Sri Lankan Delegation to the Third United Nations Conference on the Law of the Sea as far back as April 1978 and in effect coincided with Sri Lanka's stand at the Law of the Sea Conference which ultimately led to international recognition at the Conference of the need to make exceptional provision for the country in respect of the continental margin and recognition of unique geological and geomorphical conditions pertaining to the area so claimed by Sri Lanka.

In August 1978 a Seminar was convened at the request of His Excellency the President then Prime Minister, to discuss the question of an integrated institutional framework managing marine resources inter alia fisheries. The Seminar which was convened by the Hon. Minister of Fisheries and used as its basis for discussion a proposal emanating from the Law of the Sea delegation which essentially made provision for an institutional framework on the lines of the present National Aquatic Resources Agency then conceived of as an authority with the necessary connotation of having regulatory and enforcement capabilities. Due to a variety of factors amongst which was apparent misconception and concern that an integrated approach to aquatic resources management would lead to the loss of assigned functions and creation of a super agency, the concept was considered mainly in the light of fisheries management. This led to the presentation of a Memorandum to the Government in early 1979 for the creation of a Fisheries Development Authority. This abortive proposal apparently failed as it was seen essentially as a subterfuge to dismantle the Department of Fisheries and recreate the same under a new title. The events of 1979 which led to an attempt to revive the fisheries research division provided another opportunity to consider afresh the concept of a broad-based approach to aquatic resources management. The task of revamping fisheries research in Sri Lanka was then addressed on the basis of an improved institutional framework within which not merely fisheries, but all ancillary and related disciplines in the wider field of aquatic resource management would be comprehended. This led to the revival of the original concept of a multi-disciplinary establishment and an integrated framework focussing primarily on research and development provided for within a broader mandate investing the Agency with the responsibility for the "development, management and conservation of aquatic resources in the inland waters, coastal wetlands and off-shore areas" Following Government endorsement and prolonged consultations in the course of preparation of legislation in particular with a view to harmonising the draft bill with other environmental and natural resources legislative proposals which had begun to emerge, the bill providing for the establishment of the "NATIONAL AQUATIC RESOURCES RESEARCH AND DEVELOPMENT AGENCY" and matters provided for was presented to Parliament in August 1981 and certified on 2nd September 1981 as Act No. 54 of that year.

Prior to the passage of the Bill going through Parliament a multi-agency mission comprising of senior representatives from the Food & Agricultural Organisation (FAO), the Intergovernmental Oceanographic Commission (IOC) of the UNESCO and the Ocean Economic Centre Technology Branch (OETB) of the Department of International Centre for Ocean Development headquarters, invited to assist the Government, expressed their collective views as was consonant with the essential concept of the proposed Agency.

The first Governing Board of the Agency was constituted on 15th September 1981. The first members of staff recruited to the Agency were those members of the Fisheries Research Division and the Institute of Fish Technology. Those posts were abolished and they were chosen for absorption into the Agency. From this small nucleus the Agency has developed in its first two and a half years of operation to a total manpower strength of approximately 180 persons. The basic substantive divisions of the Agency have been established to provide a framework for developing expertise and training through marine biological resources (which essentially represents the original fisheries expertise) to a rapidly developing capability for basic oceanographic work and a rapidly expanding multi-disciplinary work programme.

I. Objects and Functions:

One of the principal aims in the establishment of the National Aquatic Resources Agency was to fulfil a long - felt need for a National Institute of Oceanography. Nevertheless, in keeping with the national requirements of dealing with marine resources (and more generally aquatic resources) a "broad-basing" resulted. For historical and practical reasons there was a need to integrate fisheries in NARA. As a result, fisheries and oceanography have emerged as a central theme in the development of NARA. Given the basic resource oriented nature of the institution the internal structure of the Agency was designed to reflect the multiple disciplines needed to augment the subjects of fisheries and oceanography. It is in this light that the statutory objects and functions of the Agency has been reviewed. The principal task of the Agency may be described in the words of the statute in Section 4 and the ancillary functions as set out in the sub-sections which follow:

- “(a) To ensure the application and utilization of scientific and technological expertise for the implementation of the national development programme on the subject of aquatic resources;
- (b) To promote and conduct research activities directed towards the identification, assessment, management and development of aquatic resources, and in particular in the following fields:-
 - (i) oceanography;
 - (ii) improvement and development of fishing craft, fishing gear and equipment, and fishing methods;
 - (iii) the social and economic aspects of the fishing industry, including the welfare of fishermen and their dependants;
 - (iv) the processing, preservation and marketing of fish and related products;
 - (v) the development, management and conservation of aquatic resources, in the inland waters, coastal wet lands and off-shore areas;
- (c) To provide advisory and consultancy services on scientific technological and legal matters relating to the exploitation, management and development of aquatic resources;
- (d) To co-ordinate the activities of institutions engaged in the exploitation, planning, research, development, control and management of aquatic resources;
- (e) To undertake the collection, dissemination and publication of information and data useful for the development of aquatic resources and the fishing industry in Sri Lanka;

- (f) To provide training for persons required to carry out or assist in the work of the agency; and
- (g) To exercise, discharge and perform all the powers, functions and duties conferred or imposed on the Agency under this Act."

The Agency is also mandated by Statute to institute and conduct a survey of national aquatic resources and off-shore areas on the lines of the standing topographical and geological surveys on land.

II. The Institutional Framework: Policy-making, Inter-action & Co-ordination, and implementation:

The Framework:

The Constituent Act No. 54 of 1981 essentially provides for the creation of a two-tier institutional framework for aquatic resource management, its basic components being -

- (a) The National Aquatic Resources Management Council: The Council comprises of members of the Board and provides for representation of various related interests as well as representatives of concerned government agencies such as, industries and scientific affairs, defence, irrigation, shipping, foreign affairs, education and wild life conservation. It can invite observers to participate in its work. The Council is required to advise and make recommendations relating to the management and development of the aquatic resources and is responsible for preparing and keeping under continual review aquatic resource and development, research and an aquatic resources management plan.
- (b) The National Aquatic Resources Agency: The Agency provides the institutional component for implementing the national development programme on aquatic resources. The promotion and conduct of such activities in inter alia, oceanography, and for the management and development of aquatic resources. NARA is also responsible for the co-ordination of relevant activities, the dissemination of information and for training.

The third component was added to this system in 1982, viz. The Ministerial Committee for Marine Affairs. The broadening of the framework to deal with marine affairs as a whole is a logical development reflecting also the more positive climate that developed parallel with the consolidation of the Agency and implementation of a work programme. This Sri Lankan "triad" constitutes the integrated marine affairs management structure of the country with special resource emphasis provided by the elements constituted by the NARA Act in 1981.

III. The Agency:

The Agency itself now better-known in Sri Lanka and abroad as NARA is a Public Statutory Corporation primarily financed by Government and is headed by a Chairman - the Chief Executive of the Corporation and Chairman of the Governing Board. A Director General is responsible for the performance of the administrative functions and implementation of decisions thereof. The Agency operates under the authority of a Governing Board which is generally responsible for administration and management of the affairs of the Agency.

The Agency has presently established the following substantive divisions:

- (a) Post Harvest Technology Institute
- (b) Marine Biological Resources
- (c) Inland Aquatic Resources & Aquaculture
- (d) Engineering Technology
- (e) Statistics and Data Processing
- (f) Oceanography
- (g) Library and Information.

In addition, there is a Service & Operations Division which provides the requisite support and maintenance for all activities.

A separate functional Special Projects Division provides for ad hoc project activities and major programmes which require support and management outside regular programmes on account of their special character and/or special significance in terms of public interest or potential for generating public awareness and support.

The Agency has also established two field stations, viz. Kalpitiya Marine Research Centre and Trincomalee Marine Research and Training Centre and the associated Centre for Research on Indian Ocean Marine Mammals (CRIOMM). Also established under the auspices of the Agency is the National Hydrographic Office jointly manned by the personnel of the Agency, the Sri Lanka Navy and the Survey Department who serve under the umbrella of the central NARA concept of functioning as the focal point for marshalling and developing through, co-operative arrangements available national capabilities towards a common goal.

Policy-making, Inter-action & Co-ordination:

From the very outset the National Aquatic Resources Agency was conceived of and designed not only to provide a focus for multiple disciplines and a framework for integration of relevant competences, but also to ensure a proper application utilisation of capabilities developed and/or made available through the institution. In this respect in Section 4 (a) of the constituent statute the Agency is mandated - "to ensure the application and utilization of scientific and technological expertise for the implementation of the national development programme on the subject of aquatic resources;" and to this end, the succeeding paragraphs of the section are more explicit in that they require the Agency to provide Advisory and consultancy services, to co-ordinate the activities of institutions engaged in activities concerning aquatic resources, to undertake the collection and dissemination of relevant information and to provide training.

With regard to the Ministry of Fisheries, a special relationship is established in view of the historical factors pertaining to the establishment of the Agency, viz. the absorption of the Agency's available scientific and technical capabilities of the Ministry. Therefore, the Statute especially requires the Agency in Section 5 (i) to render special services to the Ministry of Fisheries with regard to its national development programme. The Fisheries "bias" is also emphasized in Section 4 (b) (ii) to (iv).

- "(ii) improvement and development of fishing craft, fishing gear and equipment, and fishing methods;

- (iii) the social and economic aspects of the fishing industry, including the welfare of fishermen and their dependants;
- (iv) the processing, preservation and marketing of fish and related products;"

At the time of the emergence of the National Aquatic Resources Agency's Legislation framework, Sri Lanka's Legislative process also gave rise to several other relevant and important statutory instruments, viz.

- (1) The National Environmental Act No. 47 of 1980.
- (2) The Coast Conservation Act No. 57 of 1981
- (3) The Marine Pollution Prevention Act No. 59 of 1981
- (4) The Natural Resources, Energy and Science Authority of Sri Lanka Act No. 78 of 1981.

Within the Ministry of Fisheries the revision of Fisheries Ordinance was under consideration. It was clear from the very outset that in the absence of appropriate harmonisation (a task made particularly difficult at the time for the Legal Draftsman faced with an array of prospective legal instruments abounding in complex technical subject matter and new and emergent management concepts) there would result great controversy and a tangle of jurisdiction giving rise to administrative difficulties. In several stages the process of internal review achieved a workable relationship within the Ministry of Fisheries in respect of the proposed NARA, Coast Conservation and Fisheries Bills. The issue of absorbing Coast Conservation within NARA, although logically prudent but complicated by subjective considerations was then resolved on the basis of an arrangement that was practical and expedient at the time, i.e. leaving out Coast Conservation but emphasizing the leading technical role of NARA in respect of the Agency's fields of competence with the exception of coastal engineering and related technological aspects in respect of which coast conservation was expected to develop a self-supporting capability and to look to NARA for requisite scientific and technical support in other areas with a view to discharging its primary responsibilities with regard to coastal zone management and the abating of coastal erosion which had inspired the creation of a separate coastal authority. With regard to the proposed Fisheries Legislation - as yet not enacted - NARA was expected to provide the requisite expert advice and assistance in preparing the management strategy which would also form a component of the aquatic resource management plan the Agency is required by statute to prepare and keep under continual review within the mandate of the Aquatic Resources Management Council (Sections 5 (k) and Section 13 (i) of Act No. 54 of 1981).

With respect to the National Environmental Act which provides for the creation of a Central Environmental Authority (CEA) which predated the establishment of the National Aquatic Resources Agency, a harmonious working arrangement with lead Agencies and Ministries was contemplated and is conceivable in terms of the special provisions of Part 4 of the Act. (No. 47 of 1980), in particular Sections 18 and 19. Some co-ordination as appears to be emerging in course of regular inter-action, would be necessary in respect of Section 23 which provides for environmental research.

The Constitution of the Ministry of Fisheries as the Minister responsible for the subject of aquatic resource management for purposes of supervision provides the necessary base for interaction in the field of coast conservation which is attended to by the Coast Conservation Division of the Ministry now having the status of a Government Department. In addition, the Coast Conservation Advisory Council as provided for in the Coast Conservation Act No. 57 of 1981 has the representation of an entity separately responsible for aquatic resource management and development. Functionally there is a need to work towards close co-operation in respect of related activity in common areas of jurisdiction.

The responsibility for Marine Pollution is with the Ministry of Trade and Shipping. The Marine Pollution and Prevention Act No. 59 of 1981 provides for the establishment of a Marine Pollution Authority. Although there is no statutory link with the Agency there is direct representation and working links. The Agency would have a vital role to play in a comprehensive national programme dealing with marine pollution, particularly in respect of monitoring, preventive and control measures. Close inter-action with the Marine Pollution Authority and other concerned entities would be necessary.

The Natural Resources, Energy & Science Authority (NARESA) which was established by Act No. 78 of 1981 is the principal national institution which functions as a national focal point for science and technology and for dealing with policy and management measures in relation to natural resources and energy in Sri Lanka. In the practical operation of the Statute of NARESA the Authority draws on the specialised expertise of the Agency with regard to marine science and technology and aquatic resource management. Further interaction is developing with regard to Ocean Thermal Energy Conversion (OTEC) for which there is considerable potential in Sri Lanka, for eg. the establishment of the relevant basic oceanographic parameters and investigation of related environmental aspects which would be the responsibility of the Agency. In time, relevant contributions could be made in the context of marine engineering and technology. NARESA and NARA have jointly undertaken an assessment of the state of the development in Sri Lanka in relation to marine resources, science and technology. NARESA regularly provide support for NARA research projects.

IV. Activities of the Agency:

The activities of the Agency could be briefly surveyed through the various substantive divisions:

- (a) *Institute of Post-Harvest Technology*: The Institute of Post-Harvest Technology represents the only fully-fledged Institute at present functioning within the framework of the Agency. The Institute of Post-Harvest Technology superseded the Institute of Fish Technology (IFT) established in 1976 under the Ministry of Fisheries and which began operation in 1978. The work of the Institute essentially focuses on the post-harvest technology of fish and fishery products. However, with its placement within the framework of NARA the mandate of the Institute has been extended to provide for all other aspects of post-harvest technology relating to aquatic products in general. Recently the national quality control laboratory for aquatic products has been established. The facility principally would concentrate on certifying marine food products for export as required by foreign import procedures (eg.

Food and Drugs Administration (FDA) of the United States). The regular work programme of the Institute attempts to find better processing and storage practices for the fish industry with a view to minimising post-harvest losses and also seeks to develop improved processing techniques for traditional fishery products as well as development of new products particularly utilising under-utilised resources. The Institute is also committed to the quality of standard marine exports (particularly shell-fish) and contributes to the formulation of animal and fish feeds. Presently special attention is being given to improving extension work and consolidating quality control facilities.

- (b) *Marine Biological Resources Division*: This unit is conducting research and development activities and mainly focuses on marine fisheries research in relation to living marine resources. The basic programme includes resource assessment with the objective of better management. Principal activities relate to the survey of tuna fisheries, the improved prawn fishery and the beach-seine and small mesh gill net fisheries.
- (c) *The Inland Aquatic Resources and Aquaculture Division* : This division as indicated by its title is responsible for carrying out research and development activities in relation to biological resources of inland and brackish waters and also the development of aquaculture of culturable exotic and indigenous species.

Present research activities: The present research activities are concentrated on providing sound scientific information and correct management techniques required for efficient fish production in seasonal tanks and evaluation of commercial fishery and fishery potential of indigenous fishes so as to develop management strategies in reservoirs.

This unit is also developing and assessing the aquaculture potential of culturing fresh water and brackish-water fish suitable for cage and pond culture. The Division essentially focuses on research activities in relation to inland fisheries as development activities are carried out primarily by the Ministry of Fisheries under the major Inland Fisheries Development programme. In the field of aquaculture primary activity is in the field of brackish-water. Some rationalisation of the respective mandates of the Agency and the Ministry is under consideration.

- (d) *The Engineering and Technology Unit*: At present this unit concentrates mainly with areas concerned with fisheries technology, in particular fishing gear technology. However, the division provides a framework within which NARA would develop appropriate capabilities in the field of relevant marine engineering technology and other aspects of engineering and technology relevant to aquatic resources and their management. Increased emphasis is now being given to consolidation of expertise in relation to fishing boat and gear technology. In the field of ocean engineering, the first phase of manpower development would concentrate primarily on technology assessment.

- (e) *Statistics and Data processing:* This is a centralised service unit which will also help independent programmes and relevant fields. The main objective of this unit is to collect/document/process and retrieve in suitable format the data or information relating to the status of aquatic resources (living and non-living) and their exploitation. In addition, this unit will render consultation services to other scientific and non-scientific divisions of NARA in the field of data gathering and in processing work.

Presently, projects on fishery statistical data analysis, socio-economic survey and quantitative fishery resources surveys are being carried out. A central computer facility will be installed shortly, primarily for supporting the work of this unit. Also affiliated would be the centralised information system.

- (f) *Oceanographic Unit:* The establishment of NARA also specifies a long-felt need for a national oceanographic institute in Sri Lanka. The oceanographic unit constitutes the nucleus of such an entity. It is conceivable that in time with the acquisition of appropriate expertise and development of requisite manpower this entity would be expanded through the division into a semi-autonomous institute within the NARA system.

Considerable emphasis is given to the development of necessary capabilities in oceanography, particularly under the UNDP project which provides core-funding through the 1984-1986 cycle and is executed by the International Oceanographic Commission (IOC) of the UNESCO. The phased programme of development provides for the acquisition of a suitable research vessel which could be used for deep water oceanographic work in the extensive offshore areas. At present, the unit operates in offshore areas in close conjunction with the hydrographic survey operations undertaken by the National Hydrographic Office (NHO).

- (g) *Environmental Study Unit:* This recent addition to the NARA system represents consolidation of ad hoc arrangements which had been in operation since the inception of the Agency for the periodical investigations of various cases involving pollution of the aquatic environment such as the case of industrial effluent discharges in the Kelani River in close proximity to the headquarters site of the Agency, investigation of chemicals and biochemical pollution of the Wellawatte canal, assessment of pollution adjacent to the Valaichchenai Paper Mills, industrial pollution in the Ekala industrial zone, etc. A fully equipped modern environmental laboratory is under construction and will provide the necessary infrastructure to the Agency to assume full responsibility on an island-wide basis and in respect of coastal areas on the basis of a comprehensive environmental monitoring and assessment programme. Available manpower is also being rapidly augmented through new recruitment at all levels.

- (h) *Library and Information:* The central NARA library represents the best collection of relevant materials in Sri Lanka and has a special strength in the field of fisheries. The present collection comprises of 2000 books, 442 periodical titles, FAO reports (over 1000), a large collection of reprints, technical reports, maps and admiralty charts, standards, microfiche, and slides.

The central information facility for aquatic resources in the general marine affairs context is being designed and will be in operation shortly.

Special Projects: In the early phase of the operation of the Agency it was imperative that projects of short gestation be undertaken with a view to ensuring early attainment of an internal operational state as well as for the purpose of demonstrating not only functional efficiency and capabilities of the institution, but also the manner of inter-action with other entities, particularly government entities, responsible in related fields of activity. Particularly noteworthy is the Ornamental Fishery Development Project, the National Marine Mammal Programme (NMMP), Maritime History and Marine Archaeology, Pearl Fishery Survey, the investigations of fishing with explosives and activities in connection with the establishment of marine parks and sanctuaries.

The National Marine Mammal Programme requires special mention on account of its catalytic effect in stimulating public interest and awareness in relation to the marine environment and its potential as well as the role and activities of the Agency. It has also brought to the Agency considerable international exposure necessary for entraining the prospects for external support.

The Service and Operations Division of the Agency is the essential supporting arm for all NARA activities including construction, maintenance of land and buildings, workshops and laboratories, electrical and mechanical machinery and equipment, operation and maintenance of electricity, water, gas, air-conditioning and refrigeration systems, vehicles, boats and vessels, etc.

The division also provides the requirements of laboratory equipment, chemicals, glassware, etc. This is the key division of the Agency and is presently supported by requisite workshop facilities and skilled personnel.

National Hydrographic Office (NHO): The establishment of the National Hydrographic office represents the consolidation of functions traditionally assigned to the Sri Lanka Navy along with requisite civilian priorities and national survey capabilities as available with the Survey Department. Consequently the NHO is actively and closely supported by the Sri Lanka Navy and the Surveyor General's Department and forms a focal point at which all the relevant land and hydrography expertise is channelled for a national hydrographic survey programme. The division also complements the other marine and maritime activities of the Agency and will provide the sea-going platform on which research for aquatic resources can be undertaken, viz a comprehensive hydrographic survey of the entirety of Sri Lanka's offshore territory which is in the order of 500,000 sq. miles.

Marine field research facilities: In terms of NARA's lines of development the Agency will follow a policy of decentralisation with a view to placing scientific and other personnel in close proximity to the environment with which they work. As a first step the Agency has established field facilities at Clappenburg Bay in Trincomalee and Kalpitiya on the Puttalam Lagoon as East and West Coast Centres respectively. In time, Northern and Southern facilities would be developed with the possibility of an inland station for work in connection with the fresh-water environment.

Trincomalee and Kalpitiya Centres already support substantial work programmes of multi-disciplinary character and have begun to show practical impact in their output. It is proposed to attach a training unit to the Trincomalee facility for purpose of conducting orientation programmes for new recruits and for providing basic, training in such areas as oceanographic research, mariculture and associated skills such as diving, boat handling, etc.

The scope of the Agency's functions and its role within its sphere of competence may, be described as covering catalytic, supportive and lead functions. All relevant activities in respect of marine affairs with special focus on aquatic resources come within its purview. However where specific functions have been assigned and responsibility therefore has been assumed by the governmental agencies concerned, the task of NARA is primarily to monitor, co-ordinate and assist. In its catalytic role, new areas for development can be identified by NARA and necessary, support could be provided. Where specific competence has not been assumed by another agency, NARA would take on a lead role. Given the national context and administrative framework within which representative governmental interests and competences are closely guarded, this mode of operation has gained general acceptance as evidenced by the formal co-operative arrangements already established in the form of the National Hydrographic Office (NHO) and regular links maintained with other institutions. The configuration of this relationship can only be clarified as inter-action develops parallel with the other institutions engaged in other activities in related fields. This is the context in which the country has been developing comprehensive policies, strategies and work programmes in relation to the environment, natural resources, science and technology and related managerial disciplines. What NARA provides is a basic evolving framework that in time would consolidate in the form of an umbrella organisation within which this mandate could be implemented through individual or joint arrangements with other co-operating entities as well as for the purpose of accommodating rapidly developing individual modules which may in time assume the proportions of semi-autonomous internal components of the Agency. For instance, the National Institute of Oceanography that may emerge from the present Oceanography Unit.

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