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ASSISTANCE FROM THE DANISH ADVISOR UNDER THE PRESENT AGREEMENT (1979-1983)

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SCOPE OF WORK

The third period of Agreement between Thailand and Denmark, concerning co-operation in marine biology started September 21st 1979 and the services of one Danish Advisor were made available to PMBC for a period of 4 years.

The duties of the Advisor comprehend advice with respect to scientific projects, equipment, and teaching. These obligations are carried out according to decisions made by the Steering Committee of the Center, i.e. the Director, a staff member, a representative from the Royal Danish Embassy in Bangkok, and the Advisor.

During the period of the present Agreement, ending 1983, the Danish Government will deliver equipment necessary for carrying out research under a joint Thai-Danish programme, comprising coastal ecology, off-shore ecology, socio-economic projects, and educational & training projects. The Advisor assists with procurement of necessary equipment and takes care of the administrative side of the procurements, regarding Danida, the Danish agency in charge of the co-operation. Apart from such procurement the Advisor is not involved in administration of the Center.

The Steering Committee can request Danida for short term experts in order to promote specific fields. The Advisor assists in this work by establishing contact with specialists in marine biology and by handling the paper work on the Danish side. The Director of PMBC takes care of documents presented to Thai authorities. Obviously, the joint Thai-Danish research programme ad-

vances well because work and responsibility are equally shared between the co-operating parties.

Ten years have elapsed since the Center was declared operational. During this period initiatives taken during former Thai-Danish Agreements have been developing. However, it should be noted that presently much research at PMBC takes place as a result of planning and decisions made by the Director and staff members, exclusively. Furthermore, marine investigations have been requested by the National Environmental Board and the Research Council of Thailand. Such requested work is carried out along with—or fitted into—the joint Thai-Danish research programme.

Since the start of the Center much experience has accumulated regarding coastal ecology studies. Off-shore ecology is still at an early stage but pelagic primary production, phytoplankton taxonomy, and quantification of benthos have been launched to give base line information about off shore areas where fishing operations meet with tin mining interests. The objective is to provide evidence of detrimental effects due to siltation in coastal and off-shore areas. By tin dredging the sea bed is turned upside down. Hence, for everybody involved it is important to know how long time it takes before conditions return to a prior-to-dredging-state.

The complex situation of considering marine life, fishery, mining, and tourist promotion interests can serve as a way of briefly touching the question of basic versus applied research. For example, this question is relevant for PMBC when it is discussed how the Center can be suggestive

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of improving the income of small scale fisherman. Aquaculture is a possibility near at hand but experiments with culture in ponds belong under other units of the Department of Fisheries. However, the Center can provide information when knowledge about food, feeding, digestion, reproduction, and parasites of particular species becomes essential for the success of aquaculture. In this way, by co-operation between different units under the Department, basic and applied research can aim at the same goal, namely to help fisheries.

For Thailand and the Department of Fisheries it is of inestimable importance to manage a Center like PMBC where library, scientific equipment, and an experienced staff permit conduction of basic research in marine biology. Existence of this fundement is to the benefit of fisheries, co-operation with universities, and training of students. The general public is also informed about life in the seas through exhibitions and aquaria displays. PMBC stimulates a public awareness of the sea as an invaluable resource, deserving consideration because it can be over-exploited and locally destroyed. In other words, it has little meaning to make a sharp distinction between basic and applied research. For example, it is called applied research when a study deals with yield of fish from artificial reefs made of old rubber tyres. However, fish feed on other organisms and studies on the food source is normally referred to as basic research under designations such as succession, competition, species composition, and resource partitioning. In order to know if there is a way to increase the yield of fish to be caught from the artificial reef, it is necessary to study all directions of the food web, and eventually manipulate the reef. Ten smaller reefs may be better than one big pile of tyres. Small scale fishery can have obvious benefits but it is also likely that trawling on the outside of the reef will increase in catch per effort. Only research can give the necessary answers for a particular area. Admittedly, research takes time which creates an obstacle when a fast answer is needed by decision makers. However, the point to be made here is that it is up to the individual

researcher to divide time and effort between basic and applied research in search after a deeper understanding of structure and function of the sea. Ultimately, all research becomes applied.

One aspect which over the years has been carefully considered at PMBC is collection and preservation of flora and fauna sampled in connection with field work. This reference collection of organisms is a corner stone in work at the Center. The collection is managed by the taxonomy unit, making use of specialists, identification keys, and literature in the library. Proper identification is prerequisite for tracing available information concerning the species.

It saves time in research when experience from other parts of the world can be utilized; failures can be avoided, and safer conclusions arrived at. It might seem an obvious statement but actually it is difficult to obtain necessary funding, especially for upkeep of the library. In this respect the Center has recently profited from the favour of professor Bent Muus, Denmark who has arranged photocopies of old literature to be mailed to PMBC. The cost of this service has been covered by Danida.

EFFORTS AND ACCOMPLISHMENTS

During the first year of the present Agreement research involving the Advisor has been carried out on polychaetes. Many species, some new to Science, have been collected in mangroves and coral reefs, putting emphasis on taxonomical work. Large collections have been made both in the Andaman Sea and the Gulf of Thailand.

Over a 3-year period bimonthly sampling of benthos takes place on the west coast of Phuket Island in attempt to monitor effects of tin mining on benthos. Polychaetes make about 75% of the individuals in the quantitative samples.

Research has been planned regarding the fate of dead mangrove leaves. The work will focus on rate of decomposition and significance of detritus in marine food chains, starting with bacteria and

ending with shrimp and mullet. The Advisor has participated as a teacher in courses designed by PMBC on marine invertebrates and marine ecology. Students from Chulalongkorn, Songkhla, and Chiang Mai Universities have completed courses in 1980. On a joint meeting between PMBC and representatives it was decided that the Center should offer a course in marine ecology every year. A text book should be written to be used during the course.

Sponsored by Danida foreign marine biologists participate temporarily in scientific and edu-

cational work at PMBC. During the present Agreement two scientist have been accepted by Thai and Danish authorities to assist with taxonomy of corals, phytoplankton, and primary productivity. A 14 days joint Thai-Danish study of carbon and nutrients flow took place in January 1981 in a mangrove at Phuket Island. About half of the PMBC staff worked in the field together with 15 researchers and students from University of Aarhus, Denmark. This is a good way of making personal contact with colleagues in other countries, promoting flow of ideas, and contributing to the growth of biological knowledge in Thailand.