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PROGRAMME PLANNING

COUNTRY AND INTERCOUNTRY PROGRAMMING AND PROJECTS

PROJECT RECOMMENDATION OF THE ADMINISTRATOR

Assistance for a global project

Assessment and Development of World Renewable Marine Resources (GLO/79/011)

Estimated UNDP contribution:	$ 1 542 500
Duration:	18 months
Executing Agency:	Food and Agriculture Organization of the United Nations (FAO)

I. Background

1. During the 1970s, world fisheries have undergone a radical change. Between 1945 and approximately 1970 the world catch increased at a rate of about seven per cent per annum. Since then the annual catch has hovered around the 70 million-ton mark. At the same time, the legal regime governing marine fisheries has changed. A consensus has emerged from the Third United Nations Conference on the Law of the Sea (UNCLOS) that coastal states should exercise greater control over the living resources lying off their shores, and many countries have now established 200 mile Exclusive Economic Zones (EEZs) in place of the six to 12 mile jurisdictions that were common a decade ago. Nearly all fishing now takes place in waters which, if they do not already do so, will soon fall under these extended national jurisdictions. As a result of this profound change in the ocean regime, many developing countries have new opportunities for controlling and utilizing the fishery resources available within their coastal waters.

2. The fundamental requisite for the formulation and implementation of fishery development policies by coastal countries is adequate knowledge of the fish resources available in their respective areas of jurisdiction, including the nature of the fish stocks, their distribution and migration patterns, size of stocks and their likely potential yields. This not only applies to resources in the offshore waters but also to the resources exploited by small-scale fisheries in such shallow inshore waters as those created by reefs. Thorough information on the distribution and migration patterns is also essential for determining which countries are involved in the exploitation of the same stocks. Such information is necessary for negotiations on possible allocation schemes of total allowable harvest among countries sharing the same stocks, which in turn may be essential to conserve stocks and avoid over-fishing.

3. The classic method of stock assessment, which utilizes data derived from the monitoring of the activities and catches of commercial vessels, is generally either unavailable to developing countries, or is insufficient. In such circumstances, acoustic surveys, particularly if carried out in series over several seasons, have proved to be of great value for the determination of the total biomass in unexploited areas, as well as for monitoring the state of highly fluctuating stocks. In some instances, estimates of the biomass obtained through acoustic surveys have revealed the existence of large resources not presently exploited by commercial fisheries. Such is the case in the Arabian Sea, where the Norwegian Research Vessel, Dr. Fridtjof Nansen, has located important concentrations of coastal pelagic and demersal species, as well as very dense schools of mesopelagics, that have an estimated biomass of 100 million tons. Acoustic methods of biomass estimation involve sophisticated scientific techniques and require large, well-equipped and well-staffed research vessels. It is therefore more cost-effective to organize such work internationally, rather than encourage developing countries to make the heavy investments needed for the work in their respective areas.

4. Acoustic survey methods are most suitable in regions which have large, shared resources of pelagic stocks that are still insufficiently documented. In some regions there are special environments--reefs, mangrove areas, estuaries, etc.--containing resources of great importance to the local economy and small-scale fisheries, for which acoustic methods are not feasible because of shallow waters, untrawlable bottoms or other factors that render these environments inaccessible to research vessels. Traditional methods of stock assessment are also inapplicable to many of these areas because of the large number of species landed simultaneously, as well as the extensive spatial distribution and mobility of the fish, which make traditional monitoring extremely difficult if not impossible. A promising method of resource assessment for these types of fisheries is the comparative approach, based on the grouping of similar types of ecosystems, from the analysis of which yield indices can be derived and extrapolated to other areas. The method needs to be developed and perfected through further research and application. The investigations of such ecosystems and the derivation of yield indices need to be co-ordinated on a global basis to achieve maximum results; such co-ordination will constitute one of the activities of the project.

5. As a special contribution to the project, the Norwegian Agency for Development (NORAD) will make available the Research Vessel Dr. Fridtjof Nansen and meet 60 per cent of the operating costs of the vessel. The remaining 40 per cent of the operating costs will be met from the UNDP contribution. The Marine Research Institute

in Bergen will provide, under a special agreement with FAO, the necessary expertise and data processing facilities for the surveys and other scientific work to be carried out. The ship, which is one of the best equipped in the world for the work required to achieve the objectives, was originally built by the Norwegian Government, with a major purpose of placing the vessel at the disposal of FAO for use in projects funded by UNDP or other sources. The vessel has been extensively used, with very successful results, within the UNDP/FAO Indian Ocean Programme, which will terminate in mid-1980.

6. The present proposed global project is expected to contribute in significant ways to the development and management of the EEZs of interested countries in other regions. Development of these resources to their full potential will, in time, provide important new opportunities for economic co-operation among developing countries in the fields of fish production, trade, marketing arrangements and joint ventures.

II. The project

7. The ultimate objective of the project is to assist coastal developing countries in the development and management of the fishery resources available within their newly extended economic zones of jurisdiction, by building up the necessary information on stocks as a basis for formulating rational management and development plans.

8. The immediate objectives are as follows:

(a) To carry out an extensive acoustic survey programme for the benefit of developing coastal countries in different regions of the world, map the distribution of fish resources, elucidate the migration patterns and estimate the biomass of major world coastal pelagic and demersal resources;

(b) To provide in-service training on board the vessel to developing country biologists and acoustic engineers in the design, execution and data interpretation of acoustic surveys, and to fishery biologists in the methodology of assessing stock by non-conventional methods;

(c) To improve acoustic survey techniques for the assessment of small pelagic, mesopelagic and demersal resources and to develop further the methodology for the conversion of biomass estimates into estimates of potential yield; and

(d) To develop and refine the comparative approach method for determining the yield of marine resources living in ecosystems which cannot be assessed through classic stock assessment models or surveys with trawls or acoustic instruments, and train developing country nationals in the application of this method.

9. A detailed Work Plan and cruise schedule will be developed following approval of the project, based on agreements to be negotiated with individual interested countries. The area of project operations is expected to include such major areas of interest as the South China Sea, South Western Indian Ocean, the Arabian Sea, the West Coast of Africa, the Mediterranean and the Black Sea. Preliminary outline cruise reports will be prepared following each individual cruise. No operations will be undertaken in the territorial waters of any country without prior agreement of the Government concerned.

10. The outputs expected from the project related to the immediate objectives described above are as follows:

(a) Maps and descriptions of the distribution and migration patterns of the major small pelagic, mesopelagic and demersal fish stocks in and adjacent to the EEZs of developing coastal and island states, and estimates of stock biomasses and their potential yields;

(b) Trained scientists and technicians from developing countries in resource survey methodology. A total of 60 man-months of in-service training will be given;

(c) Guidelines for the design and conduct of acoustic surveys for biomass and potential yield estimates, to be carried out under various conditions with emphasis on survey techniques for tropical waters;

(d) Improved calibration methods for acoustical equipment and better target strength data in particular for mesopelagic and small pelagic species;

(e) Methods for deriving yield indices for ecosystems not susceptible to assessment by acoustic or trawl surveys; and

(f) Technical reports on the acoustic surveys carried out, and review papers on the development of yield indices for selected ecosystems.

11. The Executing Agency for the project will be the Food and Agriculture Organization of the United Nations. The project is designed as an integral component of FAO's comprehensive programme of assistance in the development and management of fisheries in economic zones, and will complement numerous on-going fisheries development programmes assisted by UNDP at the country, regional and interregional levels.

12. The expenditure component of the proposed UNDP contribution is as follows:

	US$
Project personnel	100 500
Sub-contracts	1 320 000
Training	75 000
Miscellaneous	47 000
	1 542 500

The proposed UNDP contribution will be contained within the Global IPF established by the Governing Council for the current cycle.

III. Recommendation

13. The Administrator recommends that the Governing Council:

(a) Approve the project; and

(b) Authorize the Administrator to make the appropriate arrangements with FAO for the execution of the project.