

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS



INDO-PACIFIC FISHERY COMMISSION

PROCEEDINGS

19TH SESSION
KYOTO, JAPAN
21-30 May 1980

SECTION I

REPORT OF THE SESSION

AND OF THE

INDO-PACIFIC FISHERY COMMISSION SYMPOSIUM ON
THE DEVELOPMENT AND MANAGEMENT OF SMALL-SCALE FISHERIES

AND

SECTION II

REPORT OF THE SECOND SESSION OF THE IPFC STANDING COMMITTEE ON
RESOURCES RESEARCH AND DEVELOPMENT (SCORRAD)

Hong Kong, 3-8 December 1979

FAO Regional Office for Asia and the Pacific
Bangkok 2, Thailand
1980

SECTION I

R E P O R T

OF

THE NINETEENTH SESSION OF THE INDO-PACIFIC FISHERY COMMISSION

AND

IPFC SYMPOSIUM OF THE DEVELOPMENT AND MANAGEMENT
OF SMALL-SCALE FISHERIES

Kyoto, Japan, 21-30 May 1980

OFFICE-BEARERS OF THE INDO-PACIFIC FISHERY COMMISSION

1980-1982

EXECUTIVE COMMITTEE

Chairman ^{1/} :	Malaysia
Vice-Chairman ^{1/} :	Indonesia
Member ^{1/} :	Nepal
Member ^{1/} :	United States of America
Member ^{2/} :	Japan
Secretary ^{3/} :	Mr. D.D. Tapiador

1/ Elected by country.

2/ Immediately retired Chairman.

3/ The Office of Secretary of the Commission is currently held by the FAO Regional Fisheries Officer for Asia and the Pacific.

IPFC SUBSIDIARY BODIES, 1980-82

EXECUTIVE COMMITTEE

SPECIAL COMMITTEE ON MANAGEMENT OF INDO-PACIFIC TUNA

COMMITTEE FOR THE DEVELOPMENT AND MANAGEMENT OF FISHERIES
IN THE SOUTH CHINA SEA

STANDING COMMITTEE ON RESOURCES RESEARCH AND DEVELOPMENT (SCORRAD)

IPFC/IOFC Joint Working Party of Experts on Indian Ocean
and Western Pacific Fishery Statistics

Working Party of Experts on Fish Technology and Marketing

Working Party of Experts on Aquaculture

Working Party of Experts on Inland Fisheries

Working Party of Experts on Central and Western Pacific Skipjack

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INDO-PACIFIC FISHERY COMMISSION

AND

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OPENING OF THE SESSION

1. The Indo-Pacific Fishery Commission (IPFC) held its Nineteenth Session and Symposium on the Development and Management of Small-Scale Fisheries on 21-30 May 1980 at the Kyoto International Conference Center, Kyoto, Japan. The Session and Symposium were attended by the representatives of 14 Member Nations of the Commission, by observers from 14 other nations and by representatives and observers from seven international and regional organizations. In addition, the Symposium was attended also by visitors from 21 international and national organizations. A list of the delegates, observers and visitors is given in Appendix B to this report.

2. The Commission was welcomed in an opening address by the Chairman of IPFC, Mr. Kunio Yonezawa, Deputy Director-General, Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries (see Appendix D), by the Minister of Agriculture, Forestry and Fisheries, Mr. Kabun Muto (see Appendix E) and by the Chairman of the Organizing Committee, Mr. Toshihiko Ohba (see Appendix F). The Assistant Director-General (Fisheries) of FAO, Mr. Kenneth C. Lucas, gave an opening statement (see Appendix G) to the Commission.

ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION

3. The Commission adopted the Agenda given in Appendix A to this report. The documents which were before the Commission are listed in Appendix C.

SYMPOSIUM ON THE DEVELOPMENT AND MANAGEMENT OF SMALL-SCALE FISHERIES

4. A Symposium on the Development and Management of Small-Scale Fisheries was held on 21-23 May 1980 as an integral part of the IPFC Nineteenth Session. The summary report of the Symposium, as adopted by the Session, is contained in Appendix H to this report. The documents of the Symposium will be published as Section III of the Proceedings of the Session.

5. The Commission expressed its deep appreciation of the untiring efforts and invaluable contribution of the Convener, Y.M. Tengku Ubaidillah bin Abdul Kadir and of the Chief Rapporteur, Mr. E.H. Nichols. It also noted with considerable satisfaction that the editing and compilation of the whole proceedings had been completed during the course of the session so that publication will be much more timely.

INTER-SESSIONAL REPORT OF THE IPFC EXECUTIVE COMMITTEE

6. The Commission had before it the reports of the fifty-seventh and fifty-eighth sessions of the IPFC Executive Committee, documents IPFC/80/4 and IPFC/80/13 (Appendices I and J). As the Executive Committee's reports covered other items in the Agenda, discussion was limited to only a few points in the reports.

7. The Chairman of the IPFC Standing Committee on Resources Research and Development (SCORRAD), Mr. G. Duncan Waugh, was requested by the Chairman of IPFC to present to the Session the Report of the Second Session of SCORRAD held on 3-8 December 1979 in Hong Kong. As the SCORRAD report also covered subject matters that will be discussed in subsequent agenda items of the Session, discussion was held on only a few major recommendations of SCORRAD.

8. The Commission noted that the FAO/IPFC Secretariat had completed the questionnaire concerning the collection and compilation of statistics as recommended by SCORRAD and that the questionnaire will soon be circulated to Member Governments by the Secretariat.

9. The Commission endorsed the recommendation that Member Governments be requested to submit lists of active scientists and their main interests and that the Secretariat should also obtain and circulate information concerning (a) translated publications and (b) national or inter-country workshops or meetings being held in the region. It was also suggested that, in the spirit of Technical Cooperation among Developing Countries (TCDC), member countries should exchange information, through the Secretariat, on technological developments and problems so as to benefit from the experiences of other countries. The observer from the Southeast Asian Fisheries Development Centre (SEAFDEC) informed the Commission that SEAFDEC has already published a detailed and classified list of scientists in the SEAFDEC region and such a list can be taken into account by the Secretariat.

10. Concerning New Zealand's offer to publish IPFC practical field manuals out of its contribution to UNDP, the representative from UNDP informed the Commission that for such purposes un-convertible currencies, such as New Zealand's contribution, could be used by existing UNDP field projects, e.g. the South China Sea Programme, and that the expenditure would have to come from the projects' budget.

11. With regard to the future publication of an IPFC Bulletin which was discussed at the Eighteenth Session of IPFC, the U.S.A. delegation had prepared, and presented to the Commission, a review of the costs of publishing primary journals in the United States, document IPFC/80/Inf. 22. The Commission noted the rather high cost of printing publications, as contained in the document, and that several fishery publications are already being published by countries and international organizations in the IPFC region. The Commission decided not to discuss the possibility of a future IPFC Bulletin any further.

12. The question was raised on the status of the IPFC Indicative Programme of Work and Budget, 1980-81, as contained in document IPFC/80/4 "Report of the Fifty-seventh Session of the Executive Committee." The FAO Assistant Director-General (Fisheries) informed the Commission that IPFC had no budget per se and that the holding of IPFC meetings is subject to the approval of the FAO Director-General within the overall FAO Programme of Work and Budget.

13. It was noted that the Executive Committee had expressed appreciation to Mr. Kenneth C. Lucas, FAO Assistant Director-General (Fisheries), for attending the Session and contributing to the Committee's discussion on important policy issues. The Commission hopes that the practice of the FAO Assistant Director-General (Fisheries) attending future sessions of IPFC should continue.

DEVELOPMENT AND MANAGEMENT OF MARINE FISHERIES

(a) Comprehensive Programme of Assistance in the Development and Management of Fisheries in Economic Zones

14. In considering this item the Commission noted the dramatic effects that the new ocean regime was having on national fisheries. Effects of the change in the conditions of access to world fish resources were not simply quantitative. With the reduction of international competition, developing countries have better opportunities to develop fishing and processing methods better suited to local conditions and to allocate to their small-scale fisheries increased shares of the resources they are now controlling.

15. To help developing countries to maximize the economic and social benefits they can derive from their fisheries in exclusive economic zones, FAO launched in 1979 a special programme of assistance. This programme has two specific purposes:

(i) to meet the immediate needs of developing coastal States, through such actions as fishery policy and planning missions; provision of technical assistance in specialized fields, as for example, fisheries law, control and surveillance, resource evaluation; and training of fishery experts and administrators; and

(ii) to improve the basic understanding on how fisheries in exclusive economic zones can be best developed and managed, for instance by identification and comparison of development and management options, by development of fisheries management concepts and information bases on which shared stocks can be managed and by studying and recommending methods for controlling and monitoring of fisheries.

16. The programme is to be delivered through a global network of multi-disciplinary regional programmes, financed by UNDP, along with additional contributions from other donors, designed to respond to the specific needs of groups of countries in natural management areas.

17. The duties of such regional programmes are:

- (i) to provide, at countries request, the technical assistance of a multidisciplinary team of fisheries management and development experts
- (ii) to identify, promote and technically backstop technical collaboration in each area and
- (iii) to assist countries in the formulation of their development and investment projects.

18. Regional programmes of immediate relevance for IPFC member countries include:

- (i) the South China Sea Fisheries Development and Coordinating Programme
- (ii) the Bay of Bengal Fisheries Development Programme
- (iii) the South Pacific Fisheries Development and Coordinating Programme and
- (iv) the Tuna Management in the Indian and Pacific Oceans Programme.

19. Such Programmes will be closely associated with sub-regional management units that FAO proposes to establish (South China Sea) or has established (e.g. Bay of Bengal) in areas where countries are sharing stocks and fisheries problems and opportunities or other natural affinities. This linking of regional programmes and bodies offers several advantages - it provides coastal countries with a forum where they can analyze their problems and elaborate joint development and management strategies and programmes. It ensures that assistance programmes are delivered in a decentralized fashion, with the full support of the countries concerned and in a spirit of TCDC.

20. The Commission strongly endorsed the FAO Programme of Assistance for the Development and Management of Fisheries in Exclusive Economic Zones (EEZ).

21. The Commission fully supported the action plans proposed by FAO for the region. It emphasized the need for the action-oriented programmes proposed and for the delivery of the activities in the recipient countries - wherever possible - through national institutions. The delegate of Indonesia expressed the appreciation of his Government for the assistance already received through a multidisciplinary mission.

22. Some delegations stated that their countries preferred not to express a view regarding some of the specific projects until they had opportunity to consider the details of the proposals. However they reiterated the support they did give on previous occasions - e.g. the 13th Session of COFI, the 6th Session of IOFC, to the overall concept and plan of the FAO programme. The delegate of the United States stated that FAO was the appropriate agency to be active in this field in the IPFC region.

23. It was recognized that the regional field programmes of FAO were not the exclusive vehicles for the delivery of the EEZ programme. In addition to the many projects of assistance directly provided to national institutions both by UNDP and other donors, activities could also be carried out through independent bodies, if such was the wish of the countries concerned.

24. Noting the relatively high number of programmes and bodies active in the region, the Commission emphasized the need to avoid duplication of effort. Some delegations noted the need for careful supervision and planning of the programme by FAO. Others emphasized that IPFC has a special role to play in identifying priorities and providing overall guidance, not only to the EEZ Programme, but also to related actions conducted by independent programmes.

25. Among the immediate priorities, assistance in the field of monitoring and control of fisheries, including cost/effectiveness of possible methods, was considered as particularly important. The Secretariat informed the Commission that FAO was planning to hold a consultation later this year to review the technical aspects of the subject and to plan its future activities in this field. FAO was also collecting information on existing national schemes. In addition to the dissemination of that information, FAO was also considering the preparation of a training course in this field.

26. The delegate of Malaysia expressed the desire of his country to receive assistance in fisheries policy and planning. The delegate of the Philippines indicated that his country has already put a lot of effort in this field. The Commission noted that it was more and more essential for countries to formulate and plan their own fishery policies and programmes. The Commission noted that programming exercises were now taking place for the allocation of national UNDP IPF's for the forthcoming 1982-86 cycle. The Commission drew the attention of Member Governments to the need to ensure that the opportunities and challenges offered to each national fisheries as a result of the change in the Law of the Sea were fully taken into account when planning the utilization of such funds.

27. The delegate of the Republic of Korea stated that his country was cooperating with various developing countries through joint ventures and other arrangements and was accommodating overseas trainees in its fisheries training centre.

28. The delegation of Sri Lanka expressed its strong support for the Bay of Bengal Unit and urged early action to see this project operational. He stated that therefore his country was prepared to extend its fullest cooperation including offering host facilities as it was in Sri Lanka that this project was inaugurated.

29. The delegates of the United States and the United Kingdom stated that their countries were not in a position to contribute directly to the FAO/EEZ Programme although they strongly supported it. However, they indicated that their countries were providing, under bilateral schemes, technical assistance in the same field and that such activities will be planned and implemented in harmony with the actions conducted under the FAO Programme.

(b) Establishment of A Committee for the Development and Management of Fisheries in the South China Sea

30. The Commission considered this item on the basis of document IPFC/80/7 prepared by the Secretariat and of the reports of the seventh session of the Coordinating Committee for the South China Sea Fisheries Development and Coordinating Programme (Rome, 15-16 October 1979) and of the fifty-eighth session of the Commission's Executive Committee (Kyoto, 20 and 22 May 1980).

31. Recalling that already at its last session in March 1978 it had referred to the desirability of establishing a subsidiary body for the South China Sea, the Commission noted with satisfaction that increased attention was being given by FAO governing bodies to the need to adjust the present structure

of regional fishery commissions and to provide them with greater technical support so as to make them more responsive to the requirements of coastal States under the regime of extended national jurisdiction over fisheries. The Commission was particularly pleased that the concept of natural management areas, based on such factors as shared stocks or fisheries, common problems or opportunities and other natural affinities among the coastal States concerned, had received strong support from the Programme Committee, the Committee on Fisheries, the Council and the Conference of FAO, which had also identified the South China Sea as such an area. The Commission was informed that the Indian Ocean Fishery Commission now had three sub-regional committees, dealing respectively with the development and management of fisheries in the Gulfs, in the Southwest Indian Ocean and in the Bay of Bengal, and that each committee would be provided with a locally-based, multi-disciplinary technical support unit financed mainly from extra-budgetary resources.

32. The Commission endorsed the recommendation made by its Executive Committee and by the Coordinating Committee for the South China Sea Fisheries Development and Coordinating Programme and decided to establish, in accordance with the provisions of Article III (2) and (4) of the 1948 Agreement and with the provisions of Rule IX (2) of its Rules of Procedure, a Committee for the Development and Management of Fisheries in the South China Sea. While agreeing with the establishment of the Committee, several delegations considered that it was necessary to undertake a careful review of the relationship between the Committee and the Commission and its other subsidiary bodies, as well as with other fisheries organizations in the area, in order to ensure the most efficient use of resources. It was further stressed that every effort should be made to ensure that the activities of the Committee would contribute to increasing the effectiveness of the Commission as an action-oriented and coordinating body and would not lead to a fragmentation of its responsibilities and structure.

33. The Commission agreed that the Committee for the Development and Management of Fisheries in the South China Sea would have the following characteristics:

(i) Terms of reference

34. The Commission agreed that subject to the relevant provisions of the 1948 Agreement for the Establishment of the Indo-Pacific Fishery Commission and of the Commission's Rules of Procedure, the Committee would have in its geographic area of competence the same functions and responsibilities with respect to fishery development and management as those assigned to the Commission in the Indo-Pacific area by Article IV of the 1948 Agreement as amended. It was pointed out that the functions of the Committee would not affect those already entrusted to the Special Committee on Management of Indo-Pacific Tuna set up by the Commission in 1970, which has primary responsibility for tuna management in the Indo-Pacific area. The Commission noted that in the view of its Executive Committee this would not prevent the new Committee from concerning itself with development aspects, the harmonization

of national policies among coastal countries in the South China Sea or the preliminary consideration of management measures with respect to tuna stocks occurring in its area of competence. There was also general agreement that the Committee should seek to avoid duplicating the work of the ongoing programmes and specific activities of other subsidiary bodies dealing with resources research, statistics, inland fisheries or aquaculture. It was pointed out that it would be the responsibility of the Committee to report to the Commission, which would review periodically the Committee's method of work and the way in which it performs its functions.

35. The Commission also agreed that in addition, for the duration of the South China Sea Fisheries Development and Coordinating Programme, the Committee should perform the duties of the Coordinating Committee which had been set up by the Commission at its sixteenth session and which would therefore be abolished.

(ii) Area of competence

36. The Commission agreed that the Committee would carry out its functions and responsibilities in regard to fisheries in the South China Sea and adjacent waters up to the outer limits of the zones in which its member countries claim jurisdiction over fisheries, as well as in regard to common stocks occurring also in contiguous waters.

(iii) Membership

37. As proposed by the Coordinating Committee for the South China Sea Fisheries Development and Coordinating Programme and by its Executive Committee, the Commission agreed that membership in the Committee should be open to all coastal States in the South China Sea and adjacent waters that are members of the Commission. It noted that as the Commission was set up by international agreement concluded under Article XIV of the FAO Constitution, it would be possible for all coastal States in the area to become members of the Commission and of the Committee, whether or not they are Member Nations of FAO.

(iv) Secretariat

38. The Commission was informed by FAO that the necessary funds to convene and service the Committee were available in the relevant chapter of the approved budget of FAO. It noted that the Secretary of the Committee would be designated by the Director-General of the Organization.

39. Several delegations pointed out that in view of its membership and broad functions, the Committee would be in a good position to assist in formulating and implementing a coherent and harmonised policy for the development and management of fisheries in the South China Sea area. As member countries would normally be represented by their Directors of Fisheries, the Committee could play an active role to bridge gaps or to avoid the risk of duplication of effort, as well as to marshall bilateral and multilateral

aid in a coordinated manner. Other delegations expressed the view that the action of the Committee should in no way affect the dominant role of the Commission itself in matters of relevance to its area of competence as a whole or of interest to all its Members.

(c) Future Activities of the Commission

40. The Commission considered this item on the basis of the report of the fifty-eighth session of the Executive Committee and of document IPFC/80/17.

41. When reviewing the action taken by other FAO bodies during the inter-sessional period and the implications which such action might have for the work of the Commission, the Executive Committee had noted in particular that at its sixth session (Perth, Australia, 25-29 February 1980) the Indian Ocean Fishery Commission (IOFC) had requested the Secretariat to prepare a position paper on ways and means to further improve the efficiency of IOFC and strengthen its authority in the light of its new sub-regional structure and bearing in mind that progress achieved in the study of tuna stocks would lead to more specific management action. The Executive Committee had felt that both IOFC and the Commission will face the same problems in launching the operations of their sub-regional committees, in harmonizing the management and other measures these committees will adopt or in resolving difficulties encountered by committees serving adjacent areas and that joint discussion of subjects of common interest would be helpful. Similarly, IOFC and the Commission should have a common approach in forwarding to member countries, for implementation, any recommendation which may be formulated by the joint meetings of their Tuna Management Committees. Consequently, the Executive Committee had suggested that the position paper should also be submitted to member countries of the Commission and that FAO should be requested to convene the twentieth session of the Commission in conjunction with the seventh session of IOFC so that the two Commissions could discuss the paper jointly. It had recalled in this connection that the suggestion had been made not to hold a symposium on the occasion of the twentieth session of the Commission.

42. The Commission strongly endorsed the Executive Committee's suggestion that FAO should be requested to consult with the authorities of Indonesia, who had kindly agreed to host the seventh session of IOFC in Bali in the course of 1982, and, if they agreed, to convene the twentieth session of the Commission at the same time and place so as to allow for joint meetings of the two Commissions during their sessions. It noted that IOFC comprises 39 member countries and that only five out of the 19 member countries of the Commission are not members of IOFC.

43. The Commission agreed that the position paper outlined by IOFC at its last session should cover not only IOFC but the Commission as well. Recognizing that with the rapidly changing pattern of fisheries under the new regime of extended jurisdiction the various bodies must be able to respond more promptly in the evolving situation, the Commission requested FAO to extend the scope of the paper to include the question of the advantages and disadvantages of convening on a regular basis the sessions of the Commissions

at the same time and place and of providing for joint meetings to discuss matters of mutual interest or possible merging of activities. In this regard, it was agreed that the paper should also offer options for rationalizing the work and structure of the two Commissions, and cover the opportunities that might be offered to reduce costs, both for member countries and for FAO, and to avoid delays in the adoption, transmission and implementation of recommendations.

44. The attention of the Commission was invited to a number of problem areas which would have to be borne in mind when preparing the position paper. Thus, the respective functioning and authority of the two Commissions are affected by the fact that the Indo-Pacific Fishery Commission was established by international agreement under Article XIV of the FAO Constitution, while IOFC was set up by resolution of the FAO Council under Article VI of the Constitution. The two Commissions have different seats and separate secretariats. The Indo-Pacific Fishery Commission deals with both marine and freshwater fisheries, while IOFC is responsible only for marine fisheries. The Indo-Pacific Fishery Commission has an Executive Committee, while IOFC has not. Similarly, IOFC has never set up a subsidiary body corresponding to the Commission's SCORRAD. Lastly, reference was made to the fact that no symposia are organized as part of the IOFC sessions, as is the case with the Commission.

45. Some delegations felt that the joint meetings would offer an opportunity for Governments to consider the overall rationalization of fisheries organisations in the Indo-Pacific area. In this respect, it was deemed important that all countries in the area be invited to participate in the joint meetings, including non-member countries from the South Pacific region.

46. It was pointed out that in addition to the position paper the Commissions could usefully discuss jointly a number of matters of common interest, e.g., the reports of the joint meetings of their Tuna Management Committees, the reports of the IPFC/IOFC Joint Working Party of Experts on Indian Ocean and Western Pacific Statistics, the activities of the Committee for the Development and Management of Fisheries in the Bay of Bengal and matters related to resources research.

47. The Commission agreed that its member countries, as well as member countries of IOFC, should be invited to offer specific suggestions which could be taken into account in the position paper. It requested the Secretariat to distribute the paper well in advance of the Commission's sessions.

(d) Regional Fisheries Marketing Information Service in the Region

48. Document IPFC/80/18 containing the Draft Plan of Operation of the FAO/Government Cooperative Programme project for the "Marketing Information and Advisory Services for Fish Products in the Asian Region" was introduced by the Secretariat. The project will be of four years' duration and through the provision of advance funding by the Government of Norway an early and very welcome start-up in 1980 has been made possible.

49. The purpose of the project is to set up, in the Asia and Pacific Region, a service which will provide continuous up-to-date information on worldwide fish marketing possibilities and supply situations. The project would also provide technical advice and assistance to participating countries when it becomes necessary for producers to make changes in present marketing and processing techniques which will allow them entry to new markets.

In summary, therefore, the project will:

- (i) establish a service to provide up-to-date information on marketing opportunities and supply prospects of fishery products within and outside the Asia and Pacific Region;
- (ii) advise on product specifications, processing methods and quality standards in accordance with market requirements;
- (iii) assist in developing new marketing opportunities for fishery resources presently not fully utilized for human consumption;
- (iv) assist in the planning and implementation of national fish market information and research activities in the participating countries;
- (v) train national staff in governments, institutions and industry in marketing development and strengthen national institutions involved in this field.

50. During 1980 the project headquarters will be established, staff recruited and equipment ordered. National liaison offices will also be identified and established in the participating countries and the nucleus of an information base will be developed. Over the period 1981-84 the Service will be fully developed.

51. The full range of services to be provided by the project was illustrated by samples of a report and periodic Bulletin published by a similar project, INFOPESCA, successfully working in the Latin American Region, which were distributed to the delegations for information.

52. In the ensuing discussion it was agreed that the general purpose of the project was very worthwhile and needed in the Region. The Commission emphasized the need and desirability of the project working through existing national marketing or other organizations designated by the respective governments.

53. The Commission sought clarification on the nature of the project's involvement in quality control aspects of foreign trade in fish products. Some countries do have well-established systems of quality control. There are, however, countries which would need advice on quality requirements and how to establish quality control systems. The Secretariat stated that the project would have the capability either through its regular staff or consultants to provide advice on these matters.

54. During the preparatory phase, the project would be temporarily based in the office of the South China Sea Fisheries Development and Coordinating Programme in Manila while a permanent project headquarters was being sought and established. This, however, will not prejudice the permanent location of the project which will have to be carefully selected recognizing the project's vast area of operation. It was emphasized by many delegates that good communication facilities both by telex and mail would be essential to the success of the project.

55. The observer representing the South Pacific Commission (SPC) stated that the project could be extremely interesting to the SPC members. In fact the SPC had decided to undertake a study of the Asian market with a view to assisting its members in increasing exports. The hope was expressed that the FAO project could work with the SPC and the Forum Fisheries Agency as avenues of communication and liaison with governments of the South Pacific Region on fish marketing information.

56. Observers from the Maldives and Papua New Guinea expressed strong interest in the proposal and said that their countries would like to cooperate with the project.

57. The Commission gave its support to the project in principle and offered its full cooperation in making it a success.

(e) Relations with Other Fishery Bodies

58. The Commission reviewed its relations with other fishery bodies in the IPFC region, as contained in document IPFC/80/8 "Cooperation with other bodies in the IPFC area." It noted in particular its close working relationship with the Indian Ocean Fishery Commission (IOFC) through joint meetings of the IOFC and IPFC Committees on tuna and working parties on statistics.

59. The observer from the Southeast Asian Fisheries Development Centre (SEAFDEC) informed the Commission of SEAFDEC's current areas of work of its three Departments on Training, Research and Aquaculture and made an offer of closer contact and cooperation with IPFC.

60. Concern was expressed by the Commission on the increasing proliferation of organizations dealing with fisheries in the IPFC region, as well as possible overlapping of functions. Coordination should be ensured as regards the areas of competence and the functions of the Organizations concerned.

61. While the Commission took note of the close cooperation between FAO and the United Nations Environment Programme (UNEP), it reaffirmed, similar to IOFC, the need for clearly separating the mandate and activities of the two agencies so that UNEP concentrated on the major environmental issues and FAO remained the organization exclusively responsible for fisheries management and development.

62. The existing cooperation of FAO with the South Pacific Commission (SPC) was also noted, specifically on the tuna tagging programme. Furthermore, the observer from SPC informed the Commission that SPC had recently proposed the expansion of the tuna tagging programme into a tuna management programme.

63. The Commission was informed by the observer from the Intergovernmental Oceanographic Commission (IOC) of UNESCO of the programme of research of IOC for the Western Pacific (WESTPAC) region. Included in the WESTPAC's programme are the holding of two workshops, one on "Coastal Transport of Pollutants" and the other on "Marine Biological Methodology" and the establishment of two Task Teams, one on "Ocean Monitoring in the WESTPAC region" and the other on "Marine Pollution Research and Monitoring, using commercially exploited shellfish as determinants." The cooperation of FAO and the Commission was invited in the WESTPAC programme, especially in the fields of marine biology and pollution.

64. The observer from the Pacific Science Association (PSA) also informed the Commission of the multi-disciplinary activities of PSA. There are two scientific committees of PSA that are of direct interest to IPFC, namely one on freshwater science and the other on coral reefs.

MANAGEMENT OF TUNA

65. The Secretariat presented a summary of the discussions that took place during the Sixth Joint Meeting of the IOFC Committee on Management of Indian Ocean Tuna and IPFC Special Committee on Management of Indo-Pacific Tuna which was held on 20-22 February 1980 in Perth, Australia (Document IPFC/80/9). It was noted that the IOFC at its Sixth Session, held on 25-29 February 1980 in Perth, Australia, considered the Report of the Joint Tuna Management Committees (Document IPFC/80/Inf. 5) and endorsed the recommendations it contained.

66. After some discussion of the observations made by its Executive Committee (Document IPFC/80/13), the Commission agreed to make the following recommendations:

(i) that FAO should seek funding for the addition of a tuna scientist to the FAO/UNDP Project for Tuna Management in the Indian and Pacific Oceans, which includes a Programme Leader and a Statistician, in order to review alternative research programmes on tuna stocks and to draw up specific research proposals;

(ii) that upon selection of a programme in consultation with the IPFC and IOFC Tuna Management Committees, FAO should seek funding for the implementation of the programme;

(iii) that the FAO/UNDP Project for Tuna Management in the Indian and Pacific Oceans should prepare a field manual for the collection of fishery statistics.

In regard to recommendation (i) above some delegations reserved their position concerning the timing of the appointment of the additional scientist until FAO has had the opportunity to implement the FAO/UNDP project for tuna management in the Indian and Pacific Oceans.

67. The Commission decided that the membership in the IPFC Special Committee on Management of Indo-Pacific Tuna should be made open-ended so that any member country of the Commission could become a member of the Committee if it wishes.

68. After some discussion of their viewpoint on management as a distant water fishing nation, their appreciation of the aspirations of coastal developing nations, and their support of the goals of the FAO/UNDP Project for Tuna Management, the Japanese delegation announced that the Japanese Government has allocated US\$200,000 for the support of the Project in the form of a trust fund to be administered by FAO.

69. The representative of the UNDP wished to acknowledge the generous support by the Government of Japan to the Tuna Management Programme.

70. It was recalled that at the Sixth Session of the IOFC (Perth, Australia, 25-29 February 1980) the delegate of Sri Lanka had extended the offer of his Government to host the Project. Most delegations which had taken the floor at the time had expressed strong support for the choice of Sri Lanka as the site and had urged FAO to take their recommendation and this invitation into account when making a decision in consultation with UNDP and on the basis of all relevant factors. Some delegations had indicated then that the views of the Indo-Pacific Fishery Commission should also be sought at its Nineteenth Session. The delegate of Sri Lanka informed the Commission that he had consulted the delegations of the three member countries of the Commission present at this Session which are not members of IOFC and had been authorized by them to report that they could go along with the IOFC recommendation. The delegation of Indonesia, which had also offered to host the Project at the Sixth Session of IOFC, explained that the Indonesian Government had made the offer as a gesture of international cooperation and that it would wholeheartedly support Sri Lanka as the location for the Project. If, however, another site had to be found, Indonesia would like to be considered as a site for the Project. The Commission decided to recommend that Sri Lanka be selected as the site for the Project, subject to satisfying the technical and other requirements for the Project, and it requested FAO to take all necessary steps to facilitate the establishment and operation of the Project as quickly as possible.

71. The Commission noted and endorsed the recommendation made by SCORRAD, during their 3-8 December 1979 meeting in Hong Kong, for a skipjack tuna workshop to be held in the near future to review the state of the stocks and the fisheries preferably in conjunction with the meeting contemplated by the South Pacific Commission upon completion of its tuna tagging programme. It recommended that FAO should explore with the SPC the practicability of holding such a meeting either jointly or in some other association with the IPFC and IOFC Joint Tuna Management Committees.

MANAGEMENT OF STOCKS OTHER THAN TUNA

72. The importance of shrimp as a major earner of foreign currency throughout the region was emphasized, but the role of by-catch differed considerably. In the Philippines the by-catch is used largely for domestic consumption, usually for fish drying or fermentation or the fish sauce industry. In other countries however a significant proportion of the fish was discarded and

attempts by such countries as Papua New Guinea or certain areas of Indonesia to use the by-catch had failed. The Commission felt that the use of by-catch resources should be encouraged and it was pointed out by the United Kingdom that studies such as those carried out in Mexico by the Tropical Products Institute could be usefully undertaken in the IPFC region.

73. Because of the commercial importance of shrimp, pressure on the resource was great and many stocks are overfished. To combat this, it was felt that an increase in mesh size would be advantageous and the Commission again endorsed the recommendation No. 15 of the Symposium on the Development and Management of Small-Scale Fisheries (IPFC/80/8) and No. 3 of SCORRAD (IPFC/80/5). It was, however, pointed out both by the delegations of the Philippines and Indonesia that attempts had been made in their countries to introduce an increase in mesh size with no appreciable success. Such legislation has so far proved exceedingly difficult to enforce. Attempts at limiting access to the fishery had likewise met with little success. The Chairman of SCORRAD pointed out that in the view of the Committee the success of attempts to raise mesh sizes rests not in legislation but in educating the fishermen, notably by demonstration of the greater fishing efficiency of trawls with larger mesh size and improved design. It was anticipated that there would be improved economic benefits in terms of fuel saving which would also become apparent. To initiate such a programme it was recommended that a consultant be engaged to identify suitable areas for the demonstration experiment. He also noted that for the full benefits to be realized such projects would need to continue for at least five years.

74. The delegation from the Philippines questioned the basis of some of the tentative conclusions presented in document IPFC/80/10 related to the potential economic benefits of such management measures as reduction of fishing effort and limitation of entry in the absence of cost revenue studies on the fishery. This re-emphasized the point made at the Symposium of the need for integrated scientific, social, economic and technological studies for each type of fishery.

75. A further way of increasing the value of the catch would be to improve its handling from the time of catch, particularly as regards hygiene. Several countries including Australia, Indonesia and the Philippines had instituted inspection procedures. In the case of Australia these had proved successful, but elsewhere they were very difficult to apply due to a difference in attitude between the shrimp exporters and the Government Inspection Services.

76. Mangrove areas were recognized as of major importance to the earlier stages in the life cycle of some shrimps and the gradual elimination of these nursery grounds by clearing was viewed with concern. In Bangladesh a serious conflict has arisen through the expansion of aquaculture in the coastal region. The delegate from Bangladesh urged that in studies of mangrove areas the alternative uses particularly between different types of fisheries be evaluated. Indonesia had experienced the same problem but was controlling it by conserving a mangrove belt between any new aquaculture installations and the sea. Liaison was, however, necessary with the Forestry Department to protect this ecosystem.

77. The meeting endorsed the methods proposed in document IPFC/80/10 for action in the field of shrimp and demersal resources generally, namely:

- (i) General discussions of the problem at regular Commission Sessions
- (ii) Arrangements for more detailed discussions of selected aspects at other meetings, probably of one of the Commission's subsidiary bodies
- (iii) Arranging for studies that could be of interest to all or most of the member countries
- (iv) Arranging for interchange of expertise between countries with similar problems, especially in the spirit of TCDC
- (v) Requesting assistance from FAO regional programmes to advise on upgrading of industrial facilities.

78. With respect to (iv) above, attention was drawn to the forthcoming Workshop on Shrimp for the South China Sea Region to be sponsored by the South China Sea Programme and hosted by the Government of Malaysia in Kota Kinabalu, Sabah (June, 1980).

79. In addition to the above the Delegate from Bangladesh proposed that the management of other species forming the basis of independent fisheries, such as Pomfret or Snapper, be investigated either by the Commission or through the appropriate sub-regional body or project.

AQUACULTURE AND INLAND FISHERIES DEVELOPMENT AND COORDINATION

80. In discussing aquaculture and inland fisheries development, the Secretariat made reference to the actions arising out of the World Conference on Agrarian Reform and Rural Development (WCARRD/REP/79); the 13th session of the Committee on Fisheries, the 20th FAO Conference, and the 15th Regional Conference for Asia and the Pacific all of which underline the importance of development in these sectors.

81. The aquaculture activities taking place in the IPFC region were summarized by the Secretariat.

82. The delegate from the Philippines drew attention to the legal and institutional constraints on aquaculture development and emphasised that the IPFC countries should take such constraints into account especially in situations whereby fishing effort is more than the resource can provide and also in cases whereby small fishermen shift to coastal aquaculture.

83. The Commission recognized that aquaculture and inland fisheries development are the primary alternative options to relieve pressure on already over-exploited coastal fisheries resources. It therefore fully endorsed the recommendations of the Working Party on Aquaculture and Environment contained in the Report of its 5th Session (IPFC/80/Inf. 7).

84. Recommendation No. 2 for the organization of a workshop on fish seed production was particularly well received by the delegates. This will be organized in conjunction with the workshop on induced fish breeding sponsored by the International Development and Research Centre (IDRC) in Singapore in November 1980. The Secretariat will coordinate this activity in collaboration with the IDRC representative based in Singapore. Preliminary discussions to this effect have already been made by the Secretariat.

85. The activities proposed under the Cooperative Research Programme on Aquaculture were for implementation by individual countries (IPFC/80/Inf. 7, para. 22). The IDRC and the International Foundation for Science (IFS) are possible sources of funding for this programme.

86. The regional project, RAS/76/003/C/01/12, Establishment of Aquaculture Centres in Asia (Phase II), was put forward to the Commission for discussion. Many delegations gave full support to this project but stressed that overlapping of activities with other institutions and projects in the region must be avoided.

87. The importance of inland fisheries was emphasized by many delegations, which felt that IPFC should devote more attention to this sector. Areas of particular concern were:-

(i) the impact of other uses of the environment on fish stocks in lakes, rivers and floodplains, although it was realized that fisheries administrations alone could not intervene directly for the protection of the aquatic environment;

(ii) the allocation of the freshwater resource between capture fisheries and culture operations and the social and economical implications of such allocations;

(iii) the ecology of mangrove areas as related to their possible use for aquaculture. The possible use of the Landsat facilities existing in the region for the investigations of such regions was considered worth investigating.

(iv) the management of certain anadromous stocks, particularly Hilsa which is of importance through the Indian sub-continent.

(v) management of inland fish stocks for sustained yield.

Studies and projects were advocated in all of these sectors.

88. The delegation from Malaysia drew the Commission's attention to the great potential for fish production of the new reservoirs which were being created for flood control, irrigation, and power generation throughout the region. These reservoirs are being used for fisheries in countries such as Thailand and India, but in many other countries lack of knowledge is limiting the development of fisheries in these waters. Similarly the important inland

resource represented by rivers and the floodplains associated with them is not being fully realised. Such areas are being diminished by other users of the aquatic resource and lack of knowledge is limiting local capacities to respond to this threat. It was therefore recommended by the Commission that two training centres be organized one for the planning, development and management of reservoir fisheries and one for the assessment and management of riverine fisheries. The two training centres could conceivably form the subject of a single phased project. The Commission noted that this was in addition to the Workshop for Inland Fisheries Planners proposed to be held in the Philippines in 1981.

89. The terms of reference for the Working Party on Inland Fisheries as proposed in the SCORRAD report (document IPFC/80/5 para. 61) were questioned and after discussion the following amended terms of reference were agreed:-

With regard to the capture fisheries of inland and enclosed coastal waters the Working Party shall:-

(i) report on the status of the resources in the IPFC region and identify needs for international action leading to their better development and management.

(ii) formulate and encourage lines of approach to common research programmes on fishery biology, ecology and environment, to lead to better development, management and conservation of the resources.

(iii) identify problems of statistics, technology, aquaculture and related aspects, liaising with other appropriate working parties of SCORRAD, in deciding upon the best means of accomplishing work in these fields.

For the purposes of this Working Party enclosed coastal waters shall mean lagoons, estuaries and mangrove areas.

90. The Commission particularly commended recommendation No. 5 of the Fifth Session of the IPFC Working Party on Aquaculture and the Environment (IPFC/80/Inf. 7 para. 21) that in future the Working Party on Aquaculture and the Working Party on Inland Fisheries meet consecutively in order to provide the possibility for joint discussions of points of common concern such as aquatic pollution and environmental degradation. It was also pointed out that this measure would represent a saving to FAO.

SOUTH CHINA SEA FISHERIES DEVELOPMENT AND COORDINATING PROGRAMME (SCSP)

91. The Programme Leader introduced the item by referring to the document which contained the report of the most recent Coordinating Committee Meeting and the Phase III Project Document which is in the process of endorsement by the governments. He noted that the Programme is now definitely funded for 1980-81 and provisionally approved in principle by the UNDP for an additional three years. The approval of this latter funding will be based on a thorough review of the Programme in the second half of 1981.

92. The attention of the Commission was invited to the large number of projects identified by the Programme and due for implementation under its umbrella or by some other means, which served to expand and strengthen the Programme. The Commission noted that in addition to the activities mentioned in the Project Document, the Programme had been able to greatly assist the FAO/UNDP Project for Tuna Management in the Indian and Pacific Oceans by housing it in Manila during its start-up phase. The Programme was also assisting with extra funding a fishery relief project in Democratic Kampuchea to supply fish from the Tonle Sap Lake. It was informed that all the remaining staff are under recruitment and that more than half of the new staff members are from the region.

93. When commenting on the establishment by the Commission of the Committee for the Development and Management of Fisheries in the South China Sea, the Programme Leader indicated that the Director-General of FAO would be requested to convene the first session of the new Committee during the second half of 1980 in conjunction with a Tripartite Review. The Committee would be invited to decide upon working arrangements and programmes.

94. During the discussion on this item, all the participating countries present strongly endorsed the Phase III Project Document and expressed their appreciation for the assistance provided to the Programme by UNDP and FAO. A number of other countries, who were not part of the Programme, also expressed their support.

95. The delegate from Australia noted that the JETINDOFISH project was attached to the Programme and that the Programme Leader would be attending the meetings of the project's advisory committee through which the programmes of the participating governments are coordinated and directed. The delegate from the United States was pleased to see the satisfactory inter-relationship of the Programme with other regional activities, which is to be commended as it makes maximum use of all available funding. In endorsing the Project Document, the Delegate of the United Kingdom regretted that Hong Kong could not always provide the assistance of its small technical staff as required to carry out some of the Programme activities when requested.

96. Concerning the use of regional expertise in regional projects, the Assistant Director-General (Fisheries) gave assurance to the Commission that FAO, in order to make regional programmes more effective and relevant to the needs of countries in the area, would make every effort to obtain an effective balance between outside experts and personnel from the region on the staff of these programmes. He stated that it was FAO's aim to use the resource skills of the region where they were available. He added, however, that the recruitment of personnel from the region would be done in close consultation between the Programme Leader and the senior government officials concerned so that there would be no serious adverse effects to national administrations and institutions. This approach was commended and welcomed by the Commission.

OTHER MATTERS

97. The question of distribution of responsibilities between neighbouring sub-regional committees and of coordination between their supporting programmes was raised by some delegations. They referred specifically to the South China Sea and Bay of Bengal Committees which may have overlapping spheres of influence and this might cause confusion on the part of donor agencies. The two programme leaders concerned informed the Commission that to-date practical and satisfactory ad hoc arrangements have been worked out between the programmes in close consultation with the Member Governments. However, as the different geographical and subject matter programmes expand, the need for coordination and cooperation will become increasingly important. It was suggested that these aspects should be covered in the FAO position paper to be presented to the joint meetings of the Commission and of IOFC in 1982. In the meantime, FAO was requested to pay attention to potential problem areas and, together with the committees and countries concerned, work out suitable arrangements. It was noted that recent steps have been taken by the Fisheries Department to this effect as far as the existing supporting programmes are concerned.

98. The delegate of Australia provided additional information relating to tuna research. At the meeting of the ad hoc sessional committee on tuna research in the Western Pacific and Indian Oceans held in Perth on the occasion of the Sixth Session of IOFC (Document IPFC/80/9, Sup. 1), it was said that the existing genetics laboratory facilities had proven very beneficial to biochemical sub-population analysis, but while it would be desirable to make available such facilities to the proposed tuna research project for the Indian and Pacific Oceans; it did not appear that the facility would be continued. The delegate of Australia announced that such a biochemical genetics laboratory has now been established within the CSIRO Division of Fisheries, and will be based in Cronulla. The Government of Australia will be making these facilities available to international research projects on a reasonable basis as soon as a laboratory director is recruited.

DATE AND PLACE OF THE TWENTIETH SESSION

99. The Commission noted that under Agenda Item 5 (c), Future Activities of the Commission, it had already suggested to FAO to consult with the Government of Indonesia regarding the possibility of holding its next session in Bali in order to allow for joint meetings of IOFC and IPFC during their seventh and twentieth sessions. Depending on the outcome of these consultations, the time of the twentieth session of IPFC would probably be around October 1982.

100. The Commission agreed that, as recommended by its Executive Committee, there should be no symposium in conjunction with its twentieth session, since the subject matter previously selected for that symposium would be covered by the 1982 FAO World Technical Conference on Fishery Management and Development. It stressed, however, that this would be an exception and

that the subject of future symposia should be discussed at the time of the twentieth session.

ELECTION OF OFFICERS

101. Malaysia and Indonesia were elected unanimously as Chairman and Vice-Chairman of the Commission, respectively.

102. Nepal and the United States of America were elected, also unanimously, as the two other members of the Commission's Executive Committee.

AGENDA

1. Opening of the Session
2. Adoption of the agenda and arrangements for the Session
3. Symposium on the Development and Management of Small-Scale Fisheries
4. Intersessional report of the IPFC Executive Committee
5. Development and management of marine fisheries
 - (a) Comprehensive programme of assistance in the development and management of fisheries in economic zones
 - (b) Establishment of a Committee for the Development of Fisheries in the South China Sea
 - (c) Future activities of the Commission
 - (d) Regional fisheries marketing information service in the Region
 - (e) Relations with other fishery bodies
6. Management of tuna
7. Management of stocks other than tuna
8. Aquaculture and inland fisheries development and coordination
9. South China Sea Fisheries Development and Coordinating Programme (SCSP)
10. Any other matters
11. Date and place of the Twentieth Session
12. Election of officers
13. Adoption of the Report

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IPFC/80/Inf.15	General Information
16	Fisheries Tour, Sunday, 25 May 1980
17	Sight Seeing Tour of Kyoto, Saturday, 24 May 1980
18	Registration
19	Schedule of Opening Ceremony and Programme, 21 May 1980
20	Bus Time Table
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SYMPOSIUM ON THE DEVELOPMENT AND MANAGEMENT OF SMALL-SCALE FISHERIES

Experience Papers

	<u>Title</u>	<u>Author</u>
IPFC/80/SYMP/EXP/1	Aquaculture Fishery as an Alternative to Capture Fishery	Mohd Sheffie Bakar Nasaruddin Arshad
2	Credit Facilities for the Development of Small-Scale Fisheries of India	P. Vedavyasa Rao
3	The Role of Aquaculture in Small-Scale Fisheries Development	H.R. Rabanal M.N. Delmendo
4	A Case Study of Costs and Earnings of Trawl-nets, Gill-nets and Handlines in the Trengganu Fishery of Peninsular Malaysia	Jahara Yahaya R.J.G. Wells
5	The Development of Deep Bottom Fishing in the Tropical Pacific	James Crossland Rene Grandperrin
6	The Role of Cooperatives in the Fishing Industry in Malaysia	Fisheries Dev. Auth. KL, Malaysia
7	The Role of the South Pacific Commission in the Development of Small-Scale Fisheries	Rene Grandperrin James Crossland
8	Status of Small-Scale Fish Utilization Technology in Malaysia	W.I. Wan Rahimah
9	What Happened on Hokkaido	Robert Hamlich Masamichi Hotta
10	Changing Pattern of Prawn Production in Small-Scale Fisheries of India	M.J. George C. Suseelan
11	Impact of the Introduction of Commercial Purse-Seine Operations on the Traditional Fisheries of the Karnataka Coast in India	S.K. Dharma Raja T. Jacob
12	The Purse Seine Fishery of Hong Kong Based on an Investigation Conducted in 1975-176	R.T. Chung M.T.L. Chiu

	<u>Title</u>	<u>Author</u>
IPFC/80/SYMP/EXP/13	Four Approaches to Fish Marketing in Sri Lanka	E.P.P. Jayasuriya
14	Advances in Air Breathing Fish Culture in India	P.V. Dehadrai
15	Observations on Intensive Composite Fish Culture	R.D. Chakrabarty P.R. Sen N.G.S. Rao S.R. Ghosh S. Jena K. Janakiram
16	Potential and Constraints of Small-Scale Freshwater Fish Culture Enterprises in India	V.R.P. Sinha M. Ranadhir
17	Semi-Intensive Culture of <u>Heteropeneustes Fossilis</u> (Bloch) from a Small Pond at Ulubari Fish Farm, Gauhati through Monoculture Experiment	S.C. Pathak Y.S. Yadava M.P. Singh Kohli
18	Post-Harvest Problems of Small-Scale Fishery of Indonesia and an Effort to Improve Its Socio-Economic Condition	Sofyan Ilyas
19	Socio-Economic Characteristics of Small-Scale Fishing Households in the North Coast of Java and Malacca Strait Coast of Sumatra	Kusno Rahardjo
20	Artisanal Aquaculture in Indonesia: The Need and Constraints for Further Development	Fuad Cholik Atmadja Hardjamulia Rustami Djajadiredja
21	Saemaul Undong in Fishing Communities	Office of Fisheries Republic of Korea
22	Air Transport of Small-Scale Fishermen's Shrimp Catches in Maranhao State, Brazil	H. Lisac A. Nordheim

	<u>Title</u>	<u>Author</u>
IPFC/80/SYMP/EXP/23	A Case Study in Camarines Norte Area Fishing Cooperative in the Philippines	Jean Ho Toh
24	Madridejos Fishermen's Cooperative Marketing Association, Inc.	R.C. Obispo
25	Marketing, Distribution and Cool Storage of Fish	Raymond Necklen
26	A Small-Scale Fisheries Pilot Project in Thailand	Kachornsak Wetchagarun
27	Indonesian Seaweed, Its Resources and Culture	Hasan Mubarak
28	The Possibility of Modernizing Small-Scale Fisheries in the South China Sea Region of the Riau Archipelago District (Indonesia)	Tatang Sujastani Edy Mulyadi Amin
29	Social and Economic Aspects of Small-Scale Fisheries Development: A Case Study from Malaysia	Conner Bailey
30	Seaweed Farming as Alternative Income for Small-Scale Fishermen: A Case Study	I.R. Smith R. Pestano-Smith
31	The Small-Scale Backyard Penaeid Shrimp Hatchery: Results of Jepara Study	M.L. Nurdjana B. Martosudarmo S. Adisukresno B. Tiensongrusmee
32	Coastal Fishery and Fishery Rights	Yutaka Hirasawa
33	Development of Small-Scale Fisheries: A Case Study of the Fishing Grounds in Yubetsu, Hokkaido	Hiroichi Akiyama
34	Existing Projects Related to the Improvement and Development of Coastal Fishing Grounds in Japan	Akira Nagano

	<u>Title</u>	<u>Author</u>
IPFC/80/SYMP/EXP/35	Effective Pollution Preventive Measures and Methods for the Coastal Sea Areas of Japan	Hiroyuki Shimojo
36	Tackling Small-Scale Fisheries Development through FAO Regional Programmes: A Case Study	E.O. Oswald
37	Application of Chilled Sea Water in a Small-Scale Fishery Project: A Case Study	A.F.M. Pizzali
38	The Role of SEAFDEC in Fisheries Development with Special Reference to Small-Scale Fisheries in South-east Asia	K.I. Matics D. Menasveta

Specialized Papers

	<u>Title</u>	<u>Author</u>
IPFC/80/SYMP/SP/1	Intermediate Technology and Alternative Energy Systems for Small-Scale Fisheries	D. Thomson
2	Community Fishery Centres and the Transfer of Technology to Small-Scale Fisheries	M. Ben-Yami
3	Planning of Investment in the Fisheries Sector	M. Zaki Azam
4	Marketing Aspects of the Development of Small-Scale Fisheries	E. Ruckes
5	Women in Fisheries	C.L. Yap
6	Aquaculture and Small-Scale Fisheries Development	T.V.R. Pillay U.N. Wijkstrom
7	Methods for Assessing the Resources Available to Small-Scale Fisheries	R.L. Welcomme J.A. Gulland
8	Resource Constraints to the Development of Small-Scale Fisheries	R.L. Welcomme
9	Small-Scale Fisheries Development: A Challenge for the 1980's	A. Sfeir-Younis

Country Status Reports

IPFC/80/SYMP/CSR/1	Country Status Report on Indonesia
2	Country Status Report on Malaysia
3	Country Status Report on India (Problems and Prospects of Small-Scale Marine Fisheries in India)
3 Sup.1	Country Status Report on India (Project Report for Development of Small-Scale Fishermen of Broach District, Gujarat State, India)
4	Country Status Report on Bangladesh
5	Country Status Report on Pakistan
6	Country Status Report on Korea (The Present Status and Prospects of Aquaculture in Korea)
7	Country Status Report on Hong Kong (Small-Scale Fisheries in Hong Kong)
8	Country Status Report on Japan (Small-Scale Fishery in Japan)
9	Country Status Report on Thailand
10	Country Status Report on Philippines (Status Report on Municipal Fisheries in the Philippines)
11	Country Status Report on Sri Lanka (Development of Small-Scale Fisheries in Sri Lanka)
12	Country Status Report on Nepal (Report on National Status of Aquaculture Development in Nepal)

	<u>Title</u>	<u>Author</u>
<u>Information Papers (Symposium)</u>		
IPFC/80/SYMP/Inf. 1	Directory of Financial Institutions and Development Agencies	Secretariat
2	Annotated Provisional Agenda (Symposium)	Secretariat
3	List of Papers (Symposium)	Secretariat
4*	Strategies for Development Projects in Small-Scale Fisheries: A Contribution to Policy Formulation. <u>FAO Fisheries Circular 713</u> , 1977	G. Meidell Gerhardsen
5*	Report of the Consultative Group Meeting on Small-Scale Fisheries Development in the South China Sea Region, 13-15 December 1976 Manila, Philippines, SCS/GEN/76/9, 1977, 150 pages	SCSP, Manila, Philippines
6*	Report of the Expert Consultation on Small-Scale Fisheries Development, Rome, Italy, 8-12 September 1975. <u>FAO Fisheries Report 169</u> , 16 pages	FAO, Rome, Italy
7	Provisional Timetable (Symposium)	

* In limited supply - Distribution will be reserved mostly for Heads of Delegations.

OPENING ADDRESS OF THE CHAIRMAN OF IPFC

Mr. Kunio Yonezawa
Deputy Director-General
Fisheries Agency
Ministry of Agriculture, Forestry and Fisheries

Honourable Minister,
Excellencies, Distinguished Delegates and Observers,
Ladies and Gentlemen:

I declare open the 19th Session of the Indo-Pacific Fisheries Commission.

It is indeed a great honour and privilege for me to welcome all of you to this 19th Session of the Commission and to this very old City of Kyoto. I also wish to express my heartfelt gratitude for the confidence and trust you placed on me in electing me as your Chairman.

During the past two years, I have had the pleasure of serving this Commission with other members of the Executive Committee and the staff members of FAO. I am particularly thankful to the Secretary of IPFC for his support and assistance for the preparation of this important gathering.

As you recall, none of the sessions of this Commission could progress without being challenged by new problems. This session is no exception from the brunt of the energy crisis overshadowing the development programmes in many member countries.

Although effective counter-measures may not be in sight for most of us, I am quite sure that you would not let go any agenda items without taking proper cognizance of this serious problem.

The Symposium on the Development and Management of Small-Scale Fisheries is a long-awaited undertaking and also a great challenge to all of us, because this segment constitutes the overwhelming bulk of the fishing communities in the world, including those of my country. Needless to say, problems confronting small-scale fisheries are far and wide in extent, requiring us to take approaches from all possible angles; technical as well as economic. The Symposium will be attended by experts of a variety of disciplines and I have no doubt that there will be in-depth discussion among them.

Another crucial issue at this Session is the Development and Management of Fisheries in the Economic Zone. Besides what may be emanating from the Symposium or from the discussion of other relevant agenda items, I understand that a number of action-oriented or action programmes have already been proposed under Agenda Item 5. I am looking forward to as many consensuses as can reasonably be expected emerging out of your collective wisdom on this issue.

May is the most beautiful and pleasant season in Japan if it is not raining. Although our schedule ahead is rather tight, I wish you to fully enjoy your stay here.

In concluding my opening speech, I now have the great honour to introduce to you the Honourable Minister of Agriculture, Forestry and Fishery Kabun Muto. Honourable Minister, while thanking you on behalf of the Commission for taking time off from your State duties to attend this occasion, I take pleasure in inviting your Honour to deliver the opening speech on behalf of the Government of Japan.

Thank you.

ADDRESS OF WELCOME BY HIS EXCELLENCY MR. KABUN MUTO
MINISTER OF AGRICULTURE, FORESTRY AND FISHERIES

Mr. Chairman, Mr. Lucas, Distinguished Delegates
and Observers, Ladies and Gentlemen:

It is my great pleasure and privilege to say a few words of welcome, on behalf of the Japanese Government, on this occasion of the 19th Session of the Indo-Pacific Fishery Commission.

This is the second time for us to have the privilege of hosting the Commission's meeting, as the 6th Session was held in Tokyo twenty-five years ago, in September, 1955. I wish to extend my hearty welcome to the FAO members and the delegates who have come all the way to attend the 19th Session and also to the participants of the Symposium.

The importance of the fishery industry has been increasing in the world as a supply source of animal protein, one of the nutrients essential to mankind. Therefore, fishery resources, the basis of the fishery industry, are the common resource of all mankind on earth. Every country should be aware of its shared interest. And particular attention should be given to promote proper and rational utilization of these resources.

In this respect, we consider that the current world trend of establishing the 200-mile fishery zone and economic water zone should be primarily aimed at more efficient utilization of fishery resources on a longer term basis and never in the interest of any particular country.

At the same time, we are fully convinced that, to preserve fishery resources for the future, indiscriminate fishing should not be allowed even in the high seas.

In the meantime, as in the case of cultivation fishery in which Japan has been focusing its development efforts in recent years, the area of ever increasing importance will be found in developing required technologies to raise fish more positively and thus going beyond the conventional capture fishery to develop a fishery of "hatching, raising and catching", where our efforts are no longer limited to the preservation of existing fishery resources.

Japan, for its part, strongly hopes to materialize in the future the permanent preservation and expansion of world fishery resources by promoting technical developments so that all essential species can be artificially hatched, raised and released in the ocean.

Japan is fully determined to contribute to the development of fishery industries in the world in the spirit of co-existence, co-prosperity and mutual assistance with other countries by positively participating in international cooperation in the fields of resource exploitation and management as well as in the field of technology development for raising and cultivating fish.

It is my sincere hope that this Kyoto meeting will prove to be a significant and productive step toward our goals.

In concluding my speech, I hope you will enjoy your stay in this ancient city to have happy memories to last for many years.

Thank you.

WELCOME ADDRESS BY MR. TOSHIHIKO OHBA
CHAIRMAN OF THE ORGANIZING COMMITTEE

Mr. Chairman, Assistant Director-General of FAO, Honourable Minister,
Distinguished Delegates and Observers, Ladies and Gentlemen:

It is my great honour and pleasure to express a few words of welcome to you on the occasion of the opening of the 19th Session of the Indo-Pacific Fishery Commission on behalf of the Japanese Organizing Committee.

In order to make this Session a fruitful one, it was imperative to bring public and private sectors related to fisheries together, and the IPFC Japanese Organizing Committee was established. As with the case of other meetings, our preparatory works were very demanding and involved so many people. It is, therefore, my distinct pleasure to welcome many national delegates and experts from over 20 countries and also many officials from international organizations at this Opening Session.

As you are well aware, the Commission has played an outstanding role in promoting fisheries development in this area. With the advent of the 200-mile Economic Zone and subsequent changes in fishery environment of member countries, fishery development draws growing attention and interest worldwide, and increasingly greater expectations have been placed upon this Commission. It is significant, in this context, for us to host this 19th Session in our country.

Surrounded by oceans, Japan has long been a country of fisheries and is now one of the leading fishery nations of the world. Our fishery activities range from coastal family operations to large-scale deepsea fisheries.

I believe that our experiences and expertise in fishery will not only offer a wide range of topics but contribute in no small way to future development of fisheries of the world. During this Session, a study tour to the Japanese coastal village is planned where you will observe firsthand the actual situation of coastal fishery villages.

The City of Kyoto offers outstanding historical heritage with more than a thousand-year tradition as the ancient capital of this country. It is our hope that you will enjoy and appreciate the historical and cultural aspects of Japan.

Although the preparation for the Session may not have been fully satisfactory to you, we will do our best throughout the Session to make it successful.

In closing, I wish this Session will be most fruitful, and hope that your stay in Japan will be enjoyable and memorable.

Thank you.

OPENING ADDRESS OF THE CHAIRMAN OF IPFC

Mr. Kunio Yonezawa
Deputy Director-General
Fisheries Agency
Ministry of Agriculture, Forestry and Fisheries

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Excellencies, Distinguished Delegates and Observers,
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May is the most beautiful and pleasant season in Japan if it is not raining. Although our schedule ahead is rather tight, I wish you to fully enjoy your stay here.

If developing coastal countries are to use this opportunity to bring sound, science-based management to the fisheries, they must have immediate and sustained assistance. In particular they need advice from experts in the multitude of disciplines involved in management of fisheries as an integrated system. Their need for this help is greater than ever before because their responsibilities are greater than ever before. More fish are within reach of management - as a matter of fact, about 99% of the present world catches take place within the limits of Exclusive Economic Zones.

This brings me to one item on your agenda - Number Five - the Development and Management of Marine Fisheries - where we will be discussing the Comprehensive Programme of Assistance in the Development and Management of Fisheries in the Economic Zones under sub-item (a). I don't propose to give any exhaustive description of the programme at this point. Many of the people in this audience were in Perth in February at the Indian Ocean Fishery Commission meeting where we outlined this programme and, in any case, full details can be found in the information kits you have received.

Instead I am going to comment on agenda item 5 (b). This item calls for the establishment of a Committee for the Development and Management of Fisheries in the South China Sea. It is a direct expression of one of the basic strategic principles on which the EEZ Programme is based: decentralization of effort, and deployment of strength to the front line.

Let me take a minute to put this proposal into the setting of FAO's global strategy.

Given the greater scale and the increased complexity of world fisheries management problems it is more important than ever that we deliver that assistance efficiently and on schedule. The best way to do this is to have supporting the front lines of management, a corps of experts. Expert not only in their formal fields of training, but also - through personal, on the spot contact - expert in the situations of specific regions and fisheries.

Within the areas served by Commissions like IPFC we intend to establish fisheries management areas which will in fact be natural management areas. This means areas whose borders are drawn, not against the grain of biological and other realities, but with the grain. This means, for instance, that we would group together nations with common fisheries problems and opportunities - for instance countries which share fish stocks and fisheries and which have the cooperative advantage of cultural or other affinities.

Each of these natural management areas will be served by an organization reporting to the Commission. Each will be equipped with its own multi-disciplinary technical support team: biologists, technologists, economists, legal experts and others.

I think I should point out that this movement is well under way. Just two months ago your sister organization - the Indian Ocean Fishery Commission - at its session in Perth, set up two new committees of management - one for the Southwest Indian Ocean, another for the Bay of Bengal. This in addition to the two existing committees which oversee fisheries management and development in the Gulf area and for tuna fisheries ocean-wide.

In this part of the world, we already have an active and vital programme of assistance under way: the South China Sea Fisheries Development Programme, funded by UNDP and managed by FAO. This programme, as you know is coordinated by a committee set up in 1974. But this group obviously exists to coordinate the work of the Programme exclusively. The scope of the Committee we are proposing here would be much wider. It would be the fisheries management and development arm of this Commission - the instrument for cooperative action by all the nations of the South China Sea area, in all aspects of fisheries.

Formation of this Committee will, we are convinced, bring many benefits. It will improve our ability to respond to the challenges posed by the growing pressure on the fish stocks of the South China Sea. Its existence will probably make it easier to acquire and deploy fisheries management funding from all sources. It will be an energy saving device in the widest sense, allowing us to make the most economical use of limited resources of money and expertise through pooling, through coordination, and through avoidance of duplicated or conflicting effort.

With the setting up of this Committee and the ones under the IOFC the relationship between IOFC and IPFC will of course need review - we will need in particular to look at lines of demarcation and membership lists of nations, to determine which countries belong where. But these are routine aspects of a necessary evolution. What we are doing is setting up the machinery for more efficient, wider cooperation. We hope that all - and I repeat all - countries in the South China Sea Region will eventually make use of this machinery.

At this point let me focus on Agenda Item Number 3: the Symposium on the Development and Management of Small-Scale Fisheries which is an integral part of our programme. Let me also take this opportunity to thank all those experts who have taken the time to join us at Kyoto specifically to consider these issues.

Predominantly the world's fisheries are conducted in small boats relatively close to shore as well as in lagoons, estuaries and inland lakes and rivers. These small-scale artisanal fisheries catch one third of the fish landed each year throughout the world. In developing countries they take an even higher share. These fisheries are the means of livelihood for 20 to 30 million fishermen and for the communities and service industries built around them. They are also a troubled sector - in some of these fisheries, the fishermen are among the poorest of the poor. So the problems to be considered are human and social as well as technical. They include not only the need to catch fish more efficiently but to organize fishermen more effectively so that they have a stronger voice in community and national affairs. In the case of the marine small-scale fisheries, there is the problem of the transition from narrow fishing zones to wider ones - the challenge of learning to survive and to grow in this new environment. There is the need to measure the true, blended social value of these fisheries as decisions are made about allocations between them and the larger vessels.

As with rural poverty, generally the problems - social and otherwise - that hold these people back are the most deeply entrenched and the most difficult to reach, not only by international organizations but by their own national agencies.

We have several other important matters on our agenda. One of them is Aquaculture and Inland Fisheries Development - two subjects which are of tremendous importance to many countries represented here.

New and improved skills for the application and development of aquaculture to meet increasing fish needs are also required to set alongside the traditional skills so well developed in this region. Not only must the productivity of pond systems be dramatically increased, a goal easily achieved throughout the region by the application of currently known technology, but problems attaining optimal use of scarce water and land resources must be tackled aggressively. Waste disposal, land reclamation, damming of rivers - these things are necessary, but they should be undertaken with as much care as possible for their full utilization for fish production for inland and brackish waters generally.

I mentioned back in the beginning of my remarks the growing importance of rationally managing our fisheries in order to achieve the desired benefit from our fish resources in both marine and fresh waters. With the present high levels of utilization and ever-growing demand for fish production, we will have to greatly intensify our efforts. We will be discussing these problems under agenda items 6 and 7. Item 6, which deals with tuna management, will be largely a question of reviewing the work of your Tuna Management Committee which is working jointly with the IOFC Tuna Committee. Under item 7, you will be delving into the problems of managing other stocks such as shrimp and demersal species, where nations, both individually and collectively will urgently need to look at monitoring and regulating fishing effort, regulating mesh sizes, improving the quality of fish products, conserving nursery areas and other management actions.

It is time for me to close, but before doing so I should like to make an observation about the work of this Commission. Up to now it has rendered great and valuable service to the fisheries of this part of the world. What IPFC needs now, in the new environment, in the world of extended jurisdiction, in a time of escalating demand for fish - is a strengthening of its presence throughout the area it is serving. Incidentally, it also could use a more precise definition of its geographical scope. I believe that the action taken recently by the Indian Ocean Fishery Commission in strengthening its presence in its theatre of operations and the actions we will be considering here in Kyoto, will fulfil these objectives. This is an important meeting in the Commission's history and I wish you every success in your efforts.

SUMMARY REPORT
OF THE
IPFC SYMPOSIUM ON THE DEVELOPMENT AND MANAGEMENT
OF SMALL-SCALE FISHERIES

Kyoto, Japan, 21-23 May 1980

REPORT OF THE SYMPOSIUM
ON THE
DEVELOPMENT AND MANAGEMENT OF SMALL-SCALE FISHERIES

CONVENOR : Y.M. Tengku Ubaidillah bin Abdul Kadir
TECHNICAL SECRETARY : E.O. Oswald
CHIEF RAPPORTEUR : E.H. Nichols, O.B.E.

Participants were welcomed to the Symposium by Mr. Kunio Yonezawa, the Chairman of the Indo-Pacific Fishery Commission, who then handed the meeting over to the Symposium Convenor, Y.M. Tengku Ubaidillah bin Abdul Kadir.

The Convenor opened the discussion by drawing attention to the target group of the Symposium, the fisherfolk of the many thousands of communities in the Indo-Pacific area whose poor economic and social conditions are of major concern of Member Governments. Small-scale fisheries provide employment and animal protein, and in most developing countries nearly the entire fishery sector is of small-scale nature. The problems facing the fisherfolk and their communities constitute a spectrum of social, technical and economic factors which make planning and implementation of measures for betterment of their conditions extremely complex and difficult.

In most countries, very little progress has been made in recent years and there is an urgent need to intensify assistance to the sector and to improve ways and means for the delivery of such assistance. The Convenor hoped that the Symposium would lead to useful conclusions and recommendations for adoption by Member Governments and development agencies. He invited participants to a free and frank exchange of information on past experience as it related to success or failure.

He finally thanked the Government of Japan for the excellent facilities for the meeting, the Member Governments for participating in the Symposium, the many authors of papers, and the Technical Secretary, Mr. Oswald, for his efficient administrative arrangements.

Session I

REVIEW OF STATUS AND PROBLEMS OF SMALL-SCALE FISHERIES
AND ONGOING PROGRAMMES AND PROJECTS

Discussion Leader: Admiral Iman Sardjono

Rapporteur: L.O. Engvall

a. Country Status Reports

Fourteen Country Status Reports were presented by Australia, Bangladesh, Hong Kong (U.K.), India, Indonesia, Japan, Republic of Korea, Malaysia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and U.S.A. Although the situation varies from country to country, it was possible to identify certain common problems, constraints and requirements.

While the contribution of the fishing industry to the national economy of Member Countries is still relatively small, e.g., from some 1.4% of G.N.P. in Sri Lanka to some 6% of G.N.P. in Bangladesh, it is a major source of protein, provides employment to millions of people in the coastal areas and is a substantial earner of foreign exchange. In Malaysia, for example, fish provides two-thirds of the total animal protein intake and in Sri Lanka 55%.

Within the fisheries sector, the traditional or small-scale fisheries have a most important and extensive role both from the economic and social points of view. The importance and contribution of small-scale fisheries to total fisheries production range from 36% in Japan to 95-98% in Bangladesh and Indonesia, with a majority of countries in the upper part of the range. The importance of this sector continues to be maintained and even increased in many cases. In several countries between 90-97% of the total number of persons engaged in fisheries are within the small-scale sector. It produces 76% of Indonesia's shrimp exports.

In some areas, inshore or near shore waters available to small-scale fishermen are already over-exploited. However, reduced catch per unit is often more than offset by improved price. There are many conflicts between traditional and mechanized fisheries due to the competing fishing effort by mechanized boats on resources traditionally exploited by traditional fishermen.

There is still great potential in marine offshore waters. However, it is in aquaculture that future prospects seem to be bright for small-scale fishermen. Large areas suitable for coastal aquaculture development still remain unexploited.

While fishermen's cooperatives exist in most countries, the majority have not been successful. India, for example, has 5,000 fishermen's cooperative societies with six apex societies but two-thirds are defunct or dormant; only 27% of the societies make profit and 61% show loss while the rest "break even". Apparently, a majority of traditional fishermen ignore cooperatives and middlemen and merchants continue to dominate the scene. Japan, however, provides an example of successful establishment of well-functioning democratic fishermen's cooperative associations throughout the country. Of particular interest was the reaction, in Sri Lanka, of the transfer of boat ownership from the cooperatives to skippers which resulted in a remarkable improvement in both efficiency of operation and recovery of loans.

The major and most common needs brought out in the country reports are:

- infrastructure facilities for landing, handling, preservation, distribution and marketing;
- credit facilities;
- creation of producer associations among the fishermen.

The fulfillment of these needs will not only improve the economic and social status in the short term but provide a basis for sustained development.

b. Discussion

Definition: When the Symposium was asked to consider the definition of Small-Scale Fisheries great variations between different sub-regions and countries were revealed. However, each country understands what is meant by its own small-scale fisheries, in marine and inland, capture and culture fisheries. Overlaying all was the understanding of the poverty and underprivileged state of the small-scale fisherman. The prime consideration for assistance to this sector is to bring it at least to a part with other economic activity within the country.

Objectives: It was noted that while objectives for small-scale fisheries development in the recent past emphasized supply of protein and foreign exchange earnings they now are oriented towards socio-economic uplift of the fisher populations with the former of secondary importance. A reason for this is the resources constraint which is more commonly and, in some areas acutely felt. It was also suggested that there is a need to widen the outlook, i.e., not only be concerned with the production section but also to more take the consumer aspects into account; with limited resources prices are already rising sharply in some Asian countries. It was also pointed out in this connection that small-scale fisheries must not be isolated from the large scale sector in planning and development efforts - but the need to protect the interests of the small-scale producers was endorsed. Furthermore, the Symposium felt that it is desirable to integrate fisheries development with general, social and economic development of other sectors more than has been done hitherto.

Data: With reference to the discussion of objectives and comprehensive planning and policy-making comments were made on the need for more and better information and data. Even basic and fundamental data about the size of fisher populations and reasonable estimates of resources are lacking.

There are probably data available from earlier censuses and surveys which have not been fully analyzed; some of these data may, however, be outdated and the need for periodic surveys was brought out.

Diversification: The need to diversify the activities of the present small-scale fishermen was agreed. Limitations in resource, coupled with comparative ease of entry into a low investment industry often leads to overcrowding for reduced return on effort. Several instances of diversification were cited - principally from capture to culture fisheries, especially coastal aquaculture, but also for food and cash crops. Further comments on diversification mentioned transmigration and complete changes in workstyle, from part-time or seasonal agriculture practices to contracting work in forestry or animal husbandry and on occasion, into fishery-related industry (processing or manufacturing in ancillary industries) or even unrelated industry. The discussion led to the

firm conclusion that, in many cases, alternative employment must be found to cater for the superfluous manpower in small-scale capture fisheries.

Women: A wholehearted and genuine interest for increased participation by women in small-scale fisheries activities was expressed by several delegations. Thailand referred to a successful women component of the Phang Nga project which aims at participation in coastal aquaculture and supplementary activities such as handicraft. Particular references were made to benefits of establishing fisherwomen organizations which have, in some countries, significantly helped to harmonize the life in rural fishing communities. The discussion leader drew attention to the very relevant saying that the education of a fisherman results in an educated fisherman while the education of a fisherwoman results in an educated family. It was felt that the term fishermen is not very appropriate; we are dealing with fisherfolk. Examples of women actively involved in various fisheries activities were cited which clearly indicate the scope for increased participation.

Resource Constraints: In consideration of present national programmes for advancement of small-scale fisheries, the limitations of the fishery resources and the need for legislative measures were brought to light. It was appreciated that fostering development, whether in large-scale enterprises, the modernization and development of small into industrial fisheries, or simply the improvement or expansion of existing traditional fisheries whether jeopardizing stocks or not, creates imbalance which, unless controlled and managed with care, leads to intolerable problems of inequitable competition, sometimes destructive fishing methods, occasionally harsh rivalry between factions. Legislation is necessary for the control of all capture fisheries for rational development. However, it is difficult to formulate such legislation without immediate hardship - particularly to the small-scale fisherman with narrow profit margins. Without the fishermen's full understanding of the motives for such legislation, and the longer term benefits, it is virtually impossible to enforce legislation under present conditions in most of the developing countries.

Marketing: There was a consensus in the meeting that the marketing of produce of the small-scale fisheries is a key factor in the development of the sector. The successful solutions in Japan and Hong Kong reported in the country papers, were highlighted. New approaches were also described. In Indonesia for instance, government enterprises are being established in areas where the private sector lacks interest and capability. These enterprises would work not solely on a profit basis but bear missions such as: (a) pioneering in new fields of fisheries industry, (b) becoming the nucleus for small-scale fisheries development in a certain given region, (c) training national managers and technicians in fisheries industry.

Integrated Approach: From the outset, the point was made, and reiterated, that promotion of technical development alone is not enough for the betterment of small-scale fishery communities. Even improved income is not, by itself, all that the community needs. It is necessary to consider development in the broad context of the welfare of the fishing community as a whole. Improved social amenities, services and communications are essential. Information, education, housing, health services and roads were specifically mentioned. It was pointed out that only the full array of these amenities must be offered, with a full understanding of their value, for the acceptance by and benefit of the fishery community.

Credit: One of the main constraints to development, expressed in many of the country papers, is the lack of suitable credit facilities for small-scale fishery operators. New approaches were reported from Philippines where a novel credit scheme is being carried out, known as the "Biyayang Dagat Credit Programme". This has been prompted by the inadequacy of previous credit channels which, in many cases, did not reach the primary target groups. (Similar experience is reported in the India country report). The scheme in the Philippines has an approach which integrates technical, financial, social and organization aspects. An information campaign has been launched in order to attract credit holders who usually shy away from traditional sources of credits. Credit is also supplemented by technical assistance and by organization and social inputs by all agencies concerned with fisheries and community development. Another feature of the scheme is to inject appropriate technology and energy serving measures to the operations.

Thailand referred to the difficulties in realizing repayments of loans. In the newly started pilot project in the Phang Nga province, the approach is to provide technical and financial support to the community operators until the feasibility - technical, economic and social - has been established; it is too often that new schemes without proven feasibility are introduced and unduly charged to the communities concerned.

Energy: The Symposium noted that owing to the sharp increase in fuel prices the hitherto practised approach to small-scale fisheries development with emphasis on mechanisation programmes may become, not only for the single fishing enterprise but also for a country as a whole, more and more economically doubtful. Particularly developing countries characterised by high levels of unemployment or under-employment, low labour costs and limited own resources of mineral oil may only suffer from more unemployment and greater foreign trade deficits if they do not adjust their fisheries policies to the changing economic parameters.

Felt Needs: A word of caution was expressed that the social and economic attitudes and cultural value systems of the fisherfolk may not always be favourable to a development process aimed at by governments, sometimes supported by bilateral and/or international development agencies. There is often a gap between the genuinely felt needs of the fisherfolk and development targets set by administrators and planners with other educational and cultural background.

Session II

PRIORITIES FOR, AND MODALITIES OF, FUTURE ACTION

Discussion Leader: Ms. E. D. Samson

Rapporteur: A. G. Woodland

a. Overview

Discussions on priorities for, and proposed modalities of, future action is perhaps the most crucial topic of this symposium. It is anticipated that deliberations will provide some very specific guidelines on future approaches to small-scale fisheries development; and, within the context of national policies and individual country needs, outline proposals for soliciting support and implementation of new projects and programmes.

The discussion of future approaches will, of necessity, touch on a wide range of subjects and should also come to a consensus on where the priorities lie. It is evident that there is no simple answer to developing the small-scale fisheries sector. On the contrary problems, and possible solutions, are extremely complex; and, because people of varying cultures and traditions, and subject to varying physical and institutional environments are involved, it would be unrealistic to suggest generalised solutions. However, the papers submitted indicate that there are similar situations and common problems to which certain courses of action could be applied with due modifications for each country.

Because of the large number of people involved it is also unrealistic to consider nationwide, much less worldwide, crash programmes in an attempt to urgently resolve small-scale fisheries problems. Developing countries in the IPFC region have neither the trained manpower nor the financial resources to mount massive development programmes. Discussion must, therefore, be addressed to major issues and with a view towards establishing certain priorities on how to best tackle progressive development in this sector.

The papers contributed present a wide range of experience and include most major issues such as cooperative development, credit and subsidy schemes, aquaculture as a means to supplement animal protein supply and rural incomes, fishing rights of coastal fishermen, conflicts between commercial and small-scale fishermen, marketing, and socio-economic considerations. Earlier discussions have reviewed the status of small-scale fisheries in the IPFC countries and brought out other major issues, country priorities and an assessment of ongoing programmes and projects. Those discussions reveal considerable similarity among the characteristics of small-scale fisheries sectors in most countries. Despite this similarity, namely low fishermen productivity, artisanal technology, poor product quality of traditional processing methods, inadequate marketing and distribution systems, general, relative and, in some cases, absolute poverty there is also recognition that significant differences exist between individual fishing villages, particularly in resource availability and alternative income opportunities. Recognition of these differences calls for integrated area development incorporating credit assistance, provision of infrastructure facilities, extension services and technology transfer, plus programmes leading to improved standards of living via producer associations' cooperatives, provision of alternative income sources and other social services.

Moderator: E.P.P. Jayasuriya

Rapporteur: H. Sperling Jr.

(i) Experience and Specialized Papers

Fisheries development planners associated with different agencies and institutions concerned with studies and research often criticise the traditional approach where most projects and programmes were of an applied nature. Conversely, those concerned with rapid and effective implementation (primarily Government administrators) find it difficult to wait for the completion of long-term studies before embarking on practical, action-oriented projects. Experience and specialized papers were therefore viewed in this context as a step toward bridging the gap and thus assist effective planning and policy decisions.

A detailed cost analysis of different fishing methods used in one Malaysian small-scale fishing area highlights the lack of substantive data available for planning. Socio-economic surveys, made on the north coast of Java, show the wide disparity between medium and small-scale fishermen and indicate that this can be ameliorated through the promotion of cooperatives or producers associations, expansion in the number of fish markets, encouraging alternative employment, promoting family planning, and improving educational opportunities. A case study from Malaysia demonstrates how the construction of an access road led to better marketing relationship and more equitable distribution of vessel ownership. This suggested that more effective post-harvest schemes may well provide more benefits to a larger segment of a fishing community than increased production.

Considerable interest is evident in aquaculture, as a means of increasing production, providing additional employment and supplementing incomes. Papers discuss freshwater culture systems for small ponds, high density culture methods, low cost technology, and operational economics. Various aspects of seaweed culture and harvesting receive attention; including a case study of a fishing community in the Philippines. The latter turned from capture fisheries to seaweed culture but, after a time of prosperity, the endeavour failed due to uncontrolled expansion and lack of adequate market intelligence. Aquafarming in an isolated southern Thailand fishing village, which included the culture of cockles, mussels and oysters, and fish cage culture, point up the desirability of applying simple technology and low-cost self-help schemes at the village level.

The need for improved marketing and post harvest infrastructures and technology as important elements in development planning is stressed by many authors. A case study from Sri Lanka describes different marketing systems; and points out that while traditional fish marketing by the private sector was more efficient than Government institutions, cooperatives had their place and also give a greater share value to the producer.

Indonesian experience indicates that increased production through fleet modernization can lead to post-harvest problems in some areas. This has led to the resettlement of fishermen to areas where resources are more abundant, the improvement of landing sites and processing facilities, and the strengthening of marketing cooperatives. Another Indonesian project describes how with relatively small inputs, restricted mainly to refrigeration associated equipment, marketing

operations were carried out successfully and benefited both producers and consumers. There is considerable evidence also that, in many rural fishing areas, increased production accrues naturally if the small producer has access to a well organized market where he can realise a fair price even during glut periods. In areas where resources are adequate or under-exploited, the lack of suitable markets restricts catches to nominal levels.

Incentives and motivation are required to increase fish catches but, at the same time, the need for completely integrated approaches to ensure that the various components of the fisheries sector are expanded or improved at the same level - i.e., that they keep pace with one another is clearly recognized. In one area the introduction of a simple and inexpensive hand reel improved deep bottom fishing and also made surface trolling more efficient and less arduous. Another fishery experienced the gradual reduction of its inshore purse seine fleet, due to less abundant stocks, low market values and higher operating costs. Conversely, certain areas of the South China Sea can clearly support increased fishing effort; and modernization of the small-scale fisheries fleet together with the provision of adequate market facilities could result in substantially increased production.

Some interesting concepts on intermediate technology and alternative energy systems are presented which can be applied to small-scale fisheries; and a detailed description of a low-cost chilled-water system for short term fish preservation was presented from the Philippines which served to increase village level income through offering better quality products for sale.

(ii) Discussion:

The Differences Between Research and Policy Administration

One of the first issues raised was the frequent divergence between the researcher/technocrat and the fisheries administrator who advises on policy and its implementation. This stems in a large part from the lack of adequate resource baseline data to promulgate definite recommendations with respect to conservation or utilisation which can be incorporated in policy. There must be rationalization between long term research to obtain more exact data to guide policy and decision makers, and the use of immediately available, albeit incomplete, data to implement development programmes. It was considered advisable to proceed with development projects based upon the best available information and continue research necessary to provide a more comprehensive data base.

The administrator bears a wider responsibility of a political and social nature, while the researcher tends to confine himself to a relatively narrower and more specialised outlook unless his horizons are broadened. It was firmly concluded there must be greater coordination between administration and research. It is also clear that research must not be limited entirely to biologic or resource matters but must also include the entire spectrum of socio-economic activities and be on an essentially practical basis.

Approaches to Development

The question was posed whether the strategy for small-scale fisheries development should include the widest range of activities, or should be more specific and centre on specific factors such as improved marketing schemes or increased fish production.

It was concluded that there is no standard approach and each situation must be assessed on merit. Generally, however, it should provide for the widest, integrated approach possible involving field-oriented teamwork among the biologist, sociologist and economist drawn from appropriate Government agencies or educational institutions. Further, and most importantly, the development process should involve the small-scale fisherman in an integrated tripartite approach. The latter must be kept fully informed and brought into the planning process. The integrated approach must also focus on the community as a whole, to upgrade incomes and the quality of life. It was recognized that while this is likely to be slower, nevertheless it is the only way to ensure success.

Government Involvement

It was considered that, when small-scale fisheries are at the lowest level of development, maximum Government involvement is required ranging beyond fisheries per se. This problem area should be tackled almost as an emergency situation, and uplift this segment of society to a nationally acceptable standard of living. The poorest small-scale fishermen are particularly vulnerable to political instability stemming from dissatisfaction with their economic and social plight.

It was agreed that Government involvement in infrastructures at the village level is one of the more important aspects of development. Such involvement could include diversification into ancillary activities such as agro-aquaculture. It was stressed, however, that such activities should be carefully phased, and preceded by socio-economic surveys, so that community structures are not unduly disrupted.

In countries where there are large numbers of fishermen having access to only limited fish stocks, and pursue their livelihood through necessity for survival rather than choice, increasing individual productivity can create alternative and larger problems, and may even be dangerous. Under such circumstances, to benefit the majority, employment diversification appears to be the most favoured solution, followed by transmigration or relocation to other areas offering more resource potential.

The view was expressed that, under free enterprise systems, to reserve certain activities solely for small-scale fisheries would be politically unacceptable. It was noted, however, that in certain small, specific, insular situations Government could effect complete control and support of the small-scale fisheries sector, including substantial subsidies, to the benefit of both fisherman and consumer alike.

One activity particularly suited to Government involvement, assistance and investment is that of small-scale aquaculture. Such participation could be on various time scales - i.e., long term research on such matters as selective breeding, genetic improvement of species, etc.; medium term efforts directed towards seed production; and short term activities directed toward technical improvements and extension services. It was noted, however, that the optimal level of inputs have not been determined and diminishing levels of return can be anticipated although there is insufficient historical background information compared with the agricultural sector.

Governments should not lose sight of the fact that one aspect of development is to assist small-scale fishermen in moving up to medium-scale or full commercial level fisheries.

Appropriate Technology

Increasing production through more mechanised and effective fishing technology, which has greatly assisted small-scale fishery development in the past, is now constrained by rising energy costs. Appropriate technology is now required which means a return to simpler forms of power to supplement mechanization. In this context, Sri Lanka found it appropriate to fully subsidize the use of sails for supplementary propulsion, and further assisted through promoting the redesign of vessels to accommodate sails. The U.K. Government recently completed a preliminary study which disclosed that there might be significant advantages to be derived from improving sailing hull designs, but benefits from improving sail plans or designs might be limited.

It was pointed out that appropriate technology could be applied to fish processing and utilization, namely to minor fishery products that could be developed to increase village level income.

Moderator: Deb Menasveta

Rapporteur: K. Meecham

(i) Experience and Specialized Papers

There have been many failures in the past to create and sustain viable cooperatives in fishing communities. Some Country Status Reports tell of registered fishermen's cooperatives offering benefit to members. Reasons for failure include the lack of necessary managerial skills, the lack of basic facilities upon which to build a marketing cooperative and the attitudes of target group who, because of custom or tradition, are not inclined towards participation in cooperative movements. Despite past failures, the cooperative concept offers a basic framework for self-help, having a stronger political voice and taking advantage of national development programmes. Malaysia now has 30 area co-ops that are successfully fulfilling the major needs of fishermen. A "fishermen's liberation movement" launched some 40 years ago in Hokkaido, Japan exemplifies one dedicated man's success in motivating a community to build a strong viable cooperative which eventually broke the bonds between the fishermen and the merchants and resulted in considerably higher prices paid to producers. Also in Japan, through the granting of inshore fishing rights, members of cooperative associations have prospered. The new community movement launched in 1970 in the Republic of Korea (ROK) involves fishery cooperatives and has been very successful in motivating rural fishing communities to respond and participate in national development programmes. One target of this movement is to make many primary cooperatives self-reliant during the 1980s. From the Philippines are case studies of two small cooperatives which have encountered many difficulties in their organization and operations.

One of the main objectives of producer or marketing associations or cooperatives is to obtain better prices for producers by breaking the traditional link between fishermen and local fish buyers. One of the reasons why local merchants maintain such a strong hold on small-scale fishermen is that they provide them with credit not only to operate and maintain their boats, but also for necessities during off or slack seasons or in personal emergencies. It is therefore essential to consider comprehensive, flexible credit and/or subsidy schemes when planning small-scale fisheries development. Perhaps most countries in the IPFC region have such programmes of one sort or another and it would seem important that any development project be linked to these as a means of following up on the introduction and demonstration of new innovations. One paper describes the credit facilities extended by the Central and State Governments in India with special programmes to accelerate development in the rural areas. One is the Fish Farmers Development Agency which promotes intensive fresh and brackishwater fish culture and functions as an autonomous body coordinating the role of various government agencies, financial institutions and fish farmers in an integrated manner. It is difficult to anticipate the consensus concerning the most effective institutional arrangements, but there is little question that producer associations linked with national credit or subsidy schemes have proven an important means of furthering the aspirations of small-scale fishermen.

In most countries there appears to be a serious and urgent need for an adequate data base required for detailed policy planning. For policy decisions it becomes essential, for example, to establish a means of determining, at least within broad parameters, such things as potential resources available to small-scale fishermen in given areas, catch/effort data, existing and potential marketability, acceptability of change, and compatibility of small-scale fisheries development with other food resources industries, with large-scale commercial fishery activities and with the rural community as a whole.

Attention is drawn to the competition for the limited resource, between small-scale and large-scale commercial fisheries. One paper presents a clear example of how the rapid development of a purse-seine fishery on one coast of India adversely affected the small-scale fishermen. With the recent trend towards exclusive economic zones where many coastal states now control both inshore and offshore fishing, planners must consider small-scale fisheries development within the context of the nation's overall fishery development. In this regard, two papers describe existing laws pertaining to fishery rights in Japan where regulations concerning licensing and the granting of fishery rights in inshore waters have proven very beneficial to the rural fishing population.

(ii) Discussion:

Resource management

With reference to the fishing rights granted to Japanese cooperatives, the question arose whether this could be a model for other countries to follow. Although the idea appears attractive, speakers on the subject felt that management of common property resources should be managed by the appropriate government authorities. An obvious reason is the lack of loyalty and management capability and the influence of external interests on producer associations in most member countries which was highlighted in the earlier discussion on cooperatives; a higher mandate to an organization which may be more concerned with short-term interest may worsen a situation.

Most governments do concern themselves with resource management. In Bangladesh, the Ministry concerned is operating an information campaign to increase the awareness of rights and obligations of the fisherfolk in this regard.

Government support in marketing

Most agreed that government bodies should avoid direct involvement in the regular procurement and sale of fish. To help regulate prices some feared that too large a share of the market must be attained, impractical because of the perishability of the product. However, the power to purchase, vested in say, a Government, producer association or cooperative organisation, can sometimes have sufficient deterrent value against market manipulation. Perhaps more important, experience clearly shows that government enterprises are generally much less successful than the private sector in marketing ventures. In general, this is true also of government direct or quasi-commercial fish production organisations. The Japanese Government have

provisions for granting interest-free loans to cooperatives to protect the producers in cases of drastic changes in prices. The possibilities to adopt such a system by other countries might be remote in the absence of well organised and viable producer organisations or cooperatives.

Many agreed that Governments should provide facilities for landing, handling, preservation, distribution and marketing of fish to serve the small-scale fisheries. Provided as a service, with nominal payment not necessarily able to cover capital and operating costs, these facilities add to the value of the product and help to reduce the small-scale operators' dependence on middlemen and traders.

Institutional credit and subsidy

Some government-supported or channeled credit schemes suffer shortcomings, often through lack of coordination with the designated beneficiaries. There is a serious need to reduce bureaucracy and increase flexibility in loan schemes in an attempt to break the grip of the middlemen's informal but usurious credit.

Properly run producer associations (cooperatives were mainly cited) were often found to be the main or even sole channel for institutional credit. The array of available credit sources and schemes had been occasionally found to be confusing and thus counter-productive. Whilst most credit is for development of the fishery, other credit needs were for conversion to establishment of fishfarming, and in the case of Hong Kong's integrated marketing/credit/cooperative/extension services, for non-productive needs from internal funds.

Where credit services can be operated by the fishermen's body itself, it is possible to reduce administrative charges and with direct, revolving investment, charge lower interest rates.

The need was seen to include credit in an integrated scheme for the betterment of the small-scale fishermen, including extension/training to increase awareness and ability to handle the loan equipment, fair trading to dispose of the product and the easiest means of deducting repayments from the income generated.

Little was mentioned on subsidy, beyond the highly successful overall government subsidy in Western Samoa. Hidden subsidy is often made in the provision of infrastructure and facilities at subeconomic rates. In general, however, credit is the preferred government assistance.

Cooperatives

Several contrasting fishermen's cooperatives were described, including the very old Japanese cooperatives formed from within and based on the need for controlling conflict over fishing rights; the new Korean cooperatives based on the three tenets of spiritual enlightenment, social betterment and economic development; the Bangladesh Government programmes; the highly integrated Hong Kong cooperatives; and the Indonesian sardine cooperatives, learning from a disastrous start to become a strong and effective, viable body.

The discussion ranged over the need, constraints, operation, activities and the relative strength of cooperatives, on the prerequisites for collective producer associations, and assistance required for optimum benefit to the small-scale fishery:

- Need:
- For protection in competition or conflict, with trader/buyer, other (often larger scale) fisheries, particularly on the rights to fishing grounds.
 - For credit: increased strength of collateral and thus a stronger credit position with shared responsibility; a more stable, legally established body, more attractive to financing agencies. Within cooperatives, flexible credit has been possible not only for investment and operating capital, but also for non-investment, non-productive capital, for personal or collective emergencies and social requirements through revolving internal funds of the cooperative.
 - For a stronger bargaining position: a larger, collective voice, representative of the producer has more power to maintain fair return on production.
 - For collective education: primarily as a meeting of minds on common technical problems, cooperatives have led to broader educational benefits in some cases. Also, in training cooperative management, leaders emerge with communication and management skills.
 - For ease of diversification: where the industry has become overcrowded, alternative fisheries have offered more attractive returns but only after new investment and training. Cooperatives have been able to offer this.
 - For rational control: where fishing grounds rights are the privilege of membership, control may be exercised over members for the ultimate preservation of the ecosystem.
 - For communication with national bodies: there is much earlier, more direct and more representative communication between government and fishermen if many of them are of one association.

Constraints: - Establishment by those whose primary work is not that of the membership, has led to bodies which do not fully cater for members' needs.

- Management, often by leading figures in the local social structure whose work and needs are not those of the members.
- Management strength and skill, not properly dedicated and fully competent. In small-scale fisheries it is difficult to find member with such managerial skills.

Motivation: A cooperative should preferably be voluntary and for sound long-term benefits immediately manifest to its members. They are often spontaneously derived in response to strongly felt requirements. Those which are not, do not gain the spirit of cooperation and ultimately either disband or become economically unviable.

Operation and activities: Whilst no general consensus could be reached on the ideal cooperative, major points emerged as follows:

- Prerequisites must exist in the need of small-scale fishermen for betterment or overcoming specific or general hardship.
- Formation should be from the small-scale fishermen, after guidance if necessary, with motives generated by the fishermen for their own needs.
- Operation initially by hired competent management leading to handover after two years to fishermen members who have been trained in management.
- Activities could include, subject to the motives mentioned above, channelling of capital from other sources, to finance investment initial operations, later with internal fund reserves, to finance non-productive social needs; marketing activities, not only for the better bargaining position but also for the most accessible and equitable methods of loan recovery; information, extension and the transfer of new technologies; leadership training for management and local government communication; possibly a measure of restraint over fishing grounds or even resource control. Eventually, other activities will emerge from the fishery producers' needs but it is clear that all activities can only be viable if fully integrated with marketing, credit and extension under strong and competent management, with the motives and long-term benefits of the producers themselves entirely in mind.

Training institutions

In considering the role of government in furthering awareness by the small-scale fisherfolk, several references were made to educational institutions, either specially created or with courses adapted directly for the benefit of producers, or more commonly, to training of those who will go into the field to extend that knowledge and information at the fishing village.

At primary and secondary level, more direct education is common and preferred, with mention of the need sometimes to extend education institutions to places accessible to fishermen's families.

Higher level education institutions, generally to trainers and field extension workers, should be of a practical nature, based on the real needs of the fishermen. Whilst it is virtually impossible to train people to a practical competence beyond that of the fishermen themselves, practical education is valuable in the transfer of new technologies offering new opportunities through innovation and particularly diversification for the small-scale fishermen. Warning was given to those considering highly specialised training, to ensure that employment outlets were available to those trained.

The role of extension services was stressed in the formation of producer associations. In Indonesia, a very small field workforce is well deployed through supervised contact with groups of "contact fishermen" who themselves lead groups of "progressive fishermen" who in turn pass on information to further groups of traditional fishermen. Extension services are essential also where diversification or geographical relocation is necessary. In general, it was agreed that a well led, practical team of trained extension workers with sound institutional backing are valuable, not only as a means of communication from government to the small-scale fishery, but particularly in the other direction, for the eventual formulation of the most applicable programmes and policy for their betterment.

Policy and planning

It is a formidable task to formulate policies and prepare plans for small-scale fisheries for one country only and virtually impossible for many countries with vastly different baseline conditions, political and social systems and backgrounds. It was still felt in the discussion that some sort of general guidelines are needed. After the earlier deliberations in the first session (Topic 1) there did not appear to be any major problems in setting the objectives. However, it was felt that much more work needs to be done in identifying targets and intermediate goals in quantitative terms. The lack of data base was reiterated. The approach taken by Republic of Korea with detailed village surveys producing comprehensive data and information bases which has led to the setting of development targets by gear, area, species, income, etc. was found interesting and worth study for possible modified adoption by other countries. In this context it was brought out that while these achievements were commendable, the systematic approach may not be easily reproduced in other countries. While efforts should be made

to improve the quantitative aspects of planning in the long-term, one should in the meantime use the qualitative competence now available to improve the system gradually rather than to look for spectacular changes.

Policy planning should always take account of maintaining the status of the environment. Instances were cited of the dangers of overclearing for coastal aquaculture; of overfishing; industrial pollution and damage to nursery grounds through embankments, canalization or land reclamation.

With due recognition of the different conditions and general policies in the member countries, the discussion led to four major areas of emphasis from which those most suited to the country's needs may be selected and the degree of priority placed on each by the policy planners: (1) to increase income by technology development (gear, craft, handling, processing, etc.) and supporting facilities of infrastructure and credits; (2) to develop alternative sources of income, primarily in the field of fish culture but also others as discussed earlier in the symposium; (3) to upgrade the small-scale sector to "larger" and more rewarding operations; and (4) to supplement economic development efforts with inputs of social services, amenities and infrastructure.

Discussion Leader: K. Yonezawa

Rapporteur: J.P. Troadec

(i) Experience and Specialized Papers

Mr. K. Yonezawa, Chairman of IPFC, briefly outlined the regional activities conducted by FAO in the field of small-scale fisheries. These include the provision to member countries of technical assistance and advice, through field project activities and expert missions; organization of workshops and seminars on specific aspects of small-scale fisheries (e.g., role of women, social feasibility of projects and extension work, resource evaluation, etc.); and the marshalling of funds from multi- and bilateral donor agencies.

The FAO Committee on Fisheries at its 13th Session (Rome, October 1979) recognised the specific importance of small-scale fisheries. With the establishment of national exclusive economic zones, coastal countries now have the opportunity of allocating to their artisanal fishermen larger shares of their fish resources and of developing the latter to the best of their human and technical means and resources.

During recent years assistance from FAO has tended to emphasize an integrated approach, and a decentralized delivery of its aid programmes. One of the best examples of this is the FAO/UNDP regional programmes, such as the South China Sea Programme, the Bay of Bengal Programme (with the support of SIDA) and FAO aquaculture programmes. These programmes put at the disposal of member countries a multi-disciplinary team of experts complemented by the services of consultants; promote and backstop, at the technical level, intraregional collaboration and assist in technological transfer from outside the region; and provide assistance in the identification and formulation of national assistance and investment projects. This represents the action arm of the special comprehensive programme, for the development and management of fisheries in the exclusive economic zones, recently initiated by FAO.

The various multi- and bilateral assistance and funding agencies and programmes presently active in the region were reviewed. Likewise, the work programme of SEAFDEC was described, stressing the emphasis on activities directly relevant to small-scale fisheries, training programmes, assessment of national training needs, training in resource evaluation and gear technology and the collection and dissemination of fishery information. The role of the South Pacific Commission was similarly described.

Trends during the past 30 years, in concepts as well as current practices adopted by national governments and international banks with respect to fishery development planning were analyzed. Progress made in the rationalization of processes were described and attention invited to the fact that investments are presently limited more by a shortage of funds.

In particular the role and characteristics of small-scale fisheries in relation to the kinds of projects that the World Bank is presently likely to approve was discussed in some detail. Recent changes in criteria used by the

Bank for selecting investment projects were brought to notice. Provided their priority is ascertained, pre-investment activities (e.g., evaluation of fishery development constraints and opportunities) or projects aiming at strengthening national, technical and administrative supportive capabilities are at present perfectly acceptable to the Bank.

(ii) Discussions

Several participants provided additional information on the duties and activities of the bodies or programmes to which they belong (CIDA, ICLARM, SEAFDEC, SPC, etc.). In this respect, the complementary roles of national as well as international organizations were noted. Meetings such as the present one are particularly useful for, in addition to the opportunity they offer participants to assess priorities and to elaborate more precise approaches, they enable organizations to see better how their respective activities can be complementary.

The approach recently adopted by FAO to improve the efficiency of its field programme was fully supported. More specifically, the choice of major topics (EEZ programmes, small-scale fisheries, aquaculture) as well as of the concepts underlying the formulation and execution of field projects (decentralization, regional cooperation, strengthening national capabilities, catalytic approach, etc.) was welcomed.

With respect to national projects, FAO activities discussed in Session II were cited as good examples of a series of sequential and inter-related projects (resources survey, experimental fishing, boat-building, etc.) which had led to a sound appreciation of fishery development perspectives and of action appropriate to initiate such development. Moreover such projects triggered a flow of further and complementary projects financed from other sources (multi and bilateral, public and private).

The UNDP Representative spoke of the importance of the regional projects that FAO is executing, or about to execute, in the region; these are strongly supported by UNDP. In his view, these projects also combine the advantages of promoting and making full use of regional capabilities. Thanks to the catalytic nature of such projects, the limited funds available to UNDP were best utilized. It was noted that regional and interregional funds of the Bureau for Asia and the Pacific were presently fully committed during 1980-81. However, national IPFs offered better funding prospects for this period and the allocation of such funds falls entirely under the prerogative of governments. It was important that national fishery directorates ensure that the needs of the fishery sector were fully taken into account in the planning assistance in the total national agricultural sector. He also noted that funding during the next programming cycle 1982/86 offered considerable scope for both regional and national projects.

It was suggested that, in viewing the assistance required for small-scale fisheries from external sources, one might categorize the degree of poverty of the fishermen in various countries. This, in turn, would influence the nature of assistance.

Much discussion centred on training needs. Considerable attention was given to the need for training of planners in small-scale fisheries development as expertise in preparation, appraisal and evaluation was lacking. A number of countries requested direct assistance, i.e., Sri Lanka, Malaysia. While it was agreed that planning guidelines prepared by FAO would be most useful, it should only be supplemental to training. Workshops may also be useful in this context.

Several countries stressed the training needs of cooperative or producer organizations. It was also emphasized that education at all levels, including fishermen, in the management and functioning of societies should precede any extensive funding schemes.

The lack of basic data for planning and investment was raised by a number of participants. It was suggested, by a Malaysian participant, that much basic data and particularly social and economic data, including marketing data, could be assembled most expediently in the short-run through a comprehensive fishery census. A specific request for assistance to carry out such a census, as soon as possible, was then made by Malaysia.

Technological training was also discussed. Particular reference was made to the increased number of reservoirs in the region and the need to exploit riverine and reservoir fisheries as part of small-scale fishery development. There was a need for training in the development and conservation of these resources, and in associated extension training. It was pointed out by one participant that some countries in the region do have competence in this sector and could assist others. This prompted the UNDP Representative to suggest that this could be an area for TCDC.

It was finally noted when considering training at various levels, most emphasis should be given to the fishermen.

It was clear that virtually all countries required assistance, in general and specific terms on resource assessment and evaluation as a result of the extension of their economic zones. More specifically this assistance centred on the evaluation of coastal stocks available to small-scale fishermen. It was pointed out that the development of aquaculture will require considerable assistance, to identify and develop suitable sites and to provide the necessary facilities for adequate seed supplies. It was noted, however, that there was considerable expertise in the region, e.g., in culture practices (sea bass, penaeid shrimp, etc.) and that TCDC could be practised. The need for assistance in preparing regulatory schemes to protect small-scale fishermen (i.e., licensing and traditional fishing rights such as reef and lagoon protection) was also recorded.

A number of countries agreed to the pilot project approach in small-scale fisheries development since they could be implemented at relatively low costs and that they would serve as models for larger scale projects in the future. Participants from a number of countries strongly supported ongoing or planned pilot projects and indicated the need for assistance in the identification and implementation of such projects. It was pointed out by one participant that

integrated pilot projects could be a very effective means of increasing productivity, improving a marketing system and/or of demonstrating various forms of aquafarming.

Strong support was given to FAO's decentralization programme especially where it resulted in the strengthening of subregional units, such as the South China Sea and the Bay of Bengal programmes. The way in which these two programmes coordinated their activities to assist the region and thus prevent duplication of effort, particularly in the identification and implementation of pilot projects, was particularly appreciated.

The assistance that could be provided by international development banks was discussed at some length. While it was appreciated that the policies of these banks are now more favourably disposed to small-scale fishery development, in that they view economic returns rather than a financial rates of return as the main criteria, many countries still require more concessional terms in order to consider them as a useful tool to small-scale fishery development. Pilot projects could well be considered as an element of small-scale fishery loans and that this should be phased into the loan. The pilot project(s) can then be seen as technical assistance from FAO through its regional projects and other bilateral agencies can then assist in supporting these elements.

While a number of specific reasons were advanced and dealt with throughout the discussion of how to bridge the gap that results in a lack of viable investment projects, it was not considered that these could serve in the short run. The meeting urged FAO to study this subject, including the re-examination of investment criteria for small-scale fisheries investment, and perform a catalytic role in assisting the countries of the region.

One participant noted that useful assistance could be given in demonstrating optimum mesh sizes in the small-scale trawl fishery. It was suggested that a pilot project be carried out to test and demonstrate larger mesh sizes and to improve the efficiency of trawls as a means of reducing catches of juvenile stocks.

Thailand suggested that funding/development agencies should consider the possibility of providing concessional loans to governments which would be used as a revolving fund for small-scale fishery activities. These funds could be administered through existing loan programmes of fishery administrations.

Session IV

RECOMMENDATIONS

Discussion Leader: Tengku Ubaidillah bin
Abdul Kadir

Rapporteur: E.H. Nichols

Following the conclusions reached in discussions held during previous sessions the Symposium agreed that the following recommendations be forwarded for consideration by the Commission:

To Member Governments

1. The prime objective of national policy for small-scale fisheries development should be to bring the sector at least to par with other economic activity; the sector is presently disadvantaged. Government involvement must be greatest at the lowest levels and among the most depressed of the sector if those concerned are to be raised to a nationally acceptable level of income and quality of life.
2. Although it is necessary to protect the interests of small producers small-scale fisheries must not be isolated from large-scale sectors in the context of planning. There is a need to integrate fisheries development with general social and economic development. Particular attention should be paid to consumer interests in view of increasingly felt resource constraints.
3. Attention is drawn to the value of census data and current statistics, and the prompt and adequate analysis thereof for planning purposes.
4. There is an urgent need for measures to resolve conflicts within the small-scale sector and between this sector and the larger, commercial fisheries. It is particularly important that governments establish close contacts with these conflicting parties to resolve differences and to increase the awareness of the resource constraints and sound ecological practices. In this manner appropriate and mutually acceptable fishing rights and legislation for equitable and rational development can be achieved.
5. In certain areas women have an important role in economic activities, but a potential remains for increased participation in all sub-sectors and at all levels. Particular attention should be given to women's organisations and to education.
6. Development strategy calls for an integrated approach, there are no "standard" solutions and programmes and projects must be developed on a case by case basis. Closer coordination is called for between administration and research, and within different agencies and sciences. The involvement of the members of the target group, i.e., fishermen and their families, is a prerequisite to ultimate success. It is also essential that cognizance is taken of the genuinely felt needs of the community.

7. Although the most important, higher income is not the only factor that leads to betterment of small-scale fishery communities; and therefore social infrastructure, services and amenities should be provided on a greater scale than in the past.

8. The lack of credit is a serious constraint in small-scale fishery development. Credit facilities must be adjusted and expanded to ensure that the need, and as many as possible of them, are benefited.

9. With regard to fish marketing Member Governments should take note of the very many and common failures of cooperative organizations which were put forward in the symposium. The reasons for failures must be recognised, and new avenues explored to form associations, in order to increase the small producers' share of the profit margins.

10. In view of problems arising from increasing costs of fossil fuel governments should re-examine technological inputs into the industry, both through craft and engine design and in the post-harvest sphere, i.e., processing and utilization, to reduce wastage.

11. Within the sphere of small-scale aquaculture development Member Governments are invited to concentrate - in the long-term, on selective breeding, genetics, etc.; in the medium term, on seed production; and in the short-term, on improvement of extension and technical services.

To FAO and Other Development/Funding Agencies

1. Funds available for small-scale fisheries development in member countries are inadequate in relation to needs. Funding agencies are requested to consider relaxation of rules and criteria to take into account the specific requirements of small-scale fisheries and individual countries, and to consider streamlining procedures to shorten the time span between identification and project implementation.

2. FAO is requested to increase assistance to member countries in the preparation of viable investment and development projects to attract more available funds. This should be done through preparation missions, with components of in-service training of national expertise; through the provision of guideline manuals for use by Member Governments on the methodology and specific requirements as to criteria, rules and procedures asked for by funding agencies; and through the preparation of a handbook outlining guidelines for the integrated development of fisheries, including a "checklist" to obviate oversights in the planning process.

3. FAO and other development agencies are requested to assist governments in preparing and funding integrated pilot projects to develop and demonstrate approaches and methodology to pave the way for wider application. International banks are also requested to favourably consider requests for pilot projects as a lead-in investment follow-up. Such pilot projects should incorporate features in accordance with the symposium's recommendation to Member Governments.

4. In order to promote a more rational exploitation of fishery resources accessible to small-scale fisheries, pilot projects in the field of fishing gear and methods aimed at reducing catches of trash fish, protection of nursery grounds, and selective catch composition, should be supported.

5. Although countries may lack expertise in certain fields, small-scale fishery skills are available in the region. Greater use should be made of such skills by agencies which would also facilitate inter-country cooperation.

6. The attention of FAO and other agencies is drawn to the specific needs and requirements of individual countries as brought out in background papers and discussions.

7. FAO should, primarily through its sub-regional programmes, take follow-up action in assisting Member Governments to implement recommendations arising from this Symposium. Such assistance would be in the form of organising and funding selected activities including specialised consultations and workshops.

REPORT
OF THE
FIFTY-SEVENTH SESSION OF THE EXECUTIVE COMMITTEE
OF THE
INDO-PACIFIC FISHERY COMMISSION

Tokyo, Japan, 30 October-1 November 1978

REPORT OF THE FIFTY-SEVENTH SESSION OF THE EXECUTIVE COMMITTEE
OF THE INDO-PACIFIC FISHERY COMMISSION

Tokyo, Japan, 30 October - 1 November 1978

INTRODUCTION

1. The Executive Committee of IPFC held its Fifty-Seventh Session at the Hotel New Japan, Tokyo, Japan, on 30 October to 1 November 1978. A list of the participants is given in Appendix II.

ADOPTION OF THE AGENDA

2. The agenda as adopted is shown in Appendix I.

FOLLOW-UP TO THE IPFC EIGHTEENTH SESSION AND SYMPOSIUM

3. The Committee had before it the summary list of priority recommendations of IPFC and its subsidiary bodies considered by the IPFC Eighteenth Session and Symposium. It noted, however, that while the Session established a priority listing under each subject heading the Session itself had not determined an overall priority for all topics.

4. The Committee reviewed the report prepared by the FAO/IPFC Secretariat on progress of follow-up to the IPFC Eighteenth Session and Symposium which is attached as Appendix III. Where necessary, during the review, the Secretariat also provided additional up-to-date information to the Committee orally.

(i) Tuna Management

5. The Committee heard a report from the FAO Headquarters representative of the various possibilities explored by FAO to have a tuna management specialist appointed for the IPFC region. This was recommended as a high priority item by IPFC at its Eighteenth Session. The Committee was glad to note that UNDP had now under active consideration for funding the project proposal prepared and submitted by FAO. It requested FAO to pursue the matter with UNDP so that the tuna management specialist could be recruited and commence his work as early as possible as he would have to submit a report at the forthcoming Sixth Joint Meeting of the IPFC Special Committee on Management of Indo-Pacific Tuna and the IOFC Committee on Management of Indian Ocean Tuna to be held in Perth, Australia in October 1979.

6. In view of the expanding and changing pattern of tuna fisheries, not only among IPFC Member Countries but also among non-members, the Committee was pleased to note that as suggested by the IPFC Eighteenth Session, IPFC was now associated with the Working Group on Tagging of Tunas and Billfishes in the Pacific and Indian Oceans headed by Dr. W. Bayliff.

7. The Committee was informed that an SCSF-sponsored joint Indonesian/Philippine workshop on tuna resources had been proposed to be held in Jakarta, Indonesia in March 1979. The Committee suggested that the proceedings of such a workshop should be made available to the tuna workshop being sponsored by the U.S.A. and Japan planned to be held in Shimizu, Japan in June 1979. The Committee also noted the desirability of encouraging other Member Countries to participate in the Shimizu workshop.

ii) Marine Resources

8. The Committee noted that the reaction from DANIDA was being awaited on a proposal to support two regional training courses on stock assessment in the IPFC region and hoped that these training courses could be undertaken in 1980 and 1981.

9. Concerning the offer from New Zealand to host a training course on stock assessment, mention was made of FAO's difficulty in utilizing the funds contributed by the New Zealand Government to UNDP. It was agreed that the matter should be followed up by FAO with UNDP and the New Zealand Government.

10. The FAO Headquarters representative informed the Committee that the South China Sea Fisheries Development and Coordinating Programme (SCSP) was planning to hold a five-day shrimp workshop for 10 participants and an acoustic training survey in Thailand and Hong Kong also for 10 participants. The SCSP also had planned to publish species identification sheets when funds became available.

11. The Committee recognized that resources surveys will become even more important in connection with the establishment of Exclusive Economic Zones (EEZs) and hoped that FAO's programme for the development of the resources of the EEZ's would provide assistance in this regard.

(iii) Inland Fisheries and Aquaculture

12. Concerning studies on infestation by aquatic weeds started by FAO, the Committee was informed that New Zealand was now doing work on aquatic weeds and had appointed an aquatic weed specialist. Both grass carp and silver carp had been successfully reared in New Zealand and were being used for studies on weed control.

13. The Committee was glad to note that a project proposal on "The impact of pollution on the mangrove ecosystem and its productivity in the South China Sea" had been submitted by FAO to UNEP for consideration. The Committee felt that some action by Member Countries was also necessary particularly in identifying those fisheries which were directly or indirectly dependent upon mangroves. It specifically requested FAO to undertake such a study which would provide Member Countries with the technical basis for policy formulation.

14. The Committee was informed about the status of the study on integrated fish/crop/livestock production systems for small farmers. In addition to Thailand, Nepal and Bangladesh, relevant information could also be available from other countries like Indonesia, Malaysia and the Philippines.

15. The Committee noted that a Workshop on Management of Aquatic Systems for high-level planners whose decisions can have a major impact on fisheries was being organized.

16. In the case of fish/crop/livestock production systems it was noted that a country such as New Zealand, already involved in the latter two areas, might be prepared to consider more fully integrated studies.

(iv) Small Fishermen Development

17. In reviewing the progress report on this subject, the Committee noted with satisfaction that the project on the Development of Small-Scale Fisheries in the Bay of Bengal funded by SIDA was now operational and that a meeting of the Advisory Committee for the project would be held in Chittagong, Bangladesh, on 7-10 November 1978. The Committee was informed that Malaysia, although not a participating country, planned to send an observer to the meeting.

(v) Fish Technology and Marketing

18. The Committee was informed about the status of the project proposal to establish a Regional Market Intelligence and Information Network. The proposal had been submitted to UNDP, as well as to bi-lateral aid agencies for possible funding.

(vi) Statistics

19. The Committee noted with considerable regret that the Regional Fishery Statistician recommended as a high priority requirement by IPFC had not yet been appointed by FAO. It, therefore, decided that the matter should be brought to the notice of the FAO Regional Representative for Asia and the Far East earnestly requesting him to create such a post in the Regular Programme of the FAO Regional Office in Bangkok.

20. The Committee was informed that as recommended by the IPFC Eighteenth Session the Philippines was currently hosting from 2 October - 10 November 1978 a Regional Training Course in Fishery Statistics assisted by the SCSP. This was mentioned as one example of Technical Cooperation among Developing Countries (TCDC).

(vii) Subsidiary Bodies

21. The Committee reviewed the Report of the IPFC Coordinating Committee for the South China Sea Fisheries Development and Coordinating Programme (SCSP) held at Manila, Philippines, 28-29 September 1978. In view of the great importance of this project and because the chances of CIDA support for the SCSP were now remote, the Committee emphasized that UNDP should be requested to give a higher level of support to the programme than hitherto agreed at least for Phase III.

22. The Secretariat reported to the Committee that, as requested by the IPFC Eighteenth Session, Member Countries were contacted to find out the reasons why several Member Countries had not been able to send representatives to the first session of SCORRAD. From the replies received so far, it appeared that the main reason was financial constraints on the part of Member Governments. It was agreed that the difficulty might be solved if SCORRAD meetings were to be held in alternate years to IPFC sessions and provided that sufficient notice of the meeting was given to Member Governments.

23. It was agreed by the Committee that the Standing Committee on Resources Research and Development (SCORRAD) should meet in October-November 1979 and that the dates of the scheduled meeting of the Working Party on Fish Technology and Marketing should be advanced to at least six weeks ahead of the SCORRAD meeting. It was also suggested that if possible all the technical secretaries of the IPFC Working Parties should attend the SCORRAD meeting.

24. Member Governments should also be informed well in advance of the SCORRAD meeting, preferably as soon as possible and not later than December 1978 so that Member Governments could plan and budget for their representation at the meeting. As a general rule, the Secretariat should ensure that Member Governments were informed of proposed SCORRAD meetings in sufficient time to enable them to make the necessary budgetary provision for travel by their representatives.

25. In discussing the terms of reference of SCORRAD, the Committee noted that one of the functions of the Standing Committee was to consider the tenure of each of the Working Parties.

(viii) Others

26. The Committee noted with regret that the Secretariat, in its present circumstances, was not able to print the IPFC Newsletter and expressed the hope that FAO would in the future make it possible for the Newsletter to be published.

27. With regard to the publication of practical field manuals it was suggested that the Secretariat should explore the possibility of New Zealand shouldering publication costs provided that FAO would supply the manuscripts and suggest the format.

28. Concerning the future possible publication of an IPFC Bulletin, it was noted that the USA delegation had agreed to make available a position paper on the matter for consideration of the Committee at its next meeting and also for consideration at the Nineteenth Session.

29. The Committee urged FAO to organize more fisheries fellowships and study missions to the People's Republic of China, especially for technical people.

IPFC INDICATIVE PROGRAMME OF WORK AND BUDGET 1980-81

30. The FAO Headquarters representative explained the budgeting process in FAO. It was pointed out that the Director-General had instituted a review of all FAO regional bodies to assess their usefulness and relevance and how they should be oriented in the future. Funds that could be appropriated by FAO for the servicing of these bodies were also limited, and had to be allocated within the overall priorities of FAO's programme of work.

31. Taking into account these factors, the Committee agreed on the following programme of work for the 1980-81 biennium:

- (i) IPFC 19th Session and Symposium
- (ii) Executive Committee (three meetings)
 - One meeting in conjunction with the 19th Session
 - One meeting in October-November 1980
 - One meeting in mid-1981
- (iii) Special Committee on Management of Tuna (one meeting)
- (iv) Coordinating Committee for the South China Sea Programme
 - (two meetings the costs of which will be met by the South China Sea Programme)
- (v) Standing Committee on Resources Research and Development
 - (one meeting to be held 6 to 8 months before the 20th Session scheduled for 1982)
- (vi) Working Party on Statistics (one meeting)
- (vii) Working Party on Fish Technology and Marketing (one meeting)
- (viii) Working Party on Aquaculture and Environment (one meeting)
- (ix) Working Party on Inland Fisheries (one meeting)
- (x) Working Party of Experts on Central and Western Pacific Skipjack (one meeting)

32. For efficient functioning of the Commission the Committee considered it very desirable for all the Working Party meetings to be held well in advance of the SCORRAD meeting.

33. The Committee considered that the programme in para. 31 was the minimum required for the IPFC to discharge its functions efficiently. It requested the Secretariat to forward this proposed programme to the Director-General for favourable consideration.

FINANCING OF IPFC ACTIVITIES

34. The attention of the Committee was drawn to documents IPFC/78/13 "Financing of IPFC Activities", and IPFC/78/14 "Proposed IPFC Award Scheme", which had been submitted to the 18th Session of IPFC. The Committee recalled that no conclusions had been reached regarding mandatory contributions from IPFC members, Funds-in-Trust and an IPFC Award Scheme.

35. With regard to mandatory contributions the Committee agreed that Member Countries showed very little interest in participating in such a scheme. The Director-General of FAO too had several reservations on its acceptability and feasibility. In the circumstances the Committee decided that the matter should not be pursued further and that Member Countries be informed accordingly by the Secretariat.

36. The Committee strongly supported the idea of Funds-in-Trust for specific projects in the IPFC region. The Secretariat was requested to circulate project proposals of specific interest to possible donor countries.

37. The Committee re-considered the original proposals made in document IPFC/78/14 for an IPFC Award Scheme. The Committee was of the view that the Scheme could take the form of either the award of a Medal and Citation for outstanding fishery workers in the region or a fellowship to commemorate individuals whose work had had a regional impact.

38. The Committee felt that for the time being, the fellowship scheme should be taken up and requested the Secretariat to make enquiries and prepare a document detailing how such a scheme could be put into operation, with details of financing, selection procedure, etc. for consideration at the 19th Session of IPFC.

ARRANGEMENTS FOR THE IPFC 19TH SESSION SYMPOSIUM ON THE DEVELOPMENT AND MANAGEMENT OF SMALL-SCALE FISHERIES

39. The Committee reviewed document ExCo/57/7 "Summary Progress Report on Arrangements for the IPFC 19th Session Symposium on the Development and Management of Small-Scale Fisheries".

40. The Chairman informed the Committee that the Government of Japan had made arrangements to hold the Symposium at the Kyoto International Conference Centre from 21-23 May 1980 (Wednesday to Friday). If the need arose the Symposium could be extended to 24 May 1980 (Saturday). The Host Government would also arrange a field trip for the participants to see some small-scale coastal fisheries and aquaculture activities in Japan.

41. The Chairman also informed the Committee that Japan had a long standing policy of protecting the resources and activities of small coastal fishermen from the large scale fishermen. The Committee requested Japan to present a paper on the subject to the Symposium.

42. The Committee noted that Mr. Erling Oswald, Deputy Programme Leader of the SCSP had recently been designated by FAO as the Technical Secretary of the Symposium in place of Mr. W.P. Appleyard who was leaving FAO.

43. The Committee discussed the draft programme of the Symposium and agreed that a discussion on policies and regulations affecting small-scale fisheries should be included. It was hoped that participants from economic planning bodies of Member Governments could also be invited to participate in the Symposium. The Committee suggested that these matters be brought to the attention of the preparatory Working Group which would meet in Kuala Lumpur, Malaysia, in January 1979.

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ARRANGEMENTS FOR THE IPFC 19TH SESSION AND RELATED MEETINGS

44. The Chairman informed the Committee that the Government of Japan was making arrangements for the Nineteenth Session of IPFC and other related meetings to be held in Kyoto, at the Kyoto International Conference Centre.

45. The opening ceremony for the Session would be in the morning of 21 May 1980 (Wednesday) to be followed immediately by the adoption of the Agenda for the Session and the Symposium on the Development and Management of Small-Scale Fisheries.

46. After the Symposium, the plenary sessions would be resumed on 26-30 May 1980 (Monday-Friday).

47. Facilities would be provided for meetings of the IPFC Executive Committee on 19-20 and 24 May 1980, as well as for a short meeting of the IPFC Coordinating Committee for the SCSP, if it was considered desirable.

48. There would be the usual office space and facilities for typing and reproduction of documents and for FAO, IPFC and Japanese Government staff.

IPFC MEMBERSHIP

49. The Committee was glad to note that Nepal had become a member of IPFC as from 23 March 1978 and suggested that the Chairman may write to the appropriate authorities in Nepal welcoming that country's membership in IPFC.

50. The Committee noted the desirability of the People's Republic of China re-joining IPFC and suggested that the Director-General of FAO and the Chairman of IPFC be requested to take appropriate steps in this regard.

DATES AND PLACE OF THE 58TH SESSION OF THE IPFC EXECUTIVE COMMITTEE

51. The Committee agreed to hold its Fifty-Eighth Session in Kyoto, Japan, at the Kyoto International Conference Centre on 19-20 May 1980.

OTHER MATTERS

(1) Proposal to move the IPFC Secretariat

52. The Committee was informed of the Director-General's decision regarding the offer of the Government of the Philippines to host the IPFC Secretariat in Manila, and the interim proposal made by the Philippine delegation and endorsed by IPFC to establish a sub-office of IPFC in Manila. The Committee noted the letter of the Director-General to the Secretary, Department of Foreign Affairs, Government of the Philippines, wherein he had pointed out that the IPFC Agreement made no provision for the establishment of a sub-office, and that the question of an amendment to enable Member Governments to take a decision on the transfer of the IPFC Secretariat to Manila would be placed before the IPFC at its 19th Session. The Committee accordingly requested the Secretariat to prepare such a document and circulate it to Member Countries at least six months in advance of the 19th Session, so that delegations could consult with their relevant national authorities and come prepared with a mandate to vote on the issue.

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(ii) Others

53. The Committee agreed that the practice of holding a symposium as an integral part of the IPFC Sessions should continue in the future.

54. The Committee was sorry to learn of the sudden death of Mr. A.S. Mendis (Sri Lanka), a former chairman of IPFC. It requested the Chairman to send a message of sympathy on its behalf to the Government of Sri Lanka and to the family of the late Mr. Mendis.

AGENDA

1. Adoption of the Agenda
2. Follow-Up to the IPFC 18th Session and Symposium
3. Progress of Work of IPFC Subsidiary Bodies
4. IPFC Indicative Programme of Work and Budget, 1980/81
5. Financing of IPFC Activities
6. Arrangements for the IPFC 19th Session Symposium on the Development and Management of Small-Scale Fisheries
7. Arrangements for the IPFC 19th Session and Related Meetings
8. IPFC Membership
9. Dates and Place of the 58th Session of the IPFC Executive Committee
10. Any Other Matters
11. Adoption of the Report

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REPORT ON PROGRESS OF
FOLLOW-UP TO THE IPFC 18TH SESSION AND SYMPOSIUM

1. The following provides information on actions taken as a follow-up to the priority recommendations of the IPFC 18th Session and Symposium.

2. Tuna Management

2.1 Appointment of tuna management specialist

A draft project proposal for a tuna management specialist (with necessary support) has been prepared. It has been submitted to UNDP for funding by the regional bureau and is under active consideration by UNDP.

2.2 Tuna tagging

At the suggestion of HQ technical staff, the IPFC Secretary has circulated to member countries information concerning the ad hoc working party on tuna tagging in the Pacific and Indian Ocean (jointly sponsored by IPFC, I-ATTC and SPC) and has asked for proposals for additional membership from interested IPFC countries.

3. Marine Resources

3.1 Training course on stock assessment

UNDP has informed us that it is unable to support this from its regional funds. A proposal has been made to DANIDA for two training courses (in 1980 in the Western Pacific/Eastern Indian Ocean, and in 1981 in the Western Indian Ocean). Their reaction is awaited.

4. Inland Fisheries

With reference to the report of the Working Party of Experts on Inland Fisheries (17-19 January 1978) the following actions have been taken as of 1 September 1978:

4.1 Reservoir research and management

The Fisheries Department of Thailand has been approached to prepare a manual on planning reservoir fisheries in South-East Asia as suggested. We are awaiting a reply from Dr. Theraphan Bhukaswan on behalf of the Department.

4.2 Introduced species

The Correspondence Working Party was set up by letter on 22 March 1978 and has received an enthusiastic response. Some material has already been received by the Technical Secretary. It is intended to hire a consultant in 1979 to assist with this work.

4.3 Research on anadromous and catadromous species

There is no news from Dr. Jhingran on progress with the Cooperative Research Programme.

4.4 Study of effects of dams and flood control irrigation

As this depends on an IDA funded project, which is not yet complete, no further progress has been made.

4.5 Pollution of inland waters

No progress, although the Secretariat has approached UNEP about inland fisheries pollution and it is intended to act further on this in the near future.

4.6 Infestation by aquatic weeds

Some studies on this subject have started in Headquarters. A manual on utilization of aquatic weeds is in the final stages of editing and contacts have been made with some weed research institutes.

4.7 Mangrove swamp and brackishwater ecology

A Headquarters staff member, Dr. J. Kapetsky, has already started gathering data on this topic and would welcome participation of workers from member countries of IPFC in his studies.

4.8 Workshop on management of aquatic systems for fisheries

The Philippines have kindly offered to host this meeting. However, time is needed to make the appropriate budgetary commitments in FAO Headquarters and also to prepare the course and arrange the Session. This Workshop is, therefore, being scheduled for the 1980-81 biennium.

5. Aquaculture

In the field of aquaculture, the progress of work of the Working Party on Aquaculture and Environment in the following:

On-Going Activities, 1978-1979

- 5.1 As per approved programme of the Working Party, the initial phase of the Integrated Fish/Crop/Livestock Production Systems for Small Farmers in collaboration with the APHCA is underway. A survey questionnaire was prepared to obtain data base on the subject.
- 5.2 A national survey of existing integrated production systems of small farmers are being conducted. Thailand has completed the survey through the services of a consultant provided by RAFE. Nepal and Bangladesh are conducting their respective studies.

Other participating countries have yet to organize themselves in carrying out similar surveys. It is expected that country surveys will be completed by the end of the year after which a Regional Workshop in Thailand will be held sometime in February-March. This Workshop was tentatively scheduled for December 1978 but postponed due to lack of funds.

- 5.3 Country papers will be prepared and presented in the Regional Workshop. The expected output of this Workshop will be follow-up action programmes on integrated production systems for small farmers based on fish/crop/livestock production.
- 5.4 A coordinating mechanism for this purpose is being set up in the different member countries in consultation with the APHCA Permanent Delegate. This action would in effect establish at the national level an integrated national infrastructure support for the action project.

Nepal and Bangladesh were visited by the Technical Secretary together with the Livestock Officer of APHCA to discuss this matter.

- 5.5 Implementation of national action programmes in 1979.

6. Environment

In its report of the third session in Bangkok 1976 the IPFC Working Party on Aquaculture and Environment recommended to the IPFC follow-up action on the IOC/FAO(IPFC)/UNEP International Workshop on Marine Pollution in East Asian Waters, held in Penang, Malaysia, April 1976. In particular, the Working Party proposed 7 pilot projects on research and monitoring to be executed under the auspices of IPFC.

For one of these projects, entitled "The impact of pollution on the mangrove ecosystem and its productivity in the South China Sea", a project proposal has recently been submitted to UNEP for consideration.

The project is conceived as a sub-regional pilot study in a confined area. The applicability of the results is believed to be regional for South-East Asia, possibly global for the mangrove areas of other regions.

It is planned to be implemented as a cooperative project of the United Nations Environment Programme with FAO(IPFC) as cooperating agency. In certain areas also the participation of UNESCO is expected.

The duration of the project will be 36 months, commencing in January 1979.

The long-term objectives of the project are:

- (a) To monitor the different pollutants with regard to their input, routes and distribution, future trends and effects;
- (b) to provide a scientific basis for a rational utilization, including conservation aspects, of the mangrove ecosystems in order to maintain their productivity and ecological functioning;
- (c) to provide a scientific basis for launching an extensive rehabilitation programme on damaged mangrove ecosystems;
- (d) to provide the technical basis for policy formulations to protect the mangrove-dependent fisheries;
- (e) to increase the research capabilities of institutions to study mangrove ecosystems in general and pollution in particular in the cooperating member states.

The immediate objectives are:

- (a) To establish baseline data of the structure of the marine mangrove communities;
- (b) to establish baseline data on the nature, levels and distribution of pollution in the region on the different components of the faunal communities with regard to the following major pollutants:
 - (i) domestic and agricultural wastes, including chlorinated hydrocarbons (e.g. pesticides, PCBs),
 - (ii) inorganic components that reveal to be of importance in the region,
 - (iii) effluents of industrial plants;
- (c) to determine the critical pollutants threatening the mangrove ecosystem as a whole or any of its components, particularly the estuarine fisheries resources;
- (d) to assess the toxicity of specific pollutants to the different living resources of the mangrove community.

The oil pollution component has been excluded from this scope purposely, as it is the sole objective of the Malacca Strait pilot project.

The project will consist of a preparatory and an operational phase. During the Preparatory Phase, FAO/UNEP will hold an expert consultation to identify the gaps and need for research. Recognizing that several countries in the region, in particular Thailand and the Philippines have formulated detailed research and training programmes, much emphasis should be put on incorporating current national programmes into the pilot project. The preparatory phase will last 4-5 months.

During the Operational Phase, the research programme developed by the expert consultation will be carried out by laboratories of the cooperating countries under the coordination of FAO and with the general guidance of the IPFC Working Party on Aquaculture and Environment.

The project has the character of a pilot study and is therefore determined to provide basic results for continuing research or monitoring programmes. The preliminary phase of the planned pilot monitoring system should, therefore, be extended in a follow-up action to serve as a survey tool for pollution trends in the region of South-East Asia and for the control or improvement of the situation of fishery resources.

7. Small-Fishermen's Development

During the 18th Session of the Indo-Pacific Fishery Commission held in Manila, Philippines, between 8 and 17 March 1978, several specific recommendations were made for the promotion of small fishermen's development. They were:

- (i) the establishment of an IPFC regional extension programme;
- (ii) the establishment of an IPFC regional fisheries extension centre;
- (iii) the formulation and implementation of a grass-root training scheme.

No source of funds has been identified for these activities yet.

The problem of securing funds for small-scale fisheries development is still a major issue. Funds from CIDA for the financing of the SCSP's second five-year phase is still pending. To bridge the gap between January 1978 and the anticipated beginning of CIDA operations, FAO had to cut down the staffing and activities of SCSP; as, for example, the Kuala Besut project in Malaysia has been suspended as of the end of August 1978. Only that part of the SCSP programme presently funded by UNDP is in operation.

At present most of the pilot projects for the promotion of small-scale fisheries have been identified and await implementation. In extension work a draft proposal for Indonesia costing approximately US \$2.5 million has been completed. It is expected that the project would be implemented by mid-1979 with UNDP funds.

The IOP project for the Development of Small Scale Fisheries in the Bay of Bengal funded by SIDA is now operational. Project Headquarters are being established in Madras. Participating countries are Bangladesh, India, Indonesia, Sri Lanka and Thailand.

8. Fish Technology and Marketing

The proceedings of the 18th Symposium on Fish Utilization Technology and Marketing have been edited and are in the process of being typed. When complete they will be sent to the Philippines for printing. This is expected to be early December.

The Working Party's activities are still devoted to a regional programme of collaboration in fish technology research, which has been stimulated by an Australian donation of US \$72,000 for exchange visits between institutes. All institutes have been circulated for their proposals, and although not all replied a programme is being prepared for submission to the institutes.

From October to November 1978 a Workshop on Fish Technology and Inspection will be held in Sri Lanka for about 30 participants from Malaysia, Thailand, Burma, Bangladesh, India, Pakistan, Seychelles, Mauritius and Sri Lanka. In two years time it is hoped to hold a similar workshop for the south eastern region.

FAO Regular Programme and other trust funds have been used to support activities in the IPFC region. A grant-in-aid has been given to the Agricultural University of Malaysia for solar drying and improvements in the handling of small pelagic species will be investigated in India and Thailand in November, December 1978.

The proposal to hold the next Working Party meeting, late 1979 in Indonesia, is still valid.

9. Statistics

9.1 Appointment of Regional Fishery Statistician

It is to be regretted that there appears to be no possibility that a Regional Fishery Statistician could be appointed and maintained out of Regular Programme Funds. A Statistician was maintained under the South China Sea Project but this Project does not cover the IPFC area. We would have to look for extra budgetary funds should we wish to try to appoint a Regional Fishery Statistician on a fixed term of, perhaps, 5 years.

9.2 Technical Report

There is no difficulty for FIDI to prepare and issue before the end of 1978 a document which will incorporate all the existing charts and descriptive material covering Major Fishing Areas 51, 57, 61, 71 and 81.

9.3 Organization of Training Courses

The South China Sea Fisheries Development and Coordinating Programme is organizing a Training Centre in Fishery Statistics, hosted by the Government of the Philippines in Manila from 2 October to 6 December 1978.

REPORT
OF THE
FIFTY-EIGHTH SESSION OF THE EXECUTIVE COMMITTEE
OF THE
INDO-PACIFIC FISHERY COMMISSION

Kyoto, Japan, 20 and 22 May 1980

REPORT OF THE FIFTY-EIGHTH SESSION OF THE EXECUTIVE COMMITTEE
OF THE INDO-PACIFIC FISHERY COMMISSION

Kyoto, Japan, 20 and 22 May 1980

INTRODUCTION

1. The Executive Committee of IPFC held its Fifty-Eighth Session in Kyoto, Japan, on 20 and 22 May 1980. A list of the participants is given in Appendix II.

ADOPTION OF THE AGENDA

2. The agenda as adopted is shown in Appendix I.

FOLLOW-UP TO THE 57TH SESSION OF THE IPFC EXECUTIVE COMMITTEE

(i) Pending matters from IPFC 18th Session and Symposium

3. The Committee reviewed outstanding matters from its last session held in Tokyo, Japan, 30 October - 1 November 1978, document IPFC/80/4.

4. The Government of New Zealand had indicated that they would consider the publication of IPFC practical field manuals, but this would require the use of un-convertible funds deposited with UNDP. It appeared that such UNDP funds could only be used to support field activities and field manuals are considered a regular programme activity. It was agreed that FAO will explore ways of finding use for the said funds.

5. The Committee noted that, as offered by the USA delegation at the 18th Session of IPFC, a position paper on the future publication of an IPFC Bulletin had been prepared. The paper will be available to the 19th Session of IPFC as document IPFC/80/Inf. 22 "The Costs of Primary Journals: A Review."

(ii) Activities of IPFC subsidiary bodies

6. The Chairman of SCORRAD, Mr. G. Duncan Waugh, introduced to the Committee the report (document IPFC/80/5) of the 2nd Session of SCORRAD.

7. The Committee agreed to the need to examine the requirements for social and economic statistics and noted that this subject could be taken up by the IPFC 19th Session Symposium on the Development and Management of Small-Scale Fisheries, and that the plenary session might consider the means by which Member Governments can collect and compile such statistics.

8. As regards the recommendation that Member Governments identify areas of mangrove important to shrimp fisheries, FAO informed the Committee that a joint study is now being undertaken by FAO and UNESCO but nevertheless the Committee felt that member countries should recognize the importance of preserving mangrove areas.

9. On the promotion of the use of larger mesh sizes in the trawl fisheries, the Committee felt that Member Governments might wish to conduct a general review in their own countries and that the matter should be referred to the Committee for the Development and Management of Fisheries in the Bay of Bengal and to the proposed Committee for the Development and Management of Fisheries in the South China Sea. The IPFC 19th Session Symposium might also take this matter up, especially in relation to its impact on small-scale fisheries.

10. The Committee agreed with SCORRAD's recommendations that Member Governments be requested to submit lists of active scientists and their main interests and that the Secretariat should also obtain and circulate information concerning (a) translated publications and (b) national or inter-country workshops or meetings being held in the region.

11. The Committee endorsed SCORRAD's recommendation for approval by IPFC of the revised terms of reference of the Working Party on Inland Fisheries and the Working Party on Aquaculture as contained in para. 61 of the SCORRAD report.

12. The Committee agreed that the practice of SCORRAD meeting separately from the main session of IPFC should be continued.

13. The Committee was informed of the outcome of the recently held 6th Joint Meeting of the IOFC Committee on Management of Indian Ocean Tuna and IPFC Special Committee on Management of Indo-Pacific Tuna, Perth, Australia, 20-22 February 1980. It agreed that as was now the case for the IOFC Committee, the IPFC Committee should be open to all interested member nations of the parent body. It recommended that IPFC take the necessary action.

ACTIONS ARISING FROM THE 13TH SESSION OF THE FAO COMMITTEE ON FISHERIES (COFI), FAO WORLD CONFERENCE ON AGRARIAN REFORM AND RURAL DEVELOPMENT (WCARRD), 20TH SESSION OF THE FAO CONFERENCE, 15TH SESSION OF THE FAO REGIONAL CONFERENCE FOR ASIA AND THE PACIFIC AND 6TH SESSION OF THE INDIAN OCEAN FISHERY COMMISSION (IOFC)

14. The Committee noted with great interest the relevant recommendations of these various meetings and pointed out that the most important of these recommendations would be considered under various items of the agenda for the 19th Session of IPFC.

15. The attention of the Committee was invited to para. 69 of the Report of the 6th Session of IOFC in which FAO had been requested to prepare and circulate to member countries, in advance of its next session, a position paper which would consider specific suggestions to improve further the efficiency of IOFC and strengthen its authority. In particular, the Secretariat had been asked to address such matters as the ways in which the Commission should, in the context of its new structure, adopt and submit to member countries recommendations embodying management measures, together with an indication of the implications as regards the Commission's Statutes; the conditions under which these recommendations should be implemented by member countries, with particular reference to the "objection procedure" followed in the case of other regional fishery bodies; the consideration and implementation of measures recommended

by sub-regional committees, bearing in mind the possible need to harmonize these measures and to adopt overall policies on an ocean-wide basis; and the organization and structure of the Commission's sessions, with special reference to the possibility of having technical meetings followed by plenary sessions. The Committee felt that the same problems arose in the case of IPFC and that, therefore, IPFC member countries should also receive this position paper so that both IOFC and IPFC might discuss it. In the light of their discussions, they would be able to rationalize and harmonize their methods of work and procedures. It was pointed out that in any case, most member countries of IPFC are also member countries of IOFC. So as to facilitate joint discussion of subjects of common interest the Committee agreed to suggest to IPFC that it might request FAO to convene the 20th Session of IPFC in conjunction with the 7th Session of IOFC.

PROPOSED ESTABLISHMENT OF A COMMITTEE FOR THE DEVELOPMENT AND MANAGEMENT OF FISHERIES IN THE SOUTH CHINA SEA

16. The Executive Committee noted with satisfaction that the proposal to set up a Committee for the Development and Management of Fisheries in the South China Sea, which had first been mooted by IPFC itself at its last session in March 1978, was in accordance with the decentralization policies laid down recently by the governing bodies of FAO. Indeed, great emphasis was being placed on natural management areas which were to be covered by subsidiary bodies of existing regional fishery commissions and served by locally-based technical support units. The Indian Ocean Fishery Commission had already established sub-regional committees for the Gulfs, the Southwest Indian Ocean and the Bay of Bengal.

17. The Committee considered the draft resolution prepared on the subject in October 1979 by the Coordinating Committee of the UNDP/FAO South China Sea Fisheries Development and Coordinating Programme, which comprises most of the States directly concerned by the proposed establishment of a South China Sea Committee. It agreed to endorse the draft resolution and to recommend it to IPFC for adoption with the following comments:

- (i) While the development and management functions of the proposed committee would be the same as those assigned to IPFC by the 1948 Agreement, the committee should take into account, when carrying out these functions, ongoing programmes and specific activities of existing working parties (e.g. working parties on inland fisheries and on aquaculture) so as to avoid duplication of efforts.
- (ii) The functions assigned to the committee should not affect those already entrusted on a wider geographical basis to the Special Committee on Management of Indo-Pacific Tuna set up by IPFC in 1970. This would not, however, prevent the proposed committee from concerning itself with development aspects, the harmonization of national policies among member countries or the preliminary consideration of management measures with respect to tuna stocks occurring in its area of competence.

- (iii) The proposed committee would report to IPFC, which would continue to have a dominant role to play in matters of relevance to the Indo-Pacific area as a whole or of interest to all its member countries.

ARRANGEMENTS FOR THE IPFC SYMPOSIUM ON THE DEVELOPMENT AND MANAGEMENT OF SMALL-SCALE FISHERIES

18. The Committee agreed on the establishment of a Steering Committee for the Symposium, to be chaired by the Convenor and whose membership will include the members of the Executive Committee, the Technical Secretary of the Symposium and coopted members as appropriate.

ARRANGEMENTS FOR THE 19TH SESSION OF IPFC

19. The Committee noted with great satisfaction the excellent arrangements made by the Government of Japan for the 19th Session of IPFC.

DATE AND PLACE OF THE 59TH SESSION OF THE IPFC EXECUTIVE COMMITTEE

20. It was agreed to hold the next session of the Committee in Rome, Italy immediately following the 1981 session of the FAO Committee on Fisheries (COFI) which is scheduled to be held on 26-30 May 1981.

ANY OTHER MATTERS

(i) Future symposium

21. The Committee was informed that FAO will hold a world technical conference on the management and development of fisheries in 1982 and that it is expected there will be substantial contribution of papers and participation from member countries of IPFC. If a symposium is to be held by IPFC in conjunction with its 20th Session in 1982, FAO would not be able to provide adequate support to the Symposium and it would be quite a strain on Member Countries to prepare papers for, and send delegations to, two big meetings in a year. In any case, most of the subject matters of the IPFC Symposium ("Fisheries Towards the Year 2000") will be covered by the world conference. The Committee, therefore, agreed to recommend strongly to IPFC that there should be no symposium on the occasion of the 20th Session of IPFC.

GENERAL

22. The Committee expressed its appreciation to Mr. Kenneth C. Lucas, Assistant Director-General (Fisheries) of FAO for attending this Session and contributing to the Committee's discussions on important policy issues.

AGENDA

1. Adoption of the agenda
2. Follow-up to the 57th Session of the IPFC Executive Committee
 - 2.1 Pending matters from IPFC 18th Session and Symposium
 - 2.2 Activities of IPFC subsidiary bodies
3. Actions arising from the 13th Session of the FAO Committee on Fisheries (COFI), FAO World Conference on Agrarian Reform and Rural Development (WCARRD), 20th Session of the FAO Conference, 15th Session of the FAO Regional Conference for Asia and the Pacific and 6th Session of the Indian Ocean Fishery Commission (IOFC)
4. Proposed establishment of a Committee for the Development and Management of Fisheries in the South China Sea
5. Arrangements for the IPFC Symposium on the Development and Management of Small-Scale Fisheries
6. Arrangements for the 19th Session of IPFC
7. Date and place of the 59th Session of the IPFC Executive Committee
8. Any other matters
 - (i) Future symposium
9. Adoption of the report

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REPORT OF THE SIXTH JOINT MEETING OF THE
IOFC COMMITTEE ON MANAGEMENT OF INDIAN OCEAN TUNA
AND IPFC SPECIAL COMMITTEE ON MANAGEMENT OF INDO-PACIFIC TUNA

Perth, Australia, 20-22 February 1980

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OPENING OF THE JOINT MEETING

1. The Sixth Joint Meeting of the IOFC Committee on Management of Indian Ocean Tuna and of the IPFC Special Committee on Management of Indo-Pacific Tuna was held at the Park Towers Hotel, Perth, Australia, on 20-22 February 1980. The meeting was attended by representatives from 12 of the 14 member countries, and from four other members of IOFC and one international organization. A list of delegates and observers is given in Appendix A to this report.

2. Mr. E.A. Purnell-Webb (Australia) was in the chair, and welcomed participants, especially those from Mauritius and the Seychelles who were attending for the first time.

ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE JOINT MEETING

3. The agenda, as given in Appendix B, was adopted. A list of the documents considered by the Committees is given in Appendix C.

KNOWLEDGE OF THE RESOURCES AND THE FISHERIES

4. The Committees heard a brief summary review of the current state of resources from the Secretariat, as set out in document IOFC/IPFC/TM/80/4, and a more detailed review from Dr. R.S. Shomura (U.S.A.) of the results of the Workshop held in Shimizu, Japan, in June 1979 (Inf. 5). Several delegates described recent events in their national tuna fisheries. In particular the Australian delegate described some re-assessments of the data of the southern bluefin fisheries which had been carried out following the Shimizu meeting. This new work (see Appendix D), using an improved method of analysing length distributions, had removed some of the inconsistencies between the data based on tag returns, and those from the estimated age composition of commercial catches.

5. The more recent studies confirm earlier conclusions that, while there is considerable opportunity to expand tuna catches in the Indian Ocean and Western Pacific, some stocks are already heavily fished. Most stocks of large tuna exploited by the longline fishery have been exploited to the stage that little, if any, further increase in catch can be expected from further increases in longline fishing effort. For some species, notably yellowfin in the Indian Ocean, considerable reductions in the amount of longline fishing (and also potentially in costs) could be made without any loss in sustained catch, and these stocks may be said to be overfished in economic terms. However biological overfishing, in the sense of sustained falls in the weight caught, does not yet seem to be a problem in the tuna fisheries of the IOFC/IPFC region.

6. Taking account of the desires of coastal States to increase their participation in the tuna fisheries, which is at present generally rather small, the Committees felt that it would be undesirable to over-react to the reported heavy exploitation of some tuna stocks, at least in terms of applying restrictive measures. At the same time it was noted that the low level of catch rates caused by heavy fishing was an important economic factor which may make it difficult for more coastal States to enter the longline tuna fisheries. Therefore it would be to the advantage of these coastal States if there were a reduction in the amount of fishing by distant water fishing nations.

7. A general constraint to the development of fishing by the coastal States is the lack of information about the resource - the nature, magnitude and distribution of the major stocks, the size and distribution of present catches, the location and timing of the better fishing grounds, the catch rates to be expected by different types of gear, etc. Much of this information would be available from the records of the existing fisheries, which are, especially in the Indian Ocean, principally carried out by long-range fleets. The establishment of a regional centre to handle catch statistics and related data is therefore urgent. This was considered in detail under a later agenda item.

8. Other types of biological research, such as surveys, or a tagging experiment similar to that successfully carried out by the South Pacific Commission, are important in providing resource information. In view of the migratory nature of most tuna, these programmes are likely to be most effective if there is close collaboration between countries in their implementation. These were also discussed under a later agenda item.

9. An important item of information about the resource is the amount of catches that can be taken. This has been commonly expressed as the Maximum Sustainable Yield (MSY) from the resource. For any stock of fish there are dangers in taking two numbers - the estimate of MSY and the estimate of current catches - as providing complete information on the state of exploitation of that stock.

10. One problem is that the sustainable yield that can be taken depends on the sizes of fish harvested, as well as on the amount of fishing. Thus the greatest amount of yellowfin that can be taken, on the average over a period, by longline fishing in the Indian Ocean is probably a little less than 40 000 tons. However, it is probable, by analogy with the Atlantic, that the total catches, including surface catches, could be considerably increased above their present level of 40 000-50 000 tons, if the effort on medium-sized fish were increased.

11. A single figure for MSY also overlooks the considerable fluctuations that can occur for natural reasons. For example, because of what appears to have been an unusually good year class, the catches of yellowfin in the Indian Ocean doubled between 1967 and 1968, reaching 88 000 tons, but the effort did not increase, and this high figure did not represent, under the circumstances of 1968, a dangerous level of 'overfishing'.

12. The greatest danger of the use of a single figure of MSY is that it fails to provide some of the most important information required by those planning development or management of their fisheries. The yield curve for many tuna fisheries appears to be very flat, so that as the maximum is approached the increase in yield achieved by a given increase in effort is small or very small, while the catch rate decreases sharply. In these circumstances a country's objective might be to fish at a level of effort significantly below that giving MSY. In any case careful consideration of the effects on catch rates (as well as on total catch) would need to be given before deciding, for example, on increasing the national fleet, or allowing access by foreign fleets.

MANAGEMENT AND DEVELOPMENT MEASURES

13. In considering this item, the joint meeting took into account documents IOFC/IPFC: TM/80/5 and TM/80/6 and IOFC/IPFC:TM/80/Inf.6 through TM/80/Inf.11.

14. The Committees noted the rapid changes which were taking place in the tuna fisheries of the Indian and Western Pacific Oceans. Extension of fisheries jurisdiction by coastal States, rising costs of fishing, development of purse-seining technology and expansions of fisheries by coastal States were likely to have important effects on the distribution of fishing and on the proportions of the total catch taken by different countries in the future.

15. Summarizing, the Secretariat noted the difficulties encountered in attempting to define a broad set of objectives for tuna management because of varying and sometimes conflicting interests of different States. For the time being, it was agreed that the Committees not spend a great deal of time debating the question of objectives but instead concentrate on identifying fields where international cooperation would assist member countries to achieve goals where their interests were complementary and to avoid or resolve conflicts where interests differed.

16. Some delegations expressed the view that international cooperation in management should not impinge on the sovereign rights of coastal States within their exclusive economic zones. Furthermore, regulation of tuna fisheries should not be applied in a manner which would prevent developing coastal States from expanding their tuna fisheries. Their view was that developing coastal States should be permitted to take an increasing share of the total tuna catch from the Indian Ocean, requiring a phased reduction of fishing by distant-water fishing nations. Member countries of the Committees affirmed their commitment to work within appropriate international organizations to ensure cooperation in the exchange of statistics, in research and in actions required to conserve the stocks. Some delegations indicated their reservation to accept such regulations as might not be in harmony with their national rights and interests or where not based on scientific evidence.

17. It was the general view of the delegates that a regulatory system for tuna of the Indian Ocean should not require compulsion but instead should be developed by consensus actions.

18. The Committees reaffirmed views expressed in earlier meetings that collation, storage, retrieval, and dissemination of statistics was a matter that required broad international cooperation. Most delegates from developing coastal States emphasized the urgent need for research and surveys not only as background for possible conservation measures but also as a basis for development. Because of the highly migratory nature of many tuna stocks, such work would best be carried out on an international basis. The highly successful skipjack tagging programme being conducted in the South Pacific by the South Pacific Commission was pointed to as the type of programme that might be of great value in the Indian Ocean and the Western Pacific. The Committees established a sessional ad hoc Committee to develop a proposal for research on the tuna stocks of the Indian and Western Pacific Oceans (Appendix E). The Committees recommended that IOFC and IPFC endorse the proposal in principle, that the United Nations Development Programme (UNDP) be invited to provide support for the addition of a tuna scientist to the UNDP/FAO Project for Tuna Management in the Indian and Pacific Oceans, to carry out the following tasks:

- (a) Review alternative research programmes in the light of the comments of the ad hoc Committee,
- (b) Draw up concrete research proposals, and
- (c) Promote funding to implement these proposals.

They also recommended that FAO seek appropriate funding for the field project when the detailed proposal has been elaborated.

19. Reference was also made to the important role which was expected of the planned technical support units to be attached to sub-regional committees, particularly with regard to development activities and to the harmonization of national policies and programmes.

IMPROVEMENT OF THE DATA BASE

20. The Committees heard a report from the FAO/UNDP tuna specialist on the work he had carried out following the request made at the previous session of the Committees. They congratulated him on the work done, which was a positive step toward the establishment of a full-scale tuna data centre for the region. In discussing the results of his visits to countries, it was noted that some modification of details should be made for the final version of the report.

21. The information on the relative advantages of different systems of handling data (mini computer, time sharing and block time) contained in the report was welcomed. It was agreed that this would be most useful in reaching a definite decision, when a permanent centre was established.

22. The Committees stressed the importance of establishing a permanent data centre, and welcomed the information that funding was expected from UNDP, at least for an interim period (see paragraph 31). They further stressed the importance of the supply of accurate and reliable data, which required the full cooperation of member countries, as well as careful checking of the data by the staff of the data centre. The delegate of Australia drew attention to the progress that had been achieved in obtaining timely data from foreign fleets operating off the Australian coasts. The Committees believed that this provided a potentially valuable model, which should be examined for possible wider application.

23. The success of a regional data centre would depend critically on the quality of national data, and therefore increased attention should be given to improving such quality, which in many cases was poor. It was noted that in many situations improved data could be achieved at the same cost by a properly designed sampling scheme, based on frame surveys, rather than by attempting a complete enumeration. FAO could help by continuing and intensifying its programme of assistance in statistics, e.g., through statisticians in the regional or sub-regional projects, or training in computer methods.

24. A valuable step in improving national statistics would be the production of a Field Manual, such as that used by the International Commission for the Conservation of Atlantic Tunas (ICCAT) for Atlantic tuna statistics, and it was recommended that the production of such a manual should receive priority in the work of the tuna project.

INSTITUTIONAL AND FINANCIAL ARRANGEMENTS FOR INTERNATIONAL COOPERATION

25. The Committees noted that under the previous items of the agenda they had identified a number of functions and activities which must be performed or carried out at the sub-regional and regional level. It was therefore appropriate to consider what institutional arrangements were available or required to ensure the necessary intergovernmental cooperation and how the relevant costs would be met.

26. As regards institutional arrangements, the Committees confirmed the conclusion they had reached at their last joint meeting and reiterated that the best solution, at least for the foreseeable future, was to strengthen the present IOFC and IPFC secretariats or establish a separate tuna management secretariat within IOFC and IPFC. They noted with satisfaction that at its thirteenth session in October 1979, the Committee on Fisheries had strongly endorsed the role of IOFC and IPFC in pressing for international cooperation for the rational utilization of tuna resources in the Indian Ocean and part of the Western Pacific.

27. The attention of the Committees was invited to the fact that the terms of reference of the IOFC Committee on Management of Indian Ocean Tuna were considerably more vague and imprecise than those of the IPFC Special Committee on Management of Indo-Pacific Tuna. The Committees agreed to recommend to the Indian Ocean Fishery Commission that the responsibilities of the IOFC Committee should be brought into line with those of the IPFC Committee so that both could, in their respective areas of competence:

- (a) review the state of the stocks of tuna particularly in relation to the level of exploitation and likely development;
- (b) consider the boundaries of the area that have to be taken into account in any management of tuna, bearing in mind particularly the movements of fish and fishing vessels;
- (c) review measures that might be considered for management and development planning of the tuna fisheries and suggest the administrative and other actions that would be required to put such measures into effect, and
- (d) consider arrangements for ensuring the continuation and coordination of the necessary research and the continuing re-assessment of the state of the stocks.

It was emphasized that no action or recommendation of the Committees should affect or prejudice the sovereign rights of coastal States in their extended zones of jurisdiction.

28. The Committees noted that the composition of the IOFC Committee on Management of Indian Ocean Tuna had been set by the Indian Ocean Fishery Commission in 1968 and had not changed since that time. In view of the increased participation of developing coastal states in tuna fisheries in the region, they agreed to recommend to the Commission that it might consider making the Committee an open-ended one, so that any member country of the Commission could become a member of the Committee if it so wished.

29. Lastly, the Committees pointed to the need for cooperation and coordination with international commissions and agencies concerned with tuna. They suggested that FAO should envisage sponsoring a meeting of representatives from those commissions and agencies. The main objectives of such a meeting would be to help ensure that compatible systems are used for the collection and exchange of information and that there are no gaps in reporting or no duplicate reporting between regions.

30. As regards financial aspects, the Committees were informed that since their last joint meeting no further replies had been received to the questionnaire by which the views of member countries had been solicited on methods of funding the expanded secretariat services required.

31. The Committees noted with appreciation that the Division for Global and Interregional Projects and the Bureau for Asia and the Pacific of UNDP had agreed to finance, for the period 1980-81, a Project for Tuna Management in the Indian and Pacific Oceans. The Project Document had just been submitted to the countries concerned and delegations were urged to assist in obtaining the endorsement of their Governments for the Project. It was also pointed out that it would be necessary to continue the Project during the next UNDP cycle in 1982-86. The Committees agreed that delegations should urge their governments to support the Project strongly in the appropriate form, particularly at the forthcoming FAO Regional Conferences for Asia and the Pacific (New Delhi, India, March 1980) and Africa (Lomé, Togo, June 1980) as well as at the forthcoming session of the Governing Council of UNDP.

32. At the same time, the Committees realized that efforts should be made to devise satisfactory solutions for longer-term funding. They agreed that one of the responsibilities to be entrusted to the staff of the Project for Tuna Management in the Indian and Pacific Oceans should be to prepare options for long-term management of tuna, together with budgets and suggested funding systems. Most delegations which took the floor on this matter indicated that they were in favour of the principle "users pay", that is to say that the total cost would be divided among the countries concerned in proportion to their interest in the tuna fisheries, as judged for example by the amount of catches, the tonnage of tuna vessels or the number of stocks exploited.

REQUIREMENTS FOR IMMEDIATE ACTION WITH RESPECT TO DATA COLLECTION, MANAGEMENT AND DEVELOPMENT

33. The Committees believed that with the initiation of the UNDP/FAO Project for Tuna Management in the Indian and Pacific Oceans an important item requiring attention in the near future was to review the progress of this project. There was also a need for countries to consult closely on research planning. The Committees therefore agreed that their next meeting should take place in approximately 12 months. It was agreed that, inter alia, the meeting should:

- (a) review the operations of the UNDP/FAO Project for Tuna Management in the Indian and Pacific Oceans, provide the Project Leader with advice on future activities and develop mechanisms to facilitate the Project's work;

- (b) review progress regarding the proposal for an international programme of research on Indian Ocean and Western Pacific tunas;
- (c) consider the development of mechanisms for more orderly and regular conduct of stock assessment work, coordination of research planning and review of research results by fisheries managers.

34. The Committees considered that within the next two years a Workshop should be held to review the data base required for stock assessments of major species of tuna, to carry out assessments on selected stocks which had not been considered at the recent Workshop meeting held in Shimizu, Japan, and to review the implications of the results of the South Pacific Commission's skipjack tagging programme with respect to skipjack fisheries of member countries.

35. Other proposals for immediate action were considered under agenda items 4-6 and are included in the relevant section of the report.

ANY OTHER MATTERS

36. No matters, other than those considered under the earlier agenda items, were raised.

ELECTION OF OFFICERS

37. The Committee elected Australia as Chairman and India as Vice Chairman.

DATE AND PLACE OF THE NEXT JOINT MEETING

38. It was agreed that the next joint meeting should meet within about 12 months with the precise date and place to be decided by the Director-General of FAO, in consultation with member countries. Arrangements should be finalized at the time of the IPFC session to be held in Kyoto in May 1980.

AGENDA

1. Opening of the joint meeting
2. Adoption of the agenda and arrangements for the joint meeting
3. Knowledge of the resources and the fisheries
4. Management and development measures
 - (a) Definition of management and development objectives
 - (b) Options for achieving management and development objectives at the national and international level
5. Improvement of the data base
 - (a) At the national level
 - (b) At the international level, including the compilation and dissemination of statistics on a resource-wide basis
6. Institutional and financial arrangements for international cooperation
7. Requirements for immediate action with respect to data collection, management and development
8. Any other matters
9. Election of officers
10. Date and place of the next joint meeting
11. Adoption of the report

IPFC WORKING PARTY OF EXPERTS ON INLAND FISHERIES -
REPORT OF WORK ACCOMPLISHED IN THE INTERSESSIONAL PERIOD MARCH 1978 TO MAY 1980

Summary

The Working Party of Experts on Inland Fisheries did not meet during the 1979/80 intersessional period. It was possible, however, to carry out a number of activities in fulfilment of the recommendations of the First Session of the Working Party. Some activities arising from the Working Party on Aquaculture and the Environment were of direct interest to the Working Party on Inland Fisheries. Changes in the Terms of Reference of the Working Party are being proposed by SCORRAD to the Nineteenth Session of IPFC.

INTRODUCTION

1. The Working Party of Experts on Inland Fisheries did not meet during the 1979/80 intersessional period. Work has, however, proceeded by correspondence and this document has been prepared to keep IPFC informed of the achievements in this important area.

PRIORITY ACTIVITIES OF IPFC IN INLAND FISHERIES

2. The various recommendations made by the Working Party on Inland Fisheries during the last intersessional period were examined by the Commission at its 18th Session. Of these recommendations, two were singled out as items which should be given high priority during the intersessional period:

3. First, the proposal to hold a workshop for planners on management of inland fisheries was postponed because of difficulties in finding funds and unforeseen delays in filling the Headquarters post where the preparatory work was to have been done. This workshop has been given high priority in the 1980/81 Programme of Work and Budget which is now scheduled for November of this year.

4. Regarding the second, a review of reservoir research and management in the Region, a contract funded from Regular Programme resources was granted to Dr. Thiraphan Bhukaswan and the Fisheries Department of Thailand, who have assembled the required material, and the resulting manuscript should be ready for publication in the near future.

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5. In a third area, fish-crop-livestock production, the FAO Regional Office has taken on the responsibility for gathering information. Case studies are underway in India, Nepal, Thailand and Indonesia to gather information on social, technological and economic implications of integrated production. Further, the Working Party on Aquaculture and Environment is continuing to address priority attention to this area (see IPFC/80/Inf.7). It may also be noted that a conference on integrated agriculture-aquaculture farming systems was held in August of last year in Manila, sponsored by the International Center for Living Aquatic Resources Management (ICLARM) and the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA). The proceedings of this conference may be obtained from ICLARM, Manila.

6. Paragraph 30 of the report of the 18th Session noted the particular importance of inland fisheries in Bangladesh and suggested that assistance of the inter-regional Aquaculture Development and Coordination Programme (ADCP) might be obtained to support aquaculture development in Bangladesh. A mission to assist in drawing up a programme for the development and management of the flood-plain fisheries of Mymersingh and Sylhet was completed in 1979.

ACTIVITIES ARISING FROM THE WORKING PARTY OF EXPERTS ON INLAND FISHERIES

7. In addition to the review of reservoir research and management the following activities arose from recommendations of the first meeting of the Working Party.

8. An ad hoc correspondence group was formed shortly after the first meeting of the Working Party to centralize information on species introduced into countries of the IPFC region. This was later extended to include interested workers from the sister organizations for Africa (CIFA), Europe (EIFAC), South America (COPESCAL). There was a very good response to the questionnaire sent out by the secretariat and a preliminary circular was produced to stimulate further replies. The results of this work are being published as an FAO Technical Paper. It is hoped that this material can then be kept up to date as a register of such introductions. The Working Party recommended that an individual researcher of one of the national institutes of the IPFC area take over responsibility for maintaining this register.

9. With respect to aquatic weed infestations, it has been noted by the secretariat that a great deal of research and field work is now underway on both biological control of aquatic weeds and on their utilization. Dr. E.C.S. Little's annotated bibliography on coastal utilization of aquatic weeds has been extensively revised and updated. Nevertheless, it may now be timely for someone from the IPFC region to prepare a technical summary of recent experience with biological control, especially on the use of the grass carp, Ctenopharyngodon idella, for this purpose.

10. As a result of increasing concern for small-scale fisheries in the region, any distinctions that might have been made between methodologies for collecting statistics appropriate to inland in contrast to marine fisheries are disappearing rapidly. Information is now being collected on the present coverage and methodology of national statistical systems.

11. The compilation of data on mangroves and brackishwater fisheries within the Regular Programme is going ahead as planned. To be included in these studies is some preliminary work on assessing national potentials for mariculture development as well as for capture fisheries. While these studies are global in coverage, much of the information available comes from the Southeast Asia region. As a result of discussions in the 2nd Session of SCORRAD, work has been started on a compendium of information on the dependence of shrimp and other inshore fisheries on mangroves.

12. Some progress has been made in assembling information on the activities of other bodies concerned with inland fisheries development in the region. Replies to the inquiries of the secretariat have been received from the Seameo Regional Centre for Tropical Ecology (BIOTROP) and the Mekong Committee. Information is also on hand on the Southeast Asian Fisheries Development Center (SEAFDEC) Aquaculture Department, ICLARM and the Association of South East Asian Nations (ASEAN). Twenty-three organizations were queried. No progress has been made with the Coordinated Research Programme on Hilsa ilisha, but during the SCORRAD meeting the delegate from Bangladesh reaffirmed the interest of this species to his country.

ACTIVITIES ARISING FROM THE WORKING PARTY ON AQUACULTURE AND ENVIRONMENT OF DIRECT INTEREST TO THE WORKING PARTY ON INLAND FISHERIES

13. In addition to the priority activities mentioned earlier on fish-crop-livestock production, rice-cum-fish culture is receiving considerable attention in the region. Under Regular Programme funding, a contract was given to the University of Agriculture of Malaysia to compile information on the institutions in the Asian region which are carrying out research related to rice/fish culture and on their programmes. The report "A review of the status of research and development activities in rice-cum-fish culture in Asia" appeared in December 1979 and copies are available. ICLARM is also carrying on an active programme in this field.

14. Two projects included in the priorities of the Third Session (1976) of the Working Party have been initiated jointly with UNEP: "Assessment of oil pollution and its impact on living aquatic resources in Southeast Asia" and "Impact of pollution on the mangrove ecosystem and its productivity in Southeast Asia". Both projects are operated through the South China Sea Fisheries Development and Coordination Programme, Manila. Upon the request of UNEP, only the following countries are involved initially: Indonesia, Malaysia, Philippines, Singapore and Thailand.

15. No regional projects in cooperation with UNEP are envisaged which concern inland water pollution in a strict sense, due to the absence of a related priority programme with UNEP. Reference is, however, made to the Global Environment Monitoring System (GEMS)/WATER Programme, co-sponsored by UNEP/WHO/Unesco/WMO, which collaborates with Member States in the establishment of new water monitoring systems and strengthening of existing systems. Coordination of GEMS/WATER in Asia is done through the WHO Regional Office in Manila.

16. The seventh FAO/SIDA Workshop on Aquatic Pollution was held in Manila from 7 May to 9 June 1979. The workshop trained 24 participants who were selected from environmental protection agencies, universities, inland and marine fisheries institutions of the Asian region to create a broad basis for monitoring pollution in the aquatic environment.

PROPOSED CHANGES IN THE TERMS OF REFERENCE OF THE WORKING PARTY

17. After consultation with members of the Working Party on Inland Fisheries and the Working Party on Aquaculture and the Environment, revised terms of reference were drafted and proposed to the 2nd Session of SCORRAD, Hong Kong, 3-8 December 1979. The revised terms of reference for the Working Party on Inland Fisheries as amended at that session and recommended to the Commission by SCORRAD, are as follows:

- (a) To report on the status of inland and enclosed coastal capture fishery resources in the IPFC region and to identify needs for international action leading to their better development and management;
- (b) To formulate and encourage lines of approach to common research programmes on inland and coastal fishery biology, ecology and environment, to lead to better development, management and conservation of the resources;

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- (c) To identify problems of statistics, technology, aquaculture and related aspects of inland and coastal fishery management, liaising with other appropriate working parties through SCORRAD, as appropriate, in deciding upon the best means of accomplishing work in these fields.

The main difference between these terms of reference and the previous ones is the inclusion of enclosed coastal fisheries within the purview of the Working Party on Inland Fisheries.

REPORT OF THE FOURTH SESSION OF THE IPFC WORKING PARTY ON
FISH TECHNOLOGY AND MARKETING

Jakarta, 17-21 September 1979

SUMMARY

The IPFC Working Party on Fish Technology and Marketing met to discuss progress with the work programme established to encourage cooperative research in fish technology between institutes in the region. Substantial progress was reported and the future programme refined. At the same time a workshop on the production and feeding of fish silage was held. This subject has been one of the major cooperative programmes and the workshop provided the opportunity for discussion and evaluation of the commercial prospects. Future research requirements were also established.

IPFC WORKING PARTY ON FISH TECHNOLOGY AND MARKETING

Fourth SessionJakarta, Indonesia, 17-21 September 1979

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OPENING OF THE MEETING

1. The meeting was held in the Garden Hotel, Kemang Raya, Jakarta, from 17-21 September 1979. Mr. Rustami Djajadiredja, Director of the Inland Fisheries Research Institute, Bogor, welcomed the participants on behalf of Mr. S.W. Sadikin, Director-General, Agency for Agricultural Research and Development. On behalf of the Director-General of FAO, the Technical Secretary of the Working Party, Mr. D. James, thanked the Indonesian Government for hosting the meeting.

2. As agreed at the Third Working Party meeting, the proceedings were divided into two parts. The first one and a half days were reserved for a review of progress with the long term programme of the Working Party. The remainder of the period was devoted to a Workshop on the Production and Feeding of Fish Silage. Lists of participants to both meetings are given in Appendix 1 and 2.

3. This report, prepared for the IPFC Standing Committee on Resources Research and Development (SCORRAD), concentrates on the overall programme of the Working Party but gives conclusions of the Workshop on Silage and presents recommendations, insofar as research on silage production and feeding is one of the long term programmes of the cooperative programme of fish technology research, which is being promoted by the Working Party. The proceedings of the Workshop will be produced separately. A list of papers presented at the Working Party meeting and the Workshop is attached as Appendix 3.

PROGRESS REPORT BY TECHNICAL SECRETARY

4. The Technical Secretary of the Working Party, Mr. D. James, reviewed progress with the work programme since the Third Meeting in Kuala Trengganu in November 1977. He noted that, including the present meeting, the series of Working Party meetings had actively involved more than forty technologists from the region and that the activities that had resulted from the meeting could now be seen to be having a significant impact. Compared with cooperative programmes elsewhere in the world, it was evident that more substantial progress was being achieved in Asia.

In addition to the people who have attended meetings, a large number of other technologists, including some from outside the region, have been involved. Geographically most of the region had been covered by the series of meetings in Bangkok, Colombo, Kuala Trengganu and now in Jakarta. In addition, the Symposium on Fish Utilization Technology and Marketing, which had been held in Manila together with the 18th Session of IPFC in March 1978, was a milestone in the growth of fish technology in the region. It was unfortunate that the proceedings had been delayed but their appearance could be expected in the near future. The organization of the symposium and preparation of the proceedings had involved a great deal of effort, but the results, when available, would be worthwhile. The holding of the symposium had achieved one of the original terms of reference set by the 16th Session of IPFC for the Working Party. The remaining objective, i.e., to stimulate the growth of technology through a programme of cooperation in fish technology research between institutes in the region, was considered to be still valid. In view of the progress that had been achieved so far, and the emphasis that FAO, and other UN agencies, are placing on Technical Cooperation between Developing Countries (TCDC), it was clear that continuation of the work programme was justified. It was hoped that the meeting would review the work programme and suggest new areas of work or modifications required as a result of some of the objectives being achieved.

5. A major impetus to the Working Party's activities had been the provision of funds from Australia for a programme of exchange visits between institutes coupled with strengthening of their facilities. This had been proposed by the previous meeting and the Australian Government had agreed to give funds under a project within the FAO Government Cooperative Programme (GCP/RAS/71/AUL) in April 1978. While provision was made for funding for three years at US\$ 72 000 per year, the funds were provided for year 1 with extension dependent on satisfactory progress.

6. The present position is that the Technical Secretary wrote to all participants in April 1978 advising them that the money was available and requesting proposals. Unfortunately some replies were delayed beyond September 1978 which delayed implementation as it was considered preferable to initiate a comprehensive programme. A considerable number of activities, which are reported below, have been carried out and some participants to the Silage Workshop attend as part of exchange visits. This will effectively use the first year's allocation and the technical Secretary will prepare a report on how the money was spent and the results obtained. It was hoped that the Australian Government would then replenish the fund, but it was suggested that institutes which had received substantial benefit should communicate their appreciation directly to the Australian Government.

7. A cursory view of the general programme of the Working Party indicated substantial progress. By way of background, it was stated that the four main areas of concentration had been elaborated by the second working Party meeting and further endorsed by the third meeting. These were:

- (i) Investigation of storage life at various temperatures, measurements of quality and possibility of holding at intermediate temperatures.
- (ii) Improved utilization, particularly by development of minced products. By-catch utilization is included.
- (iii) Improvement of salted and dried fish production, reduction of post-harvest losses and development of improved solar driers.
- (iv) Production and feeding to animals of fish silage, produced from waste and surplus fish.

As much of the progress made was expected to be reported during the technical sessions, either through contributed papers or verbally, the Technical Secretary's remarks below were confined to an overview, with an identification of funding.

(i) Storage Life Studies: Studies have continued at the FAO/SIDA Institute of Fish Technology in Colombo and the work has been written up for publication. The techniques involved in storage life studies were communicated to a wider circle of workers during the FAO/DANIDA Workshop on Fish Technology and Inspection which was held in Colombo in October-November 1978 and attended by 25 people from the region. The Tropical Products Institute, London (TPI), reported iced storage trials with fish from Hong Kong. During the period since 1977, more storage studies on iced fish in the tropics have been done and a major review prepared by C.A.M.L. Dos Santos from Brazil as an M.Sc. project funded by the British Council in the UK. This is presently being written-up for publication.

(ii) Improved Utilization: It had been intended to field a consultant in the region to assess by-catches, as recommended by the Third Meeting. However, due to the last-minute unavailability of the consultant selected, this was replaced in the FAO Regular Programme

schedule by an inter-regional exchange involving Mr. Ron Gordon from Guyana, who has been engaged on by-catch studies. His report will be circulated. FAO intends to hold an Expert Consultation on the by-catch problem in shrimp fisheries, in the Caribbean in 1980 at which it is hoped to arrange for participation from the IPFC region.

During June and July 1979 Miss Sei Poh Chen from Malaysia visited institutes in Scandinavia, India, Sri Lanka, Singapore, Thailand and the Philippines to investigate whether traditional products could be produced from unconventional resources and to stimulate research into new products from minced fish. In addition she demonstrated small-scale processing techniques and attempted to determine whether products that are popular in one area would be commercially viable elsewhere. Emphasis was placed on simple products that would be stable at room temperature for periods of months and that only required simple equipment. Marine and freshwater fish were used and the ideas resulting, are included in the report of the consultancy, listed in Appendix 3. Briefly, the two most promising products were fish biscuits with up to 33 percent fish on a wet weight basis and the traditional Chinese fish floss. Because both products contain sugar, there is a possibility of lysine availability being reduced through sugar-lysine condensation (Maillard browning) which requires further investigation.

The work will be followed up in November when Miss Chen returns to India and Sri Lanka to continue research programmes formulated during her first visit. Mr. Shiro Konayaga from the Tokai Laboratory, Japan, will also be involved in this exchange programme. After the work in India, it is hoped that Miss Godavari Bai from CFTRI, Mysore, India will spend a month in Japan with Mr. Konayaga to continue the project. This exchange programme is being financed through the Australian trust funds. In addition to the underutilized species in Sri Lanka and India, they will also have the opportunity of examining mesopelagic species from the Arabian Sea, which were caught by the FAO-sponsored survey of the Norwegian R/V Dr Fridtjof Nansen in September 1979. About half a ton of frozen fish from this expedition has been unloaded in Colombo and will be offered to a number of institutes for research investigations. The mesopelagic species are considered to be the most accessible of the latent resources and are potentially available in tens of millions of tons. It is clear that technological work is urgently required.

(iii) Salted and Dried Fish: The collection of information prior to preparation of a regional standard for dried fish has not yet been done but work on storage stability has been carried out in Sri Lanka. The relationship between salt content, water content and water activity has been the subject of a joint investigation between workers in FTI, Sri Lanka, CSIRO and the University of Tasmania, Australia and TPI, London. Sorption isotherms have been determined and related to keeping quality. The work will be published in the near future and should enable the keeping qualities to be predicted from a knowledge of salt and moisture contents.

Dr Peter Doe of the University of Tasmania has continued to maintain an interest in the drying programme and has visited several institutes either for FAO or the Asian Science Cooperation Association (ASCA). He has prepared a progress report for the Working Party meeting (which is listed in Appendix 3). Among the grants made from the Australian trust funds has been one to Dr Salleh Ismail of the Agricultural University of Malaysia for construction of a prototype solar drier, which should be followed up by field testing in east coast Malaysia in the near future. A grant has been given through the FAO South China Sea Programme to fisheries colleges in the Philippines for materials to make experimental solar driers and solar salt evaporators. There is a growing interest in the drying programme.

(iv) Fish Silage: Progress with fish silage is not reported in full because it was the special topic of a workshop. However, this programme has made the greatest headway. The FAO Regular Programme funded a six month stay of Prof. Jan Raa of the University of Tromsø in Indonesia as part of his sabbatical leave. He worked in the Institute of Fishery Technology Research in Jakarta and assisted with the establishment of a joint programme of investigation between that Institute, the Institute of Freshwater Fisheries Research and the Australian funded P3T Project in Bogor. Results of this work were extensively discussed during the Workshop. He also visited a number of other countries in the region.

In mid-1978, Mr. J. Disney of TPI undertook a two month consultancy, arranged through the FAO Regional Office in Bangkok, and funded by UNEP. The results were published as an IPFC Occasional Paper, entitled "Prospects for Fish Silage in Malaysia, Sri Lanka, Bangladesh and the Philippines".

Work on silage has been going on in a number of other countries including Malaysia, Thailand and Sri Lanka. A programme of exchange visits between these countries and Indonesia has been arranged through the Australian trust funds. Ms Pon Pen Rattagool from Thailand worked in Indonesia and Sri Lanka and visited Malaysia. Dr Putu Kompiang from Indonesia presented the results of his work on feeding trials at the Torry Research Station International Conference, Aberdeen, July 1979 and subsequently visited TPI, London, FTI, Colombo, and the Technology Institute in Bangkok to advise on feeding trials. Ms Mallika Jayawardene will attend the Workshop and subsequently visit Malaysia and Thailand.

8. Contacts have been maintained with the ASEAN/Australia Protein Project's Fish Working Group although this Group has decided, for the time being, not to open their meetings to a wider forum. The ASEAN Group will continue to be kept fully informed on the progress of the Working Party programme.

9. The SEAFDEC Post Harvest Centre in Singapore is now operational and the meeting was very pleased to welcome Mr. Hooi Kok Kuang. It is hoped that the Centre will participate actively in the Working Party programme and that a close collaboration can be established. The expertise on product development, which is available in SEAFDEC, can be of great value to the utilization programme.

10. Through the FAO Regular Programme, Dr Salleh Ismail of the Agricultural University of Malaysia, was able to attend a symposium on solar drying in Izmir, Turkey in August 1979. He also visited institutes in Thailand, Bangladesh, India and Singapore and collected information on the other institutes in the region by correspondence.

11. In November 1980 an FAO/DANIDA Workshop on Handling Small Fish in the Arabian Sea will be held in Mangalore, India. Preliminary work will be carried out on comparison of chilled sea water and ice storage and the Workshop will demonstrate the results of improved handling to about 25 participants.

12. It is evident that the rate of progress with the cooperative programme has increased since the last meeting and more institutes and individuals are involved. This has been largely due to the availability of the Australian trust funds. It is hoped that it will be possible to hold a Working Party meeting and another Workshop during the next FAO biennium. During the four years the Working Party has been established, its major achievement has been to bring the technologists of the region together informally and enable them to get to know one another and the programmes of other institutes.

DISCUSSION ON PROGRAMMES

13. (i) Storage Studies

Dr R.G. Poulter introduced the work that had been done in Sri Lanka and Mr. J. Disney spoke of the work being carried out by TPI. In addition to the Hong Kong fish which had been studied, TPI have produced a review and updated bibliography of more than 100 references related to storage studies of iced tropical fish. He stressed the need for more work using standard methods and agreed to circulate an initial attempt at a standard methodology to participants. It was also considered necessary to search for other references which may be available. As there may well be Japanese work on tropical species that has not been included, it would be valuable to check. Mr. Hooi indicated that if requested by the meeting he would take this up with the Japanese through SEAFDEC.

14. A comparison of the same (or closely allied) species over a wide range of latitudes or environmental temperatures was suggested. This could be done for a number of species, like snappers and mullets, over a wide range from Australia, through Malaysia to Sri Lanka. Dr Summer, Mr. W.J. bin Wan Daud and Dr Poulter agreed to collaborate in this programme.

15. Dr Olley mentioned that there is work currently in progress in Australia on individual bacteria found in shrimp from the Gulf of Carpentaria which may increase understanding of spoilage rates.

16. In view of the objectives which had been achieved so far, it was agreed that this topic should be reformulated to stress handling and distribution aspects.

17. Although the Working Party included marketing in its title, the only institute which employed marketing economists was in Sri Lanka. This meant that the economic and intelligence side of marketing was not fully covered, although it was of great importance to the industry. It was not possible to plan activities in marketing but market facilities, handling, transport and distribution were definitely included in the work programme of most institutes and should be strengthened regionally.

18. (ii) Improved Utilization

The work of Miss Sei Poh Chen was considered to be most interesting and it was agreed that this should be continued and incorporated into the cooperative programme. The possible problem with lysine is considered under the dried fish topic. Bearing in mind the interest of the IDRC/Thailand project and the SEAFDEC programme in fish balls, sausages, etc., it was considered preferable to concentrate on fish biscuits and fish floss. The IDRC project in Thailand is expected to become operational during the next year.

19. The use of by-catch species for the production of fish sauce was described by Ms Susan Canonizado. The lack of traditional raw material (Stolephorus) has been overcome by using Decapterus found in by-catch. This could have implications for the other countries. Mr. W.J. bin Wan Daud reported that he expected to be involved in products from by-catch in the near future.

20. The problem of species composition and proximate analysis of the by-catch was raised on numerous occasions throughout the meeting. As by-catch utilization is a major problem in the region, it is essential that some work be initiated, in conjunction with fishery

biologists. By-catch surveys on a regular basis are in progress for Sri Lanka and Malaysia. SEAFDEC also classifies by-catch, as landed, in Singapore. It would be an advantage to have the information on a seasonal basis for all areas. A proposal for surveys was prepared for consideration by SCORRAD in December. Utilization of by-catch for direct human consumption or silage depends on a good knowledge of species, absence of toxins, technological characteristics and storage life.

21. Technological work on the mesopelagic species was discussed and it was agreed that they were more likely to be suitable for animal feed. The Technical Secretary undertook to advise institutes in all parts of the world that samples were available. A proposal for feeding trials is included in the discussion on silage.

22.(iii) Salted and Dried Fish

The work on water activity which was being carried out jointly between TPI, Sri Lanka and Australia had important implications for the storage of dried fish and the preparation of standards. It was agreed that sorption isotherms should be determined for more products, particularly FPC, Type B.

23. With the exception of the work in water activity and storage, most of the effort in this topic had been concentrated on solar driers. Work was reported from Malaysia, Sri Lanka, Thailand, India (CIFT), Bangladesh, Philippines and Australia. In view of the present interest, it is evident that more results will be forthcoming and it was suggested that the next workshop topic could be production and storage of salted and dried fish. In Malaysia field testing will commence in three states in October.

24. The available lysine content of fish biscuits and traditional products (floss and dried fish) was discussed under this topic. If the biscuits are to be used for nutritional supplementation of children's diets, as has been proposed in Sri Lanka, it is essential that the protein should be balanced and of high quality. Investigations are therefore required urgently. Dr Poulter indicated that the Medical Research Council in Sri Lanka may be able to do limited amino acid analysis. The Agricultural University of Malaysia has recently acquired an amino acid analyser and Dr Salleh Ismail agreed to prepare a proposal, together with the Technical Secretary, to carry out analysis on products from the region as a cooperative activity.

25. In view of progress to date, it was agreed to revise the topic to include storage as well as production of salted and dried fish.

26. (iv) Silage

A complete report of the silage workshop will be produced as a separate document, although the recommendations will be included in this report.

27. Continuation of the programme with increased emphasis on commercial trials and production was agreed as being necessary.

28. Dr Putu Kompiang agreed to carry out feeding trials on a dried silage product and fish meal made from the mesopelagic samples in Colombo. He will require 15 kg of fish meal and the equivalent fish weight of dried silage feed.

29. Annual Reports: It was noted that the previous recommendation that institutes circulate annual reports had not been achieved and participants were urged to try to do this in order to increase the flow of information.

30. Library facilities in the participating institutes are of variable quality but, in general, substantial strengthening is required. It was noted that there are many donors prepared to provide literature and sources should be investigated. It was agreed that FAO would try to provide the services of a consultant librarian to visit institutes to assess the needs and offer advice.

31. Previous discussion on a regional newsletter had indicated that the time was not yet ripe. However, it was now considered that the active programme could be greatly stimulated by regular contact. The Technical Secretary regretted that he was unable to take on this additional responsibility but Dr Summer offered his services. It was agreed that production of a newsletter should be more closely investigated bearing in mind that SEAFDEC, ASEAN and ICLARM all produce newsletters, which might possibly be used to publicize the Working Party's programme. An IPFC newsletter should concentrate on people involved in cooperative projects and their programmes. The Technical Secretary undertook to determine what clearances were necessary from IPFC and FAO and Dr Summer will investigate costs of production.

32. It was noted that the United Nations University, based in Tokyo, had an active programme in the region to enable fellows to work in different universities and institutes on an exchange basis. Dr Salleh Ismail undertook to find out what their criteria were and to advise the Technical Secretary.

CONCLUSIONS AND RECOMMENDATIONS

33. It was agreed that the work programme set by the third meeting was still relevant and that only slight modification was required in view of the achievement of some of the objectives. The revised long term work programme is set out below:

- (i) Investigation of the storage life of chilled fish; introduction and demonstration of alternative chilling methods; better practices of handling onboard and ashore together with improvements in distribution.
- (ii) Improved utilization, particularly by investigation of by-catch quantity and composition, leading to development of products for human consumption.
- (iii) Improvement of salted and dried fish production and storage.
- (iv) Experimental and commercial testing of animal feeds incorporating fish silage and investigation of the relative economics of production when compared with fish meal.

34. A large number of other recommendations were formulated by the meeting during discussion as well as during the silage workshop and the final session. They are mostly referred to in the report, but are singled out here for action by the various individuals or organizations. The recommendations from the silage workshop are also presented:

35. Storage Studies

- (i) It was recommended that an attempt be made to introduce a standard methodology. Mr. J. Disney will circulate a first draft.

(ii) A search should be initiated in Japanese literature for references relating to the storage life of tropical species. The Technical Secretary will write to Mr Hooi, SEAFDEC, to request him to raise the matter through his Japanese colleagues.

(iii) The spoilage rates and characteristics of the same (or similar) species living at different temperatures should be investigated. Dr J.L. Summer, Mr W.J. bin Wan Daud and Dr R.G. Poulter will collaborate.

36. Salted and Dried Fish

(i) The available lysine content of fish biscuits and traditional products, such as floss, should be monitored to determine what losses take place through Maillard reactions and, if possible, to determine processing conditions for minimum loss. Dr M. Salleh Ismail will prepare a proposal with the Technical Secretary for analytical work to be carried out in Malaysia.

(ii) The sorption and desorption isotherms of FPC Type B should be determined. The Technical Secretary will send a packet of FPC to Mr. J. Disney, TPI, who will arrange to carry out the work.

37. Utilization and Products

(i) Work and production of fish biscuits should be stimulated, if lysine loss is not a serious problem. In view of the strong SEAFDEC programme in fish balls and the possible assistance that IDRC will give to Thailand in this subject, the Working Party agreed to keep closely in touch with SEAFDEC and the Thai laboratory on jelled products. The work in IFT, Sri Lanka, on such products will also be intensified.

(ii) The problem of by-catch utilization needs further study and a recommendation and proposal appear below. With specific reference to products for human consumption, it is necessary to incorporate research on technological characteristics and storage life into by-catch surveys. Mr W.J. bin Wan Daud will be carrying out a programme in Malaysia and will coordinate other efforts.

(iii) The utilization of mesopelagic species both for human consumption and animal feed requires investigation. The Technical Secretary will send samples from the material stored in Colombo to TPI and write to other potentially interested workers. Dr Poulter will prepare fish meal and a dried silage feed in Sri Lanka for shipment to Indonesia for Dr Putu Kompiang's feeding trials.

38. Fish Silage Workshop

The Workshop concluded that the combined activities of the institutes involved in silage research under the cooperative programme have produced a wealth of information, which would be published in the proceedings.

Inevitably, the increased research effort has raised many more questions that must be answered before commercial production can be encouraged. Recommendations for future activities are listed below.

Although the papers presented at the Workshop are a major contribution in the field of fish silage, a review of the fundamental aspects of production and utilization is required. Prof. J. Raa and Mr. A. Gildberg undertook to prepare the review, using their present bibliography as a basis.

More information is required on the availability of waste fish, particularly by-catch and discards from the shrimp fishery. As this will involve assessments by national institutes and a greater FAO input, the Working Party requests SCORRAD to consider the following proposals, which are valid for products for human consumption as well as silage:

- (i) Review the extent of wastage of fish, particularly shrimp by-catch from the available literature.
- (ii) Conduct on a national and regional basis studies on the species composition of trawl by-catch using recognized taxonomic nomenclature. The proximate composition of the whole by-catch and the predominant species should also be determined. To be of value such a study should be carried out by monthly sampling for at least one year. National institutes as well as regional bodies and projects should be closely involved with this work.
- (iii) Special attention should be paid to the quantity of potentially toxic fish in the by-catch. The need to remove these fish must be investigated, together with an examination of the effect of the silage process on the toxic principles. The Technical Secretary will initiate enquiries in Japan.
- (iv) The ecological and economic effects of catching juvenile fish during shrimp fishing should be determined as should the effect of discarding dead fish. Development of selective fishing gear should also be encouraged.

Further work should be conducted to investigate the reported decreased growth rate of poultry on dried silage feed. Factors which should be studied include:

- (i) Storage of liquid silage and the dried silage products.
- (ii) The presence of toxic metabolites e.g. histamine, putrescine and cadaverine
- (iii) The effect of protein degradation
- (iv) Lipid oxidation, lipolysis and the use of antioxidants
- (v) Thiaminase activity and vitamin supplementation
- (vi) A comparison of fresh and spoiled fish in relation to the above factors
- (vii) Means of monitoring the quality of fish silage during production and storage
- (viii) The stability of bacterial exotoxins under acid conditions
- (ix) It is recommended that further feeding trials are carried out with poultry, ducks, pigs and fish. Acceptability tests of the products must be conducted by taste panel to examine aspects such as "taint".

- (x) Related to the production of acid silage, more work is required on the combination of mineral and organic acids to minimize costs. Locally available preservatives should also be investigated. Further work on the utilization of shrimp waste should also be carried out.
- (xi) The preparation of silage by lactic acid fermentation shows considerable promise and this methodology may solve some of the nutritional problems associated with acid silage. This method provides the possibility of utilizing waste fish for direct human consumption. More work is needed, particularly on methods of practical application. The possible beneficial effect of the process upon fish lipids should be given special attention.
- (xii) The commercial application of fish silage, including problems of marketing and transportation, should be pursued. There is a need for further pilot scale projects in addition to the one in Sri Lanka. Priority should be given to the production of fish silage at sea, particularly in Thailand. Pilot projects on the production of acid and microbial silage should be initiated in several IPFC countries.
- (xiii) The production and utilization of fish silage should be integrated with local requirements for feeding fish and animals. Conditions vary from country to country but there is increasing demand for animal feed.
 - (a) On the larger scale the utilization of fish silage should fit into the overall animal feed industry. Case studies should be conducted in several countries.
 - (b) The production of silage on a small scale at the village level should be further investigated. Where appropriate, feasibility studies or extension programmes should be initiated.
- (xiv) The technology of fish silage is relatively new in the tropics. Acceptance of a new technology will be difficult but in view of the energy saving involved and the reduced environmental problems, when compared to fish meal production, for instance, silage could represent a major advance in fish technology. The meeting also noted that silage technology can also be applied to waste protein from poultry production and animal slaughter.

GENERAL RECOMMENDATIONS

39. It is recommended that all involved with the Working Party programme intensify efforts to circulate information such as annual reports.

The production of a newsletter about people and programmes in the region should be investigated. Dr J.L. Summer and the Technical Secretary will collaborate.

Library facilities throughout the region should be strengthened. The Technical Secretary will investigate the prospects of obtaining the services of a consultant librarian to visit and advise institutes.

Information on the United Nations University programme and their criteria for assistance to regional efforts will be obtained by Dr Saïleh Ismail.

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Jakarta, 17-21 September 1979

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Appendix 3

LIST OF PAPERS PRESENTED AT
 IPFC WORKING PARTY MEETING ON FISH TECHNOLOGY AND MARKETING
 AND WORKSHOP ON FISH SILAGE
 Jakarta, 17-21 September 1979

1. Report of Third Session of the IPFC Working Party on Fish Technology and Marketing.
Kuala Trengganu, Malaysia, 28-30 November 1977
2. Keeping quality of Sri Lanka fish species in ice - A summary.
Institute of Fishery Technology, Colombo, Sri Lanka
3. Spoilage of fish from Hong Kong at different storage temperatures.
Carrol A. Curran, L. Nicolaides, G. Poulter and Joyce Pons
4. Progress with the Cooperative Programme of Fish Technology Research.
David James
5. Work on Dry Fish.
S. Etoh and I.S.R. Goonewardene
6. A report on fishery research technology conducted in the Indo-Pacific
Fisheries Commission region to be reviewed at the 4th IPFC Working Party.
Meeting to be held in Djakarta.
M. Salleh Ismail
7. Product Development from under-utilized fish using simple methods and
equipment.
Sei Poh Chen
8. Progress on Fish Drying since the Third Session of the Working Party.
P.E. Doe
9. Fish Technology: Research and Development in the IPFC Region
- 9a. Minced fish products/utilization of waste fish
S. Etoh
10. Fish Silage in Thailand: Feeding Trial on Broiler Chicken I
Pong Pen Rattagool
11. Fish Silage in Thailand: Feeding Trial on Broiler Chicken II
Pong Pen Rattagool
12. Studies on the Nutritive Values of Spoiled Fish Silage on Broiler Chicken Feeding
Pong Pen Rattagool, et.al.
13. Prospects for the production and utilization on fish silage in Thailand
Bung-orn Saisithi and Pong Pen Rattagool

14. Studies on the preparation of fish silage I: Effect of quality of raw material and type of acid
M. Jayawardene, A. Villadsen and Q. Guneratne
15. Studies in Fish Silage in Sri Lanka - A summary
G. Poulter and M. Jayawardene
16. The status of Research on Fish Silage in Malaysia
Yeoh Quee Lan
17. Prospect for Fish Silage Production in Malaysia
Wan Johari bin Wan Daud
18. Microbial Fish Silage: Chemical Composition, Fermentation Characteristics and Nutritional Value
I.P. Kompang, Yushadi and D. Creswell
19. Nutritional Value of Fish Silage
I.P. Kompang, A. Darwanto and R. Arfudin
20. Fish Silage in the Ration for Fresh Water Fish
Hidayat Dhajasewaka and Rustami Djajadiredja
21. The status of research on fish silage in Indonesia
S. Ilyas and I.P. Kompang
22. Fish Silage for Pig Production - Summary
L. Batubara and M. Rangkuti
23. Possible problems encountered on the application of fish silage in Indonesia
R. Moelyanto
24. Fish Silage: Economic aspects of production and utilization
D. Edwards and J. Disney
25. Status of Fish Silage Research (Production) in the Philippines
Susan Canonizado

REPORT OF THE FIFTH SESSION OF THE
IPFC WORKING PARTY ON AQUACULTURE AND ENVIRONMENT

Jakarta, Indonesia, 22-26 January 1980

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OPENING OF THE SESSION

1. The Working Party Meeting was held in Jakarta, Indonesia from 22-26 January 1980. It was highlighted by a keynote speech of the Director-General of the Agency for Agricultural Research and Development, Dr. Sadikin Sumintawikarta. The Director-General of the Directorate of Fisheries, Admiral Iman Sardjono opened the meeting.

ORGANIZATION OF THE MEETING

2. The Technical Secretary, Mrs. Medina N. Delmendo, temporarily convened the meeting. Mr. Ong Kee Bian, Senior Fisheries Officer, Kuching, Sarawak, Malaysia was elected Chairman and Dr. Rafael D. Guerrero III, Dean, Institute of Fisheries, Central Luzon State University, Philippines was elected Rapporteur.

DISCUSSION

3. The Technical Secretary gave a report of the work carried out by the IPFC/APHCA action programme on integrated fish-crop-livestock farming systems.

Four case studies were conducted in four countries, namely, Indonesia, Thailand, Nepal and India. The case study undertaken in Indonesia was presented at the ICLARM-SEARCA Conference on Integrated Aquaculture-Agriculture farming systems held in Manila, 6-9 August 1979. This particular case study is being expanded to cover other areas and also include socio-economic aspects. The case study conducted in Nepal was presented in this Working Party Meeting. The report of case studies in India and Thailand are still being finalized.

A regional survey of rain-fed agro-ecological zones with the support of UNEP is being carried out. The results of this survey are being compiled by a consultant at the FAO Regional Office in Bangkok. Inputs from the aquaculture sector were provided in the study. The information gathered in this survey will serve as the data base for development planning of integrated aquaculture-agriculture in the Indo-Pacific region.

The Secretariats of the IPFC and APHCA at Bangkok met and discussed the organization of the Regional Workshop on integrated fish-crop-livestock farming systems. This Workshop was supposed to have been organized in November 1979 but had to be postponed. The date of the Workshop is now set for 10-13 April 1980 at Chiang Mai, Thailand. The Department of Livestocks of the Ministry of Agriculture and Cooperatives of the Government of Thailand will host the Workshop. The costs for the local participants will be met by the Thai Government. IPFC/APHCA member countries sending participants to the Workshop will have to cover their expenses and travel to Thailand; sources of funds for this purpose will have to be found for selected participants in the region.

4. A review paper on integrated aquaculture-agriculture farming systems was presented by the Technical Secretary. The paper highlighted the various forms of integration practiced in Southeast Asia. These include pig-fish; duck-fish; rice-fish; poultry-fish; vegetable-fish, fruit trees and fish combinations. The economic returns on these practices are high.

However, the Working Party found that integrated farming systems are not widely practiced in the countries where they exist. Information on the extent of practice in the various countries, the number of farmers involved and the total area under integrated production is lacking.

The paper enumerated some of the constraints that hinder the development of integrated aquaculture-agriculture. These include lack of socio-economic data on small-scale fish farming; inadequate extension; lack of financial support; and lack of research on integrated aquaculture-agriculture production systems. Development of strategies for village socio-economic studies, extension, organization of village level seminars and workshops, research and training were recommended.

5. The review paper was followed by in-depth discussions on specific forms of integrated aquaculture-agriculture based on papers presented by the participants and observers.

6. In the Republic of Korea integrated livestock-fish-crop farming systems are apparently not in practice. However, a programme to improve the welfare of fishermen/farmers through self-help has been undertaken. Aquaculture in tidal beds is being expanded and receiving substantial support from the government. For the expansion of aquaculture development the government has planned to invest U.S.\$ 0.6 to 1.0 million for seed production through the establishment of hatcheries. Twenty-seven (27) new hatcheries for *conchocelis* of laver with a total investment of U.S.\$ 3.24 million will be completed by 1981. Extension services will be expanded in the villages to strengthen the self-help fisheries and aquaculture development programme.

7. Integrated fish-crop-livestock farming systems in Thailand are mainly found in the Central Plain where irrigation systems are adequate.

Aquaculture as a component of agriculture in this area is practiced either as a primary or secondary source of income. In most integrated farming practices, aquaculture is the main source of income while livestock and crops are secondary. In Samut Prakarn Province, most paddies have been converted to fish ponds using *sepat siam* (*Trichogaster pectoralis*) due to the low rice yields and higher returns obtained from fish.

A case study on a 1.0 ha poultry-fish-vegetable integrated farm showed a total farm profit of 100 390 Bahts or U.S.\$ 5 019 per annum. This net income is high considering that average per capita income in Thailand is U.S.\$ 632 based on 1979 prices of consumer goods.

The case study showed that while the turnover of produce is fast and profits are high, the farmer still suffers from a shortage of working capital and the consequential unfavourable credit arrangements with feed suppliers. It appears that assistance required by small farmers is not financial but rather in the form of assistance in farm management and utilization of farm resources to meet the requirements for annual production costs. As this is based on only one case study, additional case studies of similar farms would be required to be conclusive.

8. In the Philippines rice-fish and rice-fish-vegetable farming have become established practices particularly in Central Luzon, the rice bowl of the country. Fish seeds and inadequate extension services are the main drawbacks to attain a faster pace of development. Experiments on duck-fish, pig-fish and rice-invertebrate farming are being carried out with the support of the International Centre for Living Aquatic Resource Management (ICLARM).

9. In Hong Kong the main constraint of integrated livestock-fish farming is the recurrence of fish kills particularly during spring and summer when the water temperature is high. Pond aeration systems are being experimented to improve the dissolved oxygen regime of the ponds during such periods. Land-based aquaculture is losing out to urban development. However, cage culture is fast becoming popular particularly with the recent bill passed by Parliament protecting the interest of fish farmers in marine waters.

10. Freshwater and brackishwater aquaculture development is being mainly focussed upon in Malaysia. The national development programme of Malaysia puts top priority on this sector, and the Third Malaysia Plan has launched a subsidy scheme for rural aquaculture. In the Fourth Malaysia Plan, this subsidy scheme is being expanded, based on experience gained in previous years.

11. Among the countries in Southeast Asia, Indonesia has the widest variety of integrated farming systems in practice. These are found mostly in West Java where the farming activities are based mainly on paddy lands. There are 60 000 ha of paddy areas utilized for rice-fish farming here. In all forms of integrated farming systems practiced by small farmers, the economic returns are high. The main difficulty encountered is fish seed production and distribution. Fish seeds are not available in quantities at the time and place of need.

12. Of recent development in the Subang and Karawan Districts of Indonesia is the conversion of unproductive paddy lands in some coastal plains in Java into fishponds. These lands are affected by tidal intrusion during the dry season and high water levels persist for a long time during the monsoon season. Rice production is, therefore, low. In 1978 a few farmers converted their lands into fishponds and in just over a year there were 110 ha converted out of a total 130 ha of unproductive paddy.

The economic returns are high which encouraged the farmers to switch to aquaculture during the dry season. However, the major constraints are shortage of fish seeds, marketing and water supply.

This experience indicates the importance of appropriate development planning to be able to provide the necessary inputs for aquaculture development.

13. The experience of Nepal in the development of integrated livestock-fish and duck-fish-horticulture farming systems has shown encouraging results. Group action by small farmers appears to be an effective mechanism for rural development with integrated aquaculture-agriculture as a vehicle. The main source of income of a 3.42 ha integrated farm was obtained from aquaculture utilizing a 1.80 ha water surface area. An economic analysis of the farm production showed that without aquaculture, the farm is not viable as the income from other crops was low.

The Working Party noted that aquaculture development in Nepal is hastened by the direct involvement of small farmers in the programme of development. This not only saves the government spending money on the training of extension workers, but more significantly this is the multiplier effect of utilizing successful farmers in the villages to undertake pilot demonstration activities. The government institutions are put to work actively to support their needs. Communication gaps between the government and the private sector are also narrowed.

14. In brackishwater aquaculture a new system in Indonesia has been decreed in connexion with mangrove exploitation and conservation. The "Tumpang Sari Tambak" has been implemented for some years now whereby farmers are obliged to plant mangrove trees, Rhizophora and Avicennia at the middle shallow area of the ponds and all along the pond dikes. Tumpang Sari Tambaks are mostly located at the outermost strip of the coastal zones along the northern coast of Java. In West Java this covers about 18 500 ha or 47.9 percent of brackishwater fishponds in the area.

The decree of the Forestry Department regulating the Tumpang Sari Tambaks allows only 3-5 years for the farmer to use the tambak for aquaculture. This restricts the farmers from obtaining loans for further fishpond improvement due to insecurity of tenure on their rights to use the area for aquaculture purposes.

While there is a need to preserve the ecological balance in the coastal zone, the Working Party felt that there is a need to study the productivity of Tumpang Sari Tambaks and how the management could be improved, at the same time increasing fish production in the facility. Further observations on the economic aspects of Tumpang Sari Tambaks and a pure mangrove area are needed in order to serve as a basis for mangrove area management for aquaculture, forestry or both. The conflicting policy in this respect affects the socio-economic welfare of fish farmers. The Working Party felt that the legal and institutional constraint in this respect needs attention.

15. In discussing the experiences of the various countries on integrated aquaculture-agriculture and aquaculture-forestry development, the Working Party summarized the constraints encountered as follows:

- (i) Lack of social, economic and farm management studies on integrated farming systems.
- (ii) Lack of good quality fish seeds and animal stocks to supply the demands of fish farmers.

- (iii) Lack of developmental guidelines or standard methods of appropriate aquaculture-agriculture techniques.
- (iv) Inadequate experienced technical manpower.
- (v) Ineffective delivery mechanism of technology transfer and technical information dissemination at the farm level.
- (vi) Lack of capital.
- (vii) Poor marketing infrastructure support.
- (viii) Legal and institutional constraints.
- (ix) Environmental aspects, particularly the effects of pesticides applied in agriculture and aquaculture farming in relation to human health.

16. The Working Party noted the recent launching of two FAO/UNEP environmental impact projects in their preparatory phase (i.e., (i) impact of pollution in mangrove ecosystems; and (ii) impact of oil pollution in living aquatic resources in the East Asia seas). As these projects will shortly be implemented attention is called for long-range benefits considering fisheries, aquaculture and environmental balance.

RECOMMENDATIONS

17. Recommendation No. 1

To further enhance the practice of integrated aquaculture-agriculture farming systems in the region, the following courses of action were recommended by the Working Party:

- (a) That more case studies be conducted to gather more information on this type of productive system.
- (b) That socio-economic studies on integrated aquaculture farming practices be undertaken.

18. Recommendation No. 2

Considering that fish seed production and distribution are still the main bottlenecks for aquaculture development in the region, the Working Party recommends that workshops/training programmes on fish seed production and distribution for technicians, farmers and planners at the national and international levels be conducted.

It further recommends that the Secretariat explore the possibilities of obtaining funding from external sources to organize such workshops/training programmes which should have as wide a participation as possible.

19. Recommendation No. 3

Taking into account that in many countries of the region participation of small fish farmers in the development of aquaculture is seriously hampered by the lack of initial capital, the Working Party recommends that special financing schemes with low interest rates and simplified procedures for granting be made available by financing institutions.

20. Recommendation No. 4

Realizing that for proper development planning of the aquaculture sector it would be necessary to have statistics as accurate as possible on production, and further noting that the South China Sea Fisheries Development and Coordinating Programme (SCSP) has

initiated an evaluation of the methods of statistical collection of the South China Sea countries, the Working Party recommends that other governments in the Indo-Pacific region request the assistance of FAO for SCSP or similar regional or inter-regional programmes to undertake such evaluation, and that the results obtained from the survey covering aquaculture be made available to this Working Party.

21. Recommendation No. 5

Taking into account the new terms of reference adopted by the IPFC Standing Committee on Resources Research and Development (SCORRAD) at its second session for the Working Parties on Inland Fisheries and Aquaculture, this Working Party recommends that in the future the two Working Parties meet consecutively, in order to provide the possibilities for joint discussion of points of common concern such as aquatic pollution and environmental degradation.

22. In discussing the Cooperative Programme of Research on Aquaculture (COPRAQ), it was noted that IPFC has no funds for direct support of research activities. The primary aim of the Programme is to foster cooperation in carrying out research programmes common to two or more of the Member Governments. In considering these areas of common concern, the Working Party agreed that the following areas should be given priority:

- (a) Hatchery management with emphasis on broodstocks improvement and management; intensive fry rearing techniques and nursery management.
- (b) Evaluation of mangrove swamp utilization for aquaculture and other uses.
- (c) Pests and disease control.
- (d) Design and engineering of aquaculture facilities.
- (e) Feeds and nutrition.

23. The activities of the Working Party during the intersession period will be centered on the preparations for the 6th meeting/workshop and follow-up on actions arising from the recommendations made at this Working Party Meeting.

Appendix A

AGENDA

1. Opening
2. Procedural and organizational matters
 - (a) Election of Chairman and Rapporteur
3. Adoption of agenda
4. Report of work carried out by the IPFC/APHCA programme on integrated fish-crop-livestock production systems
5. Assessment of existing practice on integrated fish-crop-livestock production systems in the region
6. Presentation of special papers
7. Constraints on the development of integrated farming systems
8. Actions needed and means of action
9. Other matters
 - (a) Cooperative Programme of Research on Aquaculture (COPRAQ)
 - (b) Workshop recommended at the 6th Session of the Working Party
10. Future activities
11. Recommendation and adoption of report

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R E P O R T
OF
THE SEVENTH SESSION OF THE
IPFC COORDINATING COMMITTEE FOR THE
SOUTH CHINA SEA FISHERIES DEVELOPMENT
AND COORDINATING PROGRAMME

Rome, Italy, 15-16 October 1979

SOUTH CHINA SEA FISHERIES DEVELOPMENT AND COORDINATING PROGRAMME OF THE
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Manila, October 1979

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THE SESSION

1. The Coordinating Committee of the South China Sea Fisheries Development and Coordinating Programme held its Seventh Session during 15-16 October 1979 in Rome, Italy. A list of participants and observer is given in Appendix A to this report.

AGENDA ITEM 1 - ELECTION OF CHAIRMAN

2. The incumbent Chairman, Commander Swarng Charernpol of Thailand, opened the meeting.

3. The Committee unanimously elected Director Felix R. Gonzales of the Philippines as its Chairman for the session.

4. The Assistant Director-General (Fisheries) in his opening statement congratulated the Committee for their strong support and guidance to the programme which has largely accounted for its great success. He pointed out that the South China Sea Programme has become the model for regional development in the new Ocean Regime. He further added that the SCSP is now considered as a model for similar regional development and management units in other regions. He would intend to strongly support the programme in its phase III as FAO's contribution to the evolution of the South China Sea Region as a natural fisheries management area. He informed the meeting that the UNDP shared this view and this accounts for the agreement in principle to the allocation of substantial additional funds for the programme for 1980-1981.

AGENDA ITEM 2 - ADOPTION OF THE AGENDA

5. The Committee adopted the agenda as presented in Appendix B.

AGENDA ITEM 3 - REVIEW OF PROJECT ACTIVITIES 1979

6. In summarizing the activities of the programme for 1979, the Programme Leader referred the meeting to the sixth monthly progress report for the first half of 1979. Commenting on the second half of 1979 he indicated that all elements of the activities could be completed with the exception of the shrimp stock assessment workshop which will have to be postponed to the first half of 1980 as too many similar meetings are being held.

7. The financial position of the project continued to improve as actual expenditures were less than budgeted and the post of statistician has remained unfilled. As a result a number of TCDC activities mainly in aquaculture have been able to be implemented. Fish farmers and government operatives from all five countries have been able to travel in the region to exchange and study

various culture techniques. Additionally, assistance was arranged from staffs of national FAO projects to assist in other countries on specific species. Government staff such as in Hong Kong have also been used to assist specific projects in neighbouring countries. These activities have been largely in support of small-scale aquaculture as associated with fishing communities.

8. The technique of purse-seining practised in the Philippines is being extended to other interested countries by having fishermen from those countries study these techniques in the Philippines.

9. Simple village level water filtration introduced earlier by the programme was introduced to selected training projects in the region so that it could be further extended to village and aquaculture programmes.

10. Small-scale fisheries activities as described in the first half of 1979 progress report are proceeding very satisfactorily.

11. Stock assessment activities as described in the progress report is being successfully carried out as planned as is the work on tuna tagging and sampling.

12. Recruitment of a statistician before the end of the year will be accomplished, and several short term consultancies are being arranged as well to assist several countries.

13. The work on the implication of extended jurisdiction was started by short preliminary missions in each of the countries which should serve to better direct our activities in this sector in phase III.

14. All participating members expressed their full satisfaction on the work undertaken by the SCSP so far, and in particular, the Leadership of Mr. A. Woodland.

15. The Committee was of the opinion that FAO should approach China with a view to ascertaining her interest in participating in the work of the SCSP, to complete the full coverage of the countries bordering the SCS.

16. In order to keep member countries of the SCSP informed of the expected increased activities, it was suggested that a monthly newsletter be issued by the SCSP.

17. In view of the importance to the full attendance of the participating countries in the forthcoming Symposium on the Small-scale Fisheries

Development in Kyoto in May 1980, the Committee requested that funding be sought by the SCSP to support additional participants from member countries.

The meeting was pleased to see the attendance of the representative of Kampuchea and was informed by him that his country would look forward to greater participation in and assistance from the program as conditions within the country improved. He pointed out their great need to develop their marine fisheries and their intention to make the fullest use of their freshwater resources when possible. He finally requested that his country be kept fully informed on all activities of the program.

AGENDA ITEM 4 - PHASE III PROPOSAL

A. TCDC

18. The concept of TCDC in its most general concept is that one developing country gives technical assistance to another developing country.

19. The whole fabric of the South China Sea Programme has become permeated with the TCDC concept and the programme has been able to carry out many activities using TCDC. The Committee therefore strongly supports TCDC and its expansion in Phase III.

20. It was agreed that the SCSP could have one full time staff who identifies, coordinates, promotes and implements TCDC activities within the region.

B. PHASE III PROPOSAL

21. UNDP Representative confirmed that UNDP wished to consider at this stage only the activities proposed for 1980 and 1981, since the next cycle of UNDP programming would include 1982-1984 and funding cannot yet be committed for this period. It is intended however that the proposed SCSP activities beyond 1981 would be considered at the time of evaluation of the SCSP activities in the latter half of 1981.

22. It was understood that UNDP support would decrease with the evolution of a regional mechanism. It was the FAO's hope to strengthen the regional mechanism with regular programme staff during the 1982-1984 period.

23. The Committee was pleased to see that the activities of the JETINDOFISH survey would be fully incorporated into the resources survey programme of the SCSP upon termination of the Indian Ocean Programme at the end of 1979. It was suggested also that possibility be sought of transferring to the field the present FAO HQ based data compilation which would greatly benefit the member countries in particular with respect to training. It was also considered extremely useful if staff concerned with exploratory fishing/survey from the other participating countries could participate in the survey cruises and processing/analysis of data.

24. Considerable concern was expressed that there should be adequate reflection in the work programme and budget of the importance of aquaculture, particularly by considering the very active present programme of sharing of knowledge in the region.

25. It was made clear that there would be no duplication of work between RAFF and SCSP aquaculturists. The SCSP aquaculturist would be responsible for all aquaculture activities in the South China Sea countries, whilst the RAFF aquaculturist covers the rest of the IPFC countries. The latter could assist and advise the former if so requested.

26. The SCSP aquaculturist performs in fact a catalytic function, responsible for planning, coordinating, identifying needs and formulating project proposals within countries of the SCSP. He will ensure full integration of aquaculture into fishery development particularly in the small-scale fishery sector. The regional Leadcenters of the UNDP/FAO Interregional aquaculture Programme would concentrate on research and training on regional basis for those activities being supported by it. It was noted however the Leadcenter would not supply services to the region for approximately 2-3 years.

27. Government responsibilities, as spelled out in page 27, part II, item G1 of the project document, were fully endorsed.

28. As regards staffing of the project, all the posts indicated in the project document were endorsed by the Committee. However, it was agreed that the title of the post of Senior Technical Operations Officer should be changed to "Senior Development Officer (TCDC)" and its terms of reference would be amended to reflect the duties as described in para. 20 above.

29. The Committee endorsed the draft phase III project proposal after modifications agreed upon at the meeting. The agreed document is appended as Appendix D. An understanding that all the above-mentioned comments/suggestions would be taken into account, the Committee fully endorsed the SCSP Phase III proposed and requested FAO to submit the final project document to UNDP, N.Y. for approval without delay.

30. The Committee was pleased to be informed that a candidate for the Senior Stock Assessment Post would be shortly identified.

C. RESOLUTION OF THE FORMATION OF REGIONAL MECHANISM

31. The Coordinating Committee considered that the success of the Programme and the growing pressure on fishery resources in the South China Sea made it increasingly urgent to establish a suitable machinery for intergovernmental cooperation in fishery development and management in the South China Sea and contiguous waters. It recalled that IPFC itself, at its last session in March 1978, had deemed it advisable to envisage geographic sub-divisions of its area of competence and had made a specific reference to the South China Sea. In the opinion of the Coordinating Committee, the South China Sea did constitute an obvious example of a natural management area in view of the

shared stocks and fisheries, the common problems faced by coastal countries, and the need to promote a cohesive approach to fishery issues in that area. The Committee decided, therefore, to recommend to IPFC the establishment of a Committee for the Development and Management of Fisheries in the South China Sea. It agreed on the terms of a draft Resolution which it invited IPFC to consider and adopt at its nineteenth session in May 1980. The draft Resolution is reproduced as Appendix C to this report.

32. The Coordinating Committee gave careful consideration to the links between IPFC and the proposed Committee for the Development and Management of Fisheries in the South China Sea. It felt that the establishment of the Committee would contribute to increasing the effectiveness of IPFC as an action-oriented body. It also stressed that IPFC would have a dominant role to play in matters of relevance to its area of competence as a whole or of interest to all its member countries, including research, statistical systems or tuna management problems.

D. ASSOCIATED PROJECTS

33. The Committee endorsed the inclusion in the SCSP activities of the UNEP preparatory assistance projects on the impact of pollution on the mangrove ecosystem and the assessment of oil pollution on the understanding that long-term assistance from UNEP would be sought in the near future.

34. The Committee suggested that an informal meeting among ASEAN fisheries representatives would be held, prior to the forthcoming COFAF Meeting scheduled for January 1980, to discuss the Fisheries Resources Evaluation Project proposal for EEC funding. It was suggested that the most opportune time would be to hold such a meeting in conjunction with the SEAFDEC Council Meeting to be held in Singapore in November 1979.

35. The Committee was informed that the CIDA Small-Scale fisheries development proposals for Malaysia and Indonesia should be approved and become operational shortly. It appeared that the only outstanding issued was financial procedures for which negotiation is now underway between FAO and CIDA. It was understood that CIDA was now prepared to move toward the financing the proposed projects for Thailand and the Philippines as soon as possible.

36. The Committee was informed that it was likely that Norway would approve the project proposal on Marketing Information and Advisory Service for Fish Products in the Asia Region in 1980.

37. The Committee noted with satisfaction that the Small-Scale fisheries project in Phang Nga, Thailand, sub-project of the Bay of Bengal project, TF/RAS 40 (SWE), executed by the SCSP, was progressing extremely well.

E. ASSOCIATION WITH OTHER BODIES

38. It was considered most useful if links between SEAFDEC and the newly proposed SCSP Committee could be established, and in this connection, it was suggested, therefore, that Mr. Woodland should present to the forthcoming SEAFDEC Council Meeting to be held in Singapore in November 1979 the FAO proposal for setting up the new SCSP Committee.

F. OTHER MATTERS

39. Noting with satisfaction the availability of U.S. \$110,000 presently in the income account of the SCSP, the Committee suggested that the money be used for the TCDC activities, socio-economic study in small-scale fisheries possibly through subcontract to local firms, or other urgent activities requiring immediate funding. At the discretion of the Programme Leader the fund is also used to ensure full attendance at Coordinating Committee meetings.

40. The Committee requested the Secretariat to despatch the final report of this meeting direct to the participants' home countries as soon as possible.

G. DATE AND PLACE OF NEXT MEETING

41. The Committee suggested that the 8th session of this meeting be held in Kyoto in conjunction with the forthcoming IPFC meeting. Alternatively, it would be appropriate to hold such a meeting in conjunction with the SCSP Tripartite Review Meeting scheduled for around September 1980 in Manila.

AGENDA ITEM 5 - ADOPTION OF THE REPORT

42. A report of the meeting will be produced in final form and circulated to the Committee for modification and approval.

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APPENDIX BAGENDA

1. ELECTION OF CHAIRMAN
2. ADOPTION OF THE AGENDA
3. REVIEW OF PROJECT ACTIVITIES 1979
4. PHASE III PROPOSAL
5.
 - A. TCDC
 - B. PHASE III PROPOSAL
 - C. RESOLUTION OF THE FORMATION OF
REGIONAL MECHANISM
 - D. ASSOCIATED PROJECTS
 - E. ASSOCIATED WITH OTHER BODIES
 - F. OTHER MATTERS
 - G. DATE AND PLACE OF NEXT MEETING
6. ADOPTION OF THE REPORT

APPENDIX CDRAFT RESOLUTIONTHE INDO-PACIFIC FISHERY COMMISSION

Recalling the discussion held at its Eighteenth Session on the desirability of considering geographic subdivisions of the ill-defined area covered by the 1948 Agreement for the Establishment of the Indo-Pacific Fishery Commission,

Noting the request made by the Coordinating Committee of the South China Sea Fisheries Development and Coordinating Programme, at its Seventh Session, for the establishment of a subsidiary body to deal with problems of fishery development and management in the South China Sea,

Noting further that the request was considered by the Executive Committee at its Fifty-eight Session and

Convinced that the needs and interests of countries with shared stocks, common problems or complementary economies can best be satisfied by a sub-regional approach on the basis of natural management areas and that this approach will contribute to increasing the effectiveness of the Commission as an action oriented body,

Hereby establishes, in accordance with Article III (2) and (4) of the 1948 Agreement for the Establishment of the Indo-Pacific Fishery Commission and with Rule IV (2) of the Rules of Procedure of the Commission, a Committee for the Development and Management of Fisheries in the South China Sea, hereinafter referred to as the Committee, which shall have the following characteristics:

Terms of Reference

The Committee shall have the same functions and responsibilities as those assigned to the Commission by Article IV of the 1948 Agreement for the Establishment of the Indo-Pacific Fishery Commission, as last amended at the Seventeenth Session of the Commission. In addition, for the duration of the South China Sea Fisheries Development and Coordinating Programme, the Committee shall perform the duties of the Coordinating Committee which was set up by the Commission at its Sixteenth Session and which is hereby abolished.

Area of competence

The Committee shall carry out its functions and responsibilities in the South China Sea and contiguous and adjacent waters up to the outer limits of the zones in which the countries bordering on the South China Sea claim jurisdiction over fisheries.

Membership

Membership in the Committee shall be open to all coastal states in the South China Sea and contiguous waters that are Members of the Indo-Pacific Fishery Commission.

Secretariat

The Secretary of the Committee shall be designated by the Director-General of FAO.

APPENDIX D

PROJECT DOCUMENT

South China Sea Fisheries Development and Coordinating Programme (Phase III)

CONFORMED COPY

UNITED NATIONS DEVELOPMENT PROGRAMME

Project sponsored by the Governments of Brunei, Hong Kong, Indonesia,
Malaysia, Philippines, Singapore and Thailand

PROJECT DOCUMENT

Title: South China Sea Fisheries Development and Coordinating Programme (Phase III)

Number:

Duration: Five Years

Primary functions: Direct support

Secondary functions: Institutional building

Sector: Agriculture, forestry and fisheries (05)

Sub-sector: Fisheries (0530)

Government Implementing Agency: Departments responsible for fisheries

Executing Agency: The Food and Agriculture Organization of the United Nations (FAO)

Estimated starting date: January 1980

Government inputs:

UNDP inputs: 1980-81 US\$ 3,559,550

Signed:

_____ on behalf of the Government of Brunei

Date: _____

_____ on behalf of the Government of Hong Kong

Date: _____

_____ on behalf of the Government of Indonesia

Date: _____

_____ on behalf of the Government of Malaysia

Date: _____

_____ on behalf of the Government of the Philippines

Date: _____

_____ on behalf of the Government of Singapore

Date: _____

_____ on behalf of the Government of Thailand

Date: _____

_____ on behalf of the Food & Agriculture Organization

Date: _____

_____ on behalf of the United Nations Dev. Programme

Date: _____

This project has been formulated for an estimated time phase of 5 years. As funding by the UNDP cannot be committed beyond the next biennium, the budgeting is only shown for the first 2 years. Indicative funding requirements for the remaining 3 years are shown separately in an annex. It is intended that a major review of the project be carried out during the second half of 1981 which will identify in some detail the extension of activities and funding requirements for the later part of the project.

PART I. LEGAL CONTEXT

This Project Document shall be the instrument referred to as such in the Assistance Agreements between the Governments of Brunei, Hong Kong, Indonesia, Malaysia, Philippines, Singapore, Thailand and the United Nations Development Programme.

The Governments' departments responsible for fisheries shall, for the purpose of the Standard Basic Agreement, refer to the Governments Co-operating Agencies described in those Agreements.

PART II. THE PROJECT

PART II. A. Development Objectives

Though consistent with the original long-range objectives contained in the Phase II Project Document, continuation of the Programme during Phase III will assist member countries to better cope with the added responsibilities and benefits derived from their anticipated EEZ and will also direct efforts which will lead to the formation of a permanent sub-regional body for the development and management of fishery resources in the South China Sea, including its contiguous and adjacent waters. The development objectives are therefore expressed as follows:

1. The rational development and management of fisheries resources in accordance with needs of participating countries, and the size and potential of their resources.

2. To foster self-reliance of participating countries to find solutions to their respective fishery development problems.

PART II. B. Immediate Objectives

1. To facilitate the immediate establishment of a suitable regional mechanism for development and management of fisheries that will eventually become self-sufficient.

2. To obtain accurate assessment of the fish resources in the exclusive economic zones of the participating countries oriented to the formulation of an appropriate development and management policy.

3. To accelerate efforts towards improving the socio-economic status of the rural coastal fishing population.

4. To promote increasing production and better utilization of coastal and/or culture fisheries.

5. To increase the competence of the countries of the region to rationally develop and manage both the coastal and highly migratory fishery resources in their exclusive economic zones consistent with their priorities.

6. To promote aquaculture development not only as a component of small-scale fisheries where practicable but also as an alternative for declining traditional capture fisheries.

7. To increase access by scientists and government administrators to tuna fishery statistics by establishing a centralized, regional statistics system for the IOFC region and a centralized, subregional system for the South China Sea area.

PART II. C. Special Considerations

Promotion of technical cooperation among developing countries

A United Nations Conference on Technical Cooperation Among Developing Countries has put forth a "Plan of Action" for promoting and implementing technical cooperation among developing countries (TCDC). Some of the TCDC "actions" which relate especially to the continued development of regional fishery programmes are:

1. Fostering self-reliance of developing countries through enhancement of their creative capacity to find solutions to their respective development problems.
2. Promoting and strengthening collective self-reliance among developing countries through exchanges of experience, and the pooling, sharing and utilization of technical resources.
3. Increasing and improving communications among developing countries leading to a greater awareness of common problems and a wider access to available knowledge and experience as well as creation of new knowledge in dealing with problems of development.
4. Strengthening national information systems in order to further technical cooperation among developing countries.
5. Broadening and developing national research and training centers which would be of interest to countries on a regional and interregional basis.
6. Strengthening regional and subregional organizations so as to better serve the needs of each national government in its attempt to cooperate with others.
7. Reinforce the capabilities for data collection and analysis in order to provide systematic and updated information for decision-makers at the national, subregional and regional levels.

The "Plan" closes with the statement that the entire United Nations development system must be permeated with the spirit of TCDC, and all its organizations should play a prominent role as promoters and catalysts of TCDC. Financing of TCDC projects within countries, between countries, regionally, and interregionally should be provided by organizations of the United Nations development system, by both developing and developed countries, as well as other agencies, organizations and institutions who have an interest in assisting developing countries.

All of the TCDC actions presented above lend support to the actions already taken by the Programme to promote TCDC and by the Programme's activities planned for Phase III when the Programme will continue to expand this concept through interregional training courses, workshops, consultative group meetings, intercountry training in the participating countries, increased use of regional expertise and institutions.

It is intended that all TCDC activities in the Programme be coordinated by a Senior Development Officer. It is further intended that to the maximum extent possible assistance from staff from the countries on a secondment basis be further utilized to assist in these activities.

There is a growing awareness in the participating countries of the importance of preserving or improving environmental conditions especially as this would affect living aquatic resources. Under Phase II, the ground work has been set. It is envisaged in this Phase for the Programme to assist in implementing action projects designed to carry out the above objective. In collaboration with the United Nations Environment Programme (UNEP) and counterpart agencies, the Programme will carry out a project on "Pollution of Mangroves". The formulation of another proposal on oil pollution will also be done through assistance of the Programme.

Part II. D. Background and Justification

The past five years of the Phase II of the South China Sea Programme has paralleled the evolutionary development of the concept of technical cooperation among developing countries (TCDC). The recommendations of the Buenos Aires Conference^{1/}, particularly where it considered the "actions/recommendations" at regional and subregional levels, only serve to substantiate the work carried out during the Phase II of the Programme and give even more positive direction to the work to be done during Phase III.

The past five years of the Phase II also has paralleled the final shaping of the policies of coastal states regarding their anticipated declaration of their exclusive economic zones. The Programme, consistent with FAO's policy at the inception of the project, evolved its objectives and activities based on the development of common use resources under a regional arrangement. As a result, many of the preliminary activities that must be carried out to better equip countries and regions to fully cope with their extended economic zones have been started.

The Programme is therefore uniquely equipped to respond to the new challenge that face FAO in assisting the coastal states to take advantage of their new opportunities to fulfill their responsibilities to formulate and implement policies and programmes for the rational management and optimum use of all their available resources.

The challenge to the Programme which in fact provides the background and justification for the project proposal, and the emerging subregional body to be formed can be paralleled to FAO's challenge as extracted from the document presented to the Committee on Fisheries at its 13th Session in October 1979 entitled "A Comprehensive Programme of Assistance in the Development and Management of Fisheries in Economic Zones".

The Phase III of the SCS Programme can therefore be seen to be consistent and supported by FAO's main thrust in fisheries.

Opportunities and challenges created by extended jurisdiction over fisheries as applied to the South China Sea region

In the absence of adequate controls over inputs to fisheries, many resources in the region have failed to produce a satisfactory net economic

^{1/} The United Nations Conference on Technical Cooperation Among Developing Countries held in Buenos Aires on August 30 to September 12, 1978.

return and social benefits which they were capable of providing. This is particularly true of heavily exploited areas such as the Gulf of Thailand, more generally, however, it is true of many of the coastal areas of the region which are not only subject to heavy pressure from the increasing numbers of coastal rural fishermen but due as well to the increasing pressure of large-scale commercial fishermen.

The desire of the coastal states in the South China Sea region to have greater control over, and obtain benefits from the resources off their coast is similar to many countries and has given impetus to the declaration of extended jurisdiction.

Two of the countries of the South China Sea have already extended their jurisdiction to 200 mile exclusive economic zone and with the LOS meetings drawing to a close this year will probably see virtually all the bordering countries of the region following suit. This places virtually all the waters of the South China Sea within areas of national control. This will have a profound effect on how the fisheries are operated and on the ability of the coastal states to obtain the full benefits of the living resources off their coast.

The establishment of exclusive economic zones is having two major impacts. For all the coastal states, it is providing the opportunity to improve the ways in which resources have been managed and utilized. For those states such as Malaysia and to some extent Philippines and Indonesia whose coasts there has been varying but appreciable fishing by vessels of other nations, it provides the opportunity to replace these vessels by local vessels and therefore allows the coastal state to participate more fully in the utilization of these resources for their fuller benefit.

While the mere action of extending jurisdiction does not in itself solve any of the practical economic problems of developing a fishery and does not make it easier for coastal states with under-utilized resources at a distance from their coast to harvest these resources, nevertheless the establishment of economic zones has brought the existence of these resources into sharper focus and particularly to higher levels of national administration and has created a greater awareness that the fish resources themselves are but a means of achieving much wider economic and social goals. It is on this last point that the greatest impact will be felt and will virtually direct the work of the South China Sea Programme in its third phase.

The paper goes on to point out that the opportunities and concomitant responsibilities offer a tremendous challenge to the FAO/SCS Programme and the region. The countries lack the capacities, and expertise to take advantage of it, albeit, in widely varying degrees, principally perhaps in the disciplines that are required for rational management and optimum utilization of the resources where increased fishing effort is called for such as Indonesia and Malaysia and to some extent the Philippines and certainly in Vietnam and Kampuchea. They lack the resources of capital but principally perhaps trained manpower for fishing, processing and distribution.

Assistance is therefore required to develop such expertise and mobilize, as required, funds.

Another need for action and this is particularly true of this region, arises from the fact that a practical and coherent basis for rational fisheries management has not yet been well defined. This, in fact, is a monumental task in the South China Sea where multi-specie demersal stocks and wide ranging mixed pelagic stocks are prevalent in all the waters of the region. It is only when the coastal states implement extended jurisdiction and start to manage these stocks that it will be apparent that a much clearer conceptual framework will be required on which to base management policies and actions.

A third reason for concern and one that very seriously and subsequently challenges the Programme and affects this region is that the transition to coastal state jurisdiction presents an opportunity to achieve rational resources management without excessive losses. Too often management and particularly in developing countries, has been preceded by painful retrenchment of over-expanded fisheries. Some of this has already occurred particularly in Thailand, but there is still an opportunity to stabilize the fishing efforts at a lower profitable level with more social benefits as well.

There is a tendency for fishery catches in the extended economic zones to decline in the transition period and foreign vessels will still be required, be they from neighboring developing countries or developed countries of the Asia region, but under conditions set by the coastal state. This requires considerable international collaboration through joint ventures and bilateral agreements. The exchange of experiences and expertise between developed and developing countries will be of great importance and it is here where the Programme can greatly assist the countries expand their capacities for management and resource utilization.

The magnitude of the task as all countries of the region extend jurisdiction, and the need for immediate action, will focus the major efforts of the Programme. Not all countries of the region will benefit from extended jurisdiction as some will lose easy access to resources exploited by them off the shores of neighboring countries. This is a gain particularly true of Thailand. While they must try to negotiate fishing agreements with other countries, they will turn greater attention to aquaculture if they are to adequately increase their supplies of fish. The Programme will therefore intensify its efforts aimed at increasing the production of culture fisheries, particularly in the coastal rural fishing areas by immediately surveying potential areas for brackish and marine culture.

Rational fisheries management and development

The extension of jurisdiction over the majority of stocks in the region will provide the opportunity to achieve rational management and optimum utilization of the resources. This will be a long and difficult task but if properly executed it can start to bring considerable benefits and not the least to the poor coastal communities. While this is a high priority in all countries of the region, it will necessitate a clear identification of national objectives in relation to the fisheries, the determination of strategies to be adopted in pursuit of these objectives and the correct

choice of specific measures to implement these strategies. This is viewed as one of the major tasks of the Programme to assist the countries of the region by sharing of experience.

National objectives

The national objectives that can be achieved by extended jurisdiction are many and varied - increased food supply, increased earnings of foreign exchange, higher net economic return, greater employment or improved per capita earnings in the poorest sectors. While they all represent the collective goals of almost all the countries bordering the South China Sea, they obviously cannot all be achieved simultaneously. The first and important stage which must be reached in developing a policy for management and utilization of the resource is a clear identification of national objectives to be pursued. It seems that this can only come into the sharp focus required at the time that extended jurisdiction is considered. Substantial inputs of the Programme are foreseen here.

Strategic choices

Given the national objectives and overall policies, it is essential to determine the strategies of management to achieve these aims. There is immediately in the region the conflict between the small scale of the coastal rural fishermen and the larger or commercial fishermen. These can be alleviated by reserving specified areas or stocks for the former. This is a highly complex problem and must be tackled in many ways. There are no simple solutions. One can try to control the amount of effort to manage the resource by various means - prohibition of certain gear, quotas, closed periods, license fees, limited entry, etc., all of which have a different social and economic consequence. This is an urgent and massive problem for the whole region and will require the collective efforts of all the countries to adequately solve. It will therefore direct a considerable amount of the Programme activities.

Specific measures

The most difficult part of management is to implement the strategy decided upon. Whether it be limitation of license, quota, etc. must be preceded by careful and accurate assessment of the stocks. The decision makers must have the authority and act in the light of best scientific and economic advice consistent with long-term objectives. If stocks are shared for various reasons by neighboring states, which is common in the region, measures adopted must be coordinated through close collaboration. This cooperation must be effective at the scientific, administrative and political level in order to prevent failure and here the regional programme can play a key role.

Action needed

The design and implementation by the countries of the SCS to manage and develop the resources within their economic zone is a considerable undertaking. Once the appropriate policies have been set out, the next step is to set up the necessary structures at the national level within which the work can be done. The provision of adequate information on resources which is a

notable deficiency in the region will require not only the strengthening of existing institutions, and in some cases the establishment of new ones, as well as effective administrative machinery to ensure that fishery statistics are collected and made available, that appropriate research work is done, and that the results are made available in a suitable form for the decision makers. Similarly new machinery will need to be established or existing ones strengthened in respect of general economic planning and later the administrative and legal framework for implementing the management controls found to be necessary.

The need to enhance national capabilities for management and development

The countries of the region are not now well equipped to fully implement comprehensive fishery management and developing programmes at least not without considerable delays. The staffs are small and lack training and experience in many of the specialized fields - biological, economic, technical and legal involved in resource development and management. The shortage of expertise is largely responsible for the general lack of information on the many of the essential points not the least of which is the state of the resources. This is compounded by incomplete or inaccurate catch information from non-local fisheries. The lack of resources, human, physical, institutional and financial - underlines the need for external assistance which can be offered through the Programme to grasp the opportunities and fulfill the responsibilities presented by the new legal regime.

Programme's role

The Programme assisted by the resources of FAO Department of Fisheries is in a unique and privileged position to assist the countries of the region in their efforts to meet these challenges. It reflects the Programme's special ability in an FAO neutral position to marshal the expertise, regional and international, as required to improve the capabilities collectively and separately in the region not only to increase fishery production but also the net socio-economic benefits to be gained by the people of the region.

Role of the Programme at the subregional level

If the Programme is going to serve as a focal point for regional development, it must be substantially strengthened and restructured to be more responsive to the needs of its member countries under the new regime of the oceans. It must receive strong support from FAO Hqs. and the UNDP as this will constitute a major element in the overall structure and implementation of the Director General's programme. It is proposed to do this in a number of ways but principally by converting the Programme into a technical or operating arm of the prospective committee for the development and management of fisheries of the South China Sea to be established by the IPFC.

A number of activities have been referred to above. The role of the program will be for the review, promotion, and communication of the concepts, principles and mechanisms required in resource conservation and management, which will necessitate the further study of the effects of extended jurisdiction on a case by case basis. Another role will deal with special needs and problems of countries as a direct consequence of extended jurisdiction. For instance, special attention will be given to the identification of resources lying within national jurisdictions, to the problems of resource

allocation, to alternative methods of surveillance and enforcement, and to legal and institutional aspects of the foregoing. The programme will have an important role in the area of shared coastal stocks and stocks of highly migratory species in assisting coastal states with problems of resource allocation and fishing management and in relating these to the broader concerns for stock conservation and fishery management for all users in the region.

There will be the need of socio-economic and technical studies of fisheries management and development options at the national and regional levels as a basis for action designed to identify and offer prompt and effective advice upon fishery development opportunities and problems. These studies will require the assistance of sources outside the Programme, and principally from FAO Hqs., but also from the region by utilizing regional expertise, in relation to the economic, social, and technical analysis of catching, preservation, utilization, processing, marketing and internal demand as well as external trade aspects of fisheries development. Among questions requiring specific attention are possible effects of the new regime on regional patterns of fish trade and consumption and the potential impact of bilateral agreements including joint ventures and other forms of inter-industry collaboration.

Action plans

There are a number of activities which can be considered as medium term.

(a) The undertaking of inter-disciplinary policy missions to assist in the assessment of country situations in the diagnosis and quantification of fishery development opportunities and problems and in the formulation of appropriate policies and strategies of management and development plans. These can be carried out on a formal and informal basis through the Programme and as required by the assistance of FAO Hqs.

(b) The provision of training for fishery administrators and others charged with responsibilities for management and development of economic zones by, for example, direct attachment of specialists to national administrations to give on-the-job advice.

(c) The organization of workshops and other training programmes in collaboration with national and regional institutions.

(d) The arrangement of specific training programmes for individuals in or outside of the region, as required.

(e) Mobilizing and promoting the effective use of bilateral and multilateral financial assistance for fisheries management and development.

(f) Assistance in planning stock assessment, statistics and institutional arrangements for better development and management of resources in the extended economic zones.

Technical conference on the management and development of fisheries

FAO is planning a technical conference on management and development of fisheries to be held in 1982 to provide a forum for exchange of world-wide experience in fishery management and development in exclusive economic

zones. It would therefore be planned to hold similar national and regional meetings as forerunners to the conference to give further initiative and guidance to the region.

Experience gained

The detailed planning and execution of programmes must depend on requirements and priorities of countries concerned. Valuable experience has been gained from activities to date. The necessity for flexibility and tailoring of the activities to match the needs of the participating countries has proven to be of vital importance.

The paper concludes by stressing the importance of the role of FAO regional fishery bodies and their subregional components in the development and management of resources in their geographic areas. It goes on to say that in view of the support given to these regional bodies by the regional/interregional fishery projects, such as the SCSP, and of the emphasis of their activities and adjustments to the new world fishery situation, they will constitute a major element in the overall structure and implementation of the Director General's programme, for ways must be found to strengthen them and make them more responsive to the needs of the member countries under the new regime of the oceans.

It points out finally that the World Bank, and regional banks such as the Asian Development Bank, as well as regional groupings such as the EEC and ASEAN are devoting greater attention to fishery matters and are assuming greater responsibilities in this sector. It urges that it will be mutually beneficial to cooperate at an early stage in the planning of activities relating to development and management of fisheries in economic zones as well as in the identification, selection or execution of specific projects. The Programme has enjoyed a close cooperation with the banks at all stages of their fishery activity in the region. Some progress has been made in cooperation with ASEAN, now that a fishery subcommittee is being contemplated within the ministerial committee for Food, Agriculture and Forestry, it is anticipated that more direct collaboration will be possible. The EEC is showing considerable interest in the region and several significant proposals are being put forward by the Programme for collaboration during the Phase III.

The development prospects for the region give considerable justification for and direction to the Programme during its third phase. A recent report prepared by FAO for the IPFC analyzes the supply and demand for fish and fishery products to 1985^{1/}. The facts only serve to highlight urgency

^{1/} Fishery Development Opportunities in the IPFC Region (IPFC/78/16)

expressed earlier when considering the implications of extended jurisdiction on the region. It points out that the region has followed fairly closely the trends set out in the earlier document of the Programme^{1/}.

Demand continues to outstrip supply and most countries remain net importers of fish. The report points to a significant increase in demand due to the continued increase in population and anticipated increase in income. It is expected that, if present catch rates continue, there will be insufficient production to meet the anticipated demand.

In the short term view envisage as the Phase II of the project to 1985, the following statements best set the stage for the challenges facing the region in only the next five years.

If the present thrust of fishery development is no more than maintained to 1985, a catch of 7 million tons might be anticipated. Such an increase would markedly fail to satisfy the potential requirements for the demand figure is predicted at approximately 8 million tons. Taking into account possible increases in output by fisheries pursued by some countries of the region and in other adjacent areas of the western Pacific and Indian Ocean, the total potential of marine resources might be roughly quantified at 11-12 million tons per annum. The ultimate potential of marine resources which depends not so much on natural resources available as upon effective regulation and management, technological and other factors and the expansion of culture techniques to areas presently neglected envisages the doubling or tripling of the output of culture fish from fresh and brackishwaters to 2 to 2.5 million tons per annum, but does not view this as possible until the close of the present century.

Taking into account that many of the inshore areas are heavily exploited and that a number of the stocks that are subject to greater exploitation are found widely dispersed in the South China Sea and of varying accessibility to individual countries with pending extended jurisdiction, it again only serves to emphasize the points made earlier in connection with extended jurisdiction that the challenge is formidable.

During Phase III, the Programme should be able to assist the countries to implement a survey programme aimed at assessing the potential of their untapped resources particularly pelagic and deep-sea fishes in the exclusive economic zones and advice on the type of fishery that could be developed for their exploitation. Also it should help to develop a data processing system including fishery and survey information and to establish an appropriate sampling system of fish landings particularly in the small-scale fishery sector.

^{1/} The South China Sea Fisheries - A proposal for accelerated development (SCS/DEV/73/1)

The extension of jurisdictional waters over fisheries will place a great burden on participating countries' capacities for implementing an appropriate policy of management of their fish resources. This calls for a higher use of local expertise on stock assessment and direct survey methods to evaluate and monitor the status of the fishery.

Specific role of the Programme in the South China Sea region

During the five year period of Phase II, the SCSP has carried out a wide range of regional activities with considerable support from UNDP and bilateral sources. This regional approach to fisheries development has contributed significantly to national fishery programmes and perhaps more importantly, has strengthened regional cooperation among fishery administrators of participating countries. Considering the many disciplines involved in fisheries work, there is considerable scope for expanding technical cooperation in South East Asia as each country has much to offer its neighbours and there is a growing commitment, particularly in the spirit of ASEAN, towards sharing knowledge and experience.

During recent years accelerated fisheries development has been the main thrust in all participating countries which have increased their allocations of manpower and funds to carry out major programmes. The regionally based SCSP has been in a unique position to provide assistance to these programmes and has had the capability of responding quickly and effectively to requests made from individual countries. Moreover, by establishing a close working relationship with a number of other agencies including SEAFDEC, ADB, IBRD and UNDP Country offices, the Programme has had a catalytic effect by stimulating additional support for a number of regional and national projects which included: national small-scale fisheries projects supported by CIDA, aquaculture projects in Indonesia, Thailand and Malaysia supported by UNDP, a tuna fishing project in Thailand supported by UNDP, a regional acoustic project supported by FAO, small-scale fisheries projects in Thailand and Malaysia supported by SIDA through the IOP, two investment oriented rural fishing projects now being prepared by ADB and IBRD, and an inter-regional training course on joint venture negotiations supported by UNCTC in cooperation with the Programme.

While the outputs and activities of the Programme are fully described in the semi-annual progress reports, the participating countries have responded positively to such achievements as the introduction of improved data collection systems, the wide and growing use of regional expertise and facilities to implement project activities, the integration of project activities with bank investment programmes, the implementation of small-scale fisheries development in the region, and the cooperative regional approach to assessment of the resources of the region using regional expertise and equipment.

One important outcome of the Programme during Phase II has been to demonstrate the need for a permanent subregional fisheries body to strengthen interaction among the countries in all aspects of fisheries development. These countries are continuing to increase their national development efforts in fisheries and the many regional activities undertaken by the Programme have clearly shown that officials at all levels are keenly interested in the work being carried out by their neighbors and they are most willing to share knowledge and experience. Such interaction becomes even more important with the recent trend towards extended jurisdiction of territorial waters. A permanent subregional body will, therefore, not only continue to enhance regional cooperation but will also provide a forum upon which common problems and actions can be aired.

Review of Programme Activities

The legal and institutional aspects of the South China Sea Programme's activities have focused on the Programme's approach that unsatisfactory institutional arrangements have a hampering effect on fishery development, and in fact their lack or inadequacy can cause serious obstacles. Detailed studies have been carried out in almost all of the countries of the region, on the structures of all organizations concerned with fisheries, including government departments, development agencies, and marketing agencies. Assistance has been given in restructuring these organizations and in some cases the total fishery legislation has been rewritten. In latter years, the shift has been to the legal and institutional arrangements concerned with extended jurisdiction such as licensing and joint venture arrangements and, as referred to earlier, this will absorb the total effort in this sector in Phase III.

Development of the Rural fisheries sector has been given high priority by member governments. The countries are particularly concerned that the multitude of people inhabiting coastal areas receive much of the benefits derived from the exclusive economic zones. Consequently, activities in this component of the Programme progressively assumed the magnitude of a primary activity during the course of Phase II. When first requested to assist in the development of this sector, the Programme held a consultative group meeting with representatives from all participating countries in order to lay out guidelines on how to approach problems of small-scale fisheries. It was evident from this meeting that governments were particularly interested in the implementation of action-oriented programmes which would lead to increased incomes and improved living standards of the rural fishing population. Because of the immense population involved in coastal fisheries and the limited financial and human resources available, it was strongly recommended that pilot scale projects be implemented to serve as test and demonstration centres that could form the basis for large-scale investment projects. Following these guidelines, the Programme carried out numerous field studies in rural areas selected by participating governments. These studies, conducted jointly with government officers, contained a socio-economic analysis of the areas and plans for vertically integrated development projects. Based on these and other regional studies carried out by the Programme, direct support is being made available from various agencies to implement national development projects. These include:

(i) National pilot scale projects in Indonesia, Malaysia, Philippines and Thailand through a trust fund arrangement between CIDA and FAO. These projects representing some \$5 million of external support are expected to start implementation in late 1979 and include fishing technology, processing, aquaculture, marketing, resource surveys, boat development and training.

(ii) A large-scale investment project in the Philippines which will provide small-scale fisheries support facilities in a number of coastal rural villages. The project is now being formulated for World Bank support and is expected to start implementation in early 1980. Similar ones are under formulation in Indonesia.

(iii) National projects in Malaysia and Thailand supported by a SIDA Trust Fund through the Indian Ocean Project (INT/76/012). The projects involve aquaculture demonstration, community development and training, and are currently being implemented through the Programme.

(iv) A UNDP supported pole and line tuna fishing project now being implemented in Thailand which is also intended to benefit coastal rural communities.

(v) A \$30 million loan project in the Philippines which combines commercial and small-scale fisheries development in two major rural areas. This project is now at appraisal stage by the AsDB and is expected to commence in late 1979.

(vi) The ADB has approved a loan equivalent to \$14 million for aquaculture development in Thailand designed to (a) upgrade existing shrimp/fishponds; (b) establish brackishwater shrimp/fishpond estate settlements; (c) put up brackishwater shrimp hatchery pilot projects; (d) initiate freshwater prawn fishpen culture; (e) expand Pangasius catfish cage culture; and (f) develop integrated pond culture.

(vii) A regional resource evaluation proposal which would include evaluation for small-scale fisheries formulated with the active participation of national fishery scientists in the region to be financed by a trust fund agreement.

(viii) A UNDP-funded project on extension services and support to small-scale fishermen in Indonesia which started in July 1979. The project will be based in Semarang, Central Java, with sub-stations located in Sumatra, Sulawesi and in east and west Java.

(ix) A World Bank-funded project in the Philippines which is due for appraisal in August 1979 and expected to commence in January 1980. This project will support the establishment of nine extension centres, nine fishery schools and one university college of fisheries.

Integrated fishery management and development which is the main theme of the Phase III must include as an adjunct the maximum utilization of all marine, brackish, and inland aquaculture sources. The Programme in its Phase III will attempt to therefore carry out similar activities to those foreseen in the marine fishery capture sector.

The Programme will therefore coordinate a thorough regional assessment of aquaculture production potential, an upgrading of statistics and a heavy stress on aquaculture as a component of small-scale fishery development.

The countries of the region are well advanced in aquaculture development but technology is not evenly dispersed. It is therefore intended that an accelerated programme of technology exchange by TCDC be carried out. Considerable experience has been gained during Phase II and it is clear that considerable extra funding beyond that indicated in the project document will be required to support these activities. The Programme will therefore attempt to mobilize additional funds from other donors to carry out these TCDC activities.

Aquaculture development is seen in many instances of small-scale fishery development as an alternative source of fish production in overcrowded coastal areas and as well an alternative and complementary source of employment and incomes.

Aquaculture development continues as a high priority in participating countries and the Programme has continued to lay the basis under Phase I and II for the needed action programmes. In fact a number of implementary activities have been started under Phase II. These include (a) determining the areas of coastal regions suitable for development as aquafarms. This was done mainly in Peninsular Malaysia, parts of Indonesia and Thailand; (b) investigation of availability of stocking materials especially from wild stock was done mainly in Malaysia and identification of probable sites for hatcheries was also made in Malaysia, Indonesia and Thailand; (c) analysis

of existing aquaculture industry as basis of future policy and programmes was made such as on shellfish in Thailand; (d) conduct socio-economic studies of certain aquaculture sources, e.g. milkfish, freshwater prawn for the region; (e) started pilot scale operation and demonstration such as fishcage culture in east coast Peninsular Malaysia; Phang Nga, Thailand and small-holder fish farm in Kedah, Malaysia; and (f) environmental quality studies as these affect aquaculture and living aquatic resources out of which specific programmes of action will shortly be implemented in projects such as the SCS/FAO-UNEP pollution influences on mangroves for the region which is starting shortly. Related environmental projects are also being formulated.

The Programme has also cooperated closely with other agencies such as ASEAN, SEAFDEC, ICLARM, etc. especially in the conduct of aquaculture workshops and training.

The main thrust is the utilization of suitable aquaculture activities where applicable in the ongoing as well as future small-scale fisheries pilot projects. Because of the variation in developed aquaculture technologies among the participating countries, technology transfer and exchange through training programmes, workshops and study tours have been carried out effectively. TCDC arrangements have also been conveniently utilized and these can be accelerated in the future. Heretofore, training has been confined to key government workers, however, in the future participation of fish farmers who are the producers will be included. Also, direct technical assistance for highly specialized subjects (e.g., growing food organisms - brine shrimp) have been carried out by outside consultants. But as regional technology is fast developing, the use of regional experts will be considerably increased.

During Phase II resource assessment activities of the Programme have been directed towards evaluating the situation of the fisheries in the region in order to establish which stocks are fully developed and which are still capable of further expansion, identify the shortcomings and advise on follow-up action that should be taken to achieve an accurate assessment of the resources.

This was done through a number of regional and local workshops to update and analyze the available information for stock assessment; assisting member countries to carry out survey programmes by means of acoustic instruments; and revising and improving the collection of national fishery statistics.

A total of ten workshops were conducted during the period: 5 regional on the resources of Malacca Strait; Sunda Shelf; Mackerel and round scads of SCS; Management of demersal resources and Tuna resources of Celebes Sea, Moro and Sulu Sea; and 5 national workshops on the resources of Visayan/Sibuyan Sea (Philippines); Moro/Suly/Bohol Sea (Philippines); Pacific Coast of the Philippines; SCS/Northern coast of Luzon (Philippines); and Java Sea (Indonesia).

The results of these workshops show that a number of stocks were fully exploited and require management measures (particularly demersal resources

in the Gulf of Thailand, coastal waters of Peninsular Malaysia, Malacca Strait and N. coast of Java) while others were still capable of further expansion (pelagic resources in offshore waters, deeper demersal resources). The meetings were also useful in determining gaps of information required for stock assessment which promoted a number of recommendations for follow-up work; and of particular significance, strengthened regional collaboration among participating countries towards an integrated approach for stock assessment.

With regards to acoustic surveys, the Programme provided various items of acoustic equipment on national research vessels with bilateral assistance from Canadian (CIDA) and conducted training programmes on the use and application of acoustic instruments for direct assessment. Though funds were not sufficient to provide all countries with full sets of equipment required for direct assessment, particularly sampling gears and echo integrator, a number of surveys were made in northern SCS waters (Hong Kong), Tayabas Bay (Philippines) and Bali Strait (Indonesia) and biologists and gear technologists were trained on exploratory survey and sampling techniques. Resulting from these activities, working groups have been established to continue acoustic survey activities in the future.

The Programme has in the last few years become increasingly involved in tuna resource assessment and management in relation to the role of IPFC and IOFC. In Phase II, the Programme has responded to the IPFC initiative by holding the Workshop on the Tuna Resources of Indonesian and Philippine waters (Jakarta, 20-23 March 1979) and the Consultation Meeting on Management of Tuna Resources (Manila, 26-30 June 1979) as well as attending the Tuna Stock Assessment Workshop (Shimizu, 13-22 June 1979). In addition, the Programme has, through their tuna specialist and a consultant, collected tuna statistics from the region that were not generally available previously, prepared a proposal containing alternative plans for centralizing data management (data depository, processing, and dissemination of information), and prepared discussion paper on tuna management alternatives in the region.

The explosive development of the tuna fisheries in Indonesia/Philippines has emphasized the need to monitor the distribution of the tuna and skipjack resources in Celebes/Moro Sea through a coordinated tagging programme.

The project is conducting some training in tagging with the collaboration of the South Pacific Commission on board a charter vessel in Indonesian waters with participants from both countries.

These activities should be continued and expanded into a formal tagging programme including monitoring of baitfish abundance and blood sampling for stock identification.

In the field of fishery statistics, the Programme carried out intensive training of statisticians and enumerators to upgrade data collection capacity in the field, and assisted participating countries in improving the data collection system, particularly in the small-scale fishery sector. Fish identification manuals were prepared for use in the field and to standardize information on the various species landed.

In summary, programme activities on resource assessment and management during Phase II have been successful in establishing a better knowledge of

the status of the fishery and the resources of the region and has assisted in setting a pattern for more effective fishery research in the future. A momentum on stock assessment activities has been created within the region and there is a greater awareness on the gaps and shortcomings on the present knowledge that should be resolved in the following years to be able to implement accurate management and development policies.

The tuna tagging training activities conducted during Phase II should be continued and expanded into a coordinated Philippines/Indonesian tagging programme. The Programme will engage a consultant to start the activities and will seek additional funding through a TF arrangement to charter a vessel for a 2-year period to operate in the Celebes/Moro Sea region.

The Programme should be able to assist the participating countries in upgrading the technical level of their fishery scientists through regional courses, workshops and symposia related to their main fishery problems.

This training programme should become a self-sufficient permanent activity in the region, housed in a regional center that could continue the preparation of qualified expertise in the SCS area in the fields of stock assessment and fishery survey.

The Programme should assist in establishing such center and contribute to their development on the primary stages.

The Programme has been charged with developing a proposal for centralized fishery statistics systems for the South China Sea and the Indian Ocean areas. With the approval of the South China Sea proposal, the Programme will start the implementation of the system. Likewise, with the approval of the Indian Ocean proposal, the Programme can assist the IOFC and the proposed subregional bodies in implementing the plan.

To enhance the regional approach to stock assessment and management, it should also be necessary to establish a regional technical group with participants from the member countries and project scientists to act as a coordination and technical advice mechanism on the national and regional research programmes. This advisory group would meet intermittently under the project sponsorship.

Fishery statistics as applied to stock assessment and management activities in the South China Sea region

Generally speaking, the countries bordering the South China Sea which rely on fishing for nutritional and economic well-being have build up core fishery statistics programmes to collect data on catch, fishing effort, prices, employment and other factors relating to their fisheries. However, there are two factors slowing down the implementation of soundly based fishery statistics programmes in the South China Sea.

The major factor is local funding. Although most of the countries have invested some funds in the collection of fishery statistics, the amounts have not been sufficient to provide the accurate information required to make sound fisheries management and development decisions.

The other factor is the use of procedures for collecting data which do not allow the measurement of the precision and reliability of the collected data. In most South China Sea countries, data are collected through some form of interview procedure on a non-random basis, which contains inherent possibilities for reporting (non-sampling) errors which leads to statistical estimates of questionable validity. During Phase II of the Programme, the SCSP fishery statistician encouraged the use of scientific sampling procedures and direct observations rather than interviewing in the data collection programmes, in an effort to improve the precision and reliability of statistics.

Assistance for improving the collection of fisheries statistics have been provided to Malaysia, Philippines, Thailand, Hong Kong and Singapore. Significant improvements have been made in the Philippine statistics where the Bureau of Fisheries and Aquatic Resources (BFAR) has implemented the suggestions made by the project particularly in the coverage of the small-scale fishery sector. The SCSP has also assisted the BFAR with the training of its employees to prepare them for the work of collecting statistics in the field.

Also a six-week regional course in fishery statistics, co-sponsored by SCSP/BFAR, was held in Manila and attended by fishery statisticians from Indonesia, Malaysia, Thailand, Sri Lanka and the Philippines. Besides direct training in theory and application, statistical programmes of the participating countries were examined for improvement and statistical procedures were tested under field conditions.

In Malaysia, SCSP recommendations for improving existing statistics is expected to be implemented shortly. In Indonesia, an FAO statistician has been working on improving data collection procedures, and after his 5-year assignment, the statistician has now left that post.

With the establishment of economic zones, proper fishery management will require information on the size of the resource available to each country, the rate at which they can be exploited, the capacity of the countries to harvest the resources, and the effects of alternative fishery management strategies on individual fishermen, fishing communities and industries. This information must come from properly designed, funded and staffed statistics collection programmes. Many stocks of fish occur in more than one area of national jurisdiction. In those cases where a resource is shared by two or more countries, it is in the best interest of the countries concerned to cooperate in the determination and implementation of management measures, such as quotas, areas or seasons, and to cooperate in the collection of the statistics required to properly arrive at those measures as well as statistics required to monitor fisheries after management measures have been implemented in order to ensure that fish stocks remain at biologically acceptable levels. There is a need for some mechanism whereby countries can cooperate in the collection and pooling of data for biological and economic analysis.

PART II. E. Outputs

It is recognized that a number of the outputs are longer-term than the first 2 years of the project and are really then for long-term outputs. It further recognizes also that some of particularly the long-term outputs are also those of the participating countries. It additionally recognizes that the project's role is principally catalytic to a number of the outputs.

The outputs of the project to serve as measurements of achieving development objectives would be:

- The establishment of a regional body for the rational development and management of fisheries in the region.

- A regionally coordinated exploratory survey programme is being implemented in the exclusive economic zones of the participating countries and the information obtained is analyzed and discussed through a regional consultative technical body integrated by the national fishery scientists involved under the sponsorship of the Programme.

- Coastal resource and socio-economic data required for long-term planning in rural fishing areas are being collected and analysed.

- A sufficient technical capability has been created in the participating countries for stock assessment and fishery survey through a regional training programme including courses, workshops and practical training.

- Participating countries have adopted policies for rational utilization of fishery resources in the exclusive economic zones.

- Through the action generated by the Programme training activities, two permanent training centres have been established in the region to impart basic training in stock assessment and acoustic survey methods, attached to regional institutions and with local financing.

- Capabilities for data collection and analysis at the national and regional levels have been reinforced to provide systematic and updated information for decision makers and to provide input into a regional data system.

- Appropriate data collection systems have been established in the region and improved information on fishery statistics, survey data and biological sampling is computer-processed and currently available in standard forms.

- With collaboration from SCSF, a regional data system for tuna has been established, linking all Indian Ocean subregional bodies, so as to provide access to data and information to users in the Indian Ocean.

- Resource assessment surveys focusing on coastal stocks available to small-scale fishermen are being carried out in order to provide planners with realistic data upon which to base investment-oriented programmes. A regional tuna tagging programme is being implemented by the Philippines and Indonesia in the Celebes Sea - Moro Sea region and the results are being analyzed and reported to the sessions of the IPFC Tuna Committee.

- A gradual improvement in the standard of living of those engaged in small-scale fisheries is being attained and small producers are attaining increased production and optimum returns on capture and culture fishery resources.

- In participating countries, one or more successful pilot projects for the development of typical fishing communities has led to expanded rural programmes being implemented by governments utilizing their own funds or by development bank or other donor agency financing.

- New employment opportunities are being realized in rural fishing areas by practical application of aquaculture research.

- More effective development of rural fishing villages through the application of intermediate technologies and the use of alternate energy sources, including support for the role of women in the fishing communities.

- Assessment is made of the aquaculture potentials in coastal and inland areas in participating countries.

- Methods of aquafarming found applicable in pilot rural development projects is being adopted in other areas.

- Studies on selected environmental aspects and their effects on fishery resources completed and implementation of relevant recommendations initiated (e.g., pollution influences on mangroves (SCSP-FAO/UNEP Project).

- Fishery training centres, schools and extension services upgraded with the provision of more competent staff, appropriate equipment, textbooks and other training materials.

- Mechanisms are established to strengthen and improve communications among participating countries in order to promote a greater awareness of common problems and to share knowledge and experience on methods of dealing with the problems.

- Arrangements established for coordination with other fishery bodies in this and adjacent regions.

- A sufficient technical capability has been created in the participating countries for stock assessment and evaluation of management options for shared coastal and highly migratory resources through a regional training programme including courses, workshops and practical training.

PART II. F. Activities

As a regional programme, the FAO/UNDP SCSP has had a catalytic effect in the promotion of various fishery development activities on both regional and national levels, and perhaps more importantly has considerably strengthened interaction and cooperation among fishery administrators in participating countries. Workshops, training courses, consultations and study tours are resulting in a greater awareness of common problems and the various approaches taken by neighboring countries to solve these problems. This interaction is further enhanced by the close collaboration established with the Indian Ocean Programme (INT/76/012), the Promotion of Small-Scale Fisheries Development in the Bay of Bengal Project (RAS/40/SWE), Regional Fisheries Coordinator for the South Pacific (RAS/73/025), SEAFDEC and the Asian Development Bank.

The Programme will, therefore, continue to strengthen interactions among participating countries and in particular will further apply TCDC concept and self-help to the fullest possible extent. During the past five years, the Programme has made increasing use of regional expertise and institutions and every attempt will be made to strengthen this approach through TCDC funding and support from governments and the UNDP-IPF's.

The Programme plans to implement through regional cooperation certain specified activities in connection with the regional management of fishery resources, the assessment of certain regional and coastal stocks and to consider the legal and institutional arrangements that would be required as would arise out of such activities. The effects of extended jurisdiction as imposed by present or future arrangements already are having effect on certain participating countries of the Programme and it is proposed to utilize consultations, missions and such other direct regional activities and provide such assistance as required to facilitate local arrangements and ventures between countries and the region to stabilize and, where necessary, find ways to replace the lost or threatened production which faces certain countries of the region. These activities would stress regional solutions to the problem. Linked to these activities, the Programme proposes to continue the activities related to regional and national economic planning of fishery development considering the constraints that still exist and particularly those which are legal and institutional. Based on the accomplishments of the last five years, the Programme would plan to utilize regional and national expertise for the preparation of planning programmes.

The 6th session of the Coordinating Committee meeting held in September, 1978 set forth principal guidelines for ongoing activities of the Programme which would include both management and development.

While the Programme has adequately served the area as a regional coordinating mechanism, the Committee emphasized the importance of establishing a subregional body that would eventually become self-sustaining in both status and funding. It was stressed, however, that the mechanism should not immediately replace the Programme, but when established should be gradually phased in to take over the main functions of the Programme.

To be consistent with the guidelines set by the Coordinating Committee and meet the long-range and immediate objectives, the main thrust of the Programme during Phase III will be directed towards the realization of maximum benefits to be derived by member countries from the exclusive economic zones. Within this context, the primary activities will include:

- Formation and operation of a subregional coordinating mechanism,
- Resource assessment and management,
- Coastal rural fisheries development.

Formation and operation of a subregional coordinating mechanism

In 1976, IPFC amended its basic agreement to redefine and strengthen its functions regarding management and development. Because of the vast geographical area covered by the IPFC, the possibilities of setting up subsidiary bodies to deal with management and development problems on a subregional basis was discussed at the 1978 meeting of IPFC. It was then agreed that it would be desirable to consider geographic subdivisions of the undefined Indo-Pacific area covered by the agreement. The Coordinating Committee of the South China Sea Programme was cited as an obvious example of a subregional body that serves the area well. It was noted, however, that the terms of reference of the Coordinating Committee are considerably more restrictive than those of the IPFC as they are exclusively related to the activities of the SCSP. Since the Programme, and therefore the Coordinating Committee are of limited duration, an early decision is required on any follow-up action on the establishment of an intergovernmental mechanism for regional cooperation.

Following these initial IPFC discussions, the Coordinating Committee at its 6th Session held in September 1978, agreed that a subregional coordinating mechanism under the framework of the IPFC should be started during Phase III of the SCSP. It was stressed that the mechanism should not necessarily replace the SCSP, at least in its initial stages, but should be formed and structured to serve the region on a continuing basis, eventually becoming self-sustaining and requiring less UNDP support. In this respect, the following sequences of activities are envisaged:

(a) Prepare an appropriate draft resolution for the establishment of a Committee for the Development and Management of Fisheries in the South China Sea (along the lines of the one established for the Gulfs) which

- (i) would have broader functions than the Coordinating Committee for the SCSP,
- (ii) would include the functions of the Coordinating Committee while the SCSP is in existence, and

(iii) would continue after the SCSP has come to an end.

(b) The draft resolution was considered at the 7th session of the Coordinating Committee in October 1979 and forwarded to the Executive Committee of the IPFC.

(c) The resolution as approved by the Coordinating Committee to be tabled for action at the 19th session of the IPFC in May 1980.

(d) After formally established as a subregional body, Phase III of the SCSP will provide direct assistance towards strengthening and expanding its various functions in regional cooperation.

Resource assessment and management

To achieve the immediate objectives described in II.B.2, the Programme activities on this field will be centered on:

1. Promote and assist in the establishment of a regional technical working group to evaluate and exchange information on stock assessment and surveys of fish resources in the exclusive economic zones particularly those resources exploited by more than one country. In this respect, the Programme will hold periodic meetings of a consultative group comprised of those senior fishery officers involved in resource survey and assessment in order to analyze, discuss and propose regional activities implemented by the various national institutions.

2. Assist participating countries in implementing a programme of survey appraisal of both coastal and oceanic (EEZ) resources by means of acoustic methods and exploratory fishing techniques, oriented to give a first assessment of the potential of their untapped resources.

3. Identify and assist in the formulation of project proposals for financing by prospective donors in order to complete, improve and update fishing and acoustic equipment on board national research vessels.

4. Assist participating countries in establishing a convenient programme of control of biological parameters of the exploited populations with the purpose of a better understanding of the changes in abundance of the stocks. To this effect, a pilot sampling and data collection programme will be established in two rural localities (fishing villages) in each participating country for routine collection of landing and biological data. In each country, the Programme will be monitored by a local biologist and carried out by two sampling technicians in each locality. The Programme will be centrally coordinated and assisted by the resource assessment staff.

5. Assist participating countries in the improvement of their catch and effort statistics, in particular those related to the activities of the small-scale fishery and the tuna fishery sectors to provide

basic information for stock assessment and management considerations. To this end, the Programme statistician will, in cooperation with country counterparts concerned, evaluate the progress of the data collection systems, which in many cases are based on previous assistance provided. For small-scale fisheries, this evaluation will incorporate information obtained as described in (4).

In the area of centralized data systems, the Programme will proceed along two fronts. In consultation with the countries to become members of the South China Sea subregional body, the Programme will design and implement a central data system for fishery statistics, survey data, and biological data. Also with the concurrence of the IOFC with the recommendation of the Manila consultation, the Programme will assist with the final design and implementation of a centralized data system for the Indian Ocean region. In addition, the Programme will:

(i) Act as a clearing house for information on fishery statistics programmes and activities in the countries of a region, as well as information on statistics programmes and activities in countries outside the region which have direct application to the statistical problems in the region;

(ii) Encourage the transfer of knowledge and experience between countries or a region and between regions through personal visits by statisticians in the different countries. By sharing knowledge about, and experiences learned from, the building of fisheries statistics programmes in different countries, fishery statisticians of respective countries will be better prepared for dealing with problems in their own countries; and

(iii) Sponsor courses, conferences and workshops on fishery statistics to be attended by statisticians in a region as well as by statisticians in other regions, as appropriate. Participants will learn statistical methods and procedures, learn procedures for using the centralized data system, discuss applications to practical fisheries problems, and review progress and problems in participating countries.

6. Organize and conduct during the Phase III the following stock assessment workshops:

- Deep-sea resources of the continental slope
- Coral reef and hard bottom fish resources
- Mesopelagic fish
- Cephalopod resources
- Shrimp and prawn resources
- Local stocks (national workshops)
- Fish seed resources for aquaculture (Working Party)

7. Assist participating countries in upgrading and expanding the technical capability of the national staff through a regional training programme on stock assessment and survey. This will be implemented by a number of training courses on fish population analysis, acoustic survey

method, exploratory fishing methods, calibration of acoustic instruments and statistics data collection methods. A total of seven courses will be given over a 3-year period involving project staff and consultants.

8. The Programme will attempt to increase and enhance these activities through the establishment in the region of two permanent regional training centres attached to one of the regional institutions. This centre will require external financing initially to become self-sufficient under a regional umbrella in the future.

9. Assist participating countries in organizing and implementing a coordinated Philippines/Indonesia tuna tagging programme in the region of Celebes Sea, Moro Gulf-Sulu Sea, for which additional funds will be sought.

10. The Programme will integrate the activities of the ongoing Joint Eastern Tropical Indian Ocean Fishery Survey being implemented from Indonesia, into the stock assessment activities of the Phase III, particularly as they apply to Indonesia. This work will be effected by adding temporarily an additional Stock Assessment Biologist post stationed in Indonesia. The location will be determined in consultation with the government.

Coastal rural fisheries development

Fisheries development at the village level will continue to be an important part of the Programme's work. The momentum generated during Phase II will be maintained and accelerated. The Programme will continue to supervise ongoing bilaterally supported projects in the participating countries; strengthen existing close liaison with regional and international development banks with respect to large-scale investment projects; assist in the identification and formulation of UNDP/IPF projects; collect and compile basic data required for development planning; coordinate exchange of information and experience among countries of the region; and promote further participation of regional expertise and institutions. Because the complex nature of rural fisheries development requires multi-disciplined efforts, a teamwork approach is planned. This primary activity will therefore involve a wide range of inputs from Programme staff, consultants and institutions concerned with resource evaluation, statistics, socio-economics, aquaculture and extension. Specifically the planned activities and sub-activities include the following:

1. Several rural fishery projects are now at or near the stage of implementation in Indonesia, Malaysia, Philippines and Thailand. These bilaterally supported projects are widely diversified in scope and, depending on local conditions, involve cooperative development, marketing, fishing technology, fish farming, simple processing, infrastructure and community development. They were designed for implementation through the Programme, largely under TCDC arrangements and intended to serve as demonstration models upon which broader development programmes can be planned. The Programme will continue to provide direct assistance in carrying out these projects and will -

(i) monitor and evaluate results and assist in the planning of expanded programmes, and

(ii) arrange on-site village level training courses for extension officers and others concerned with rural fisheries development.

2. A missing link for long-range development planning in the rural fishery sector is the limited or complete lack of social and economic data. Before any large-scale programme which involve sizeable investments can be formulated, a wide variety of social and economic issues must be collected and analyzed. This includes such information as social and cultural constraints, income levels and sources, aspirations of the local population, surplus manpower, marketing structure, village leadership, religious implications, etc. Earlier studies carried out by the Programme in the Philippines are being used in the preparation of large scale development projects for financing by the World Bank and the Asian Development Bank. The Programme will therefore continue and expand this work largely through consultants and institutions within the region. Specific priority areas in the rural fisheries sector will be selected by participating governments for these studies. Coordinated by a Programme economist experienced in rural development planning, survey programmes will be formulated and implemented throughout the region. The work will be combined with coastal resource evaluations and aquaculture surveys in order to provide a full range of baseline information upon which to formulate realistic development programmes.

3. In aquaculture, the different countries have requested very strongly that the Programme find means for the assessment of the aquaculture potentials in their respective coastal and marine areas. Likewise, an evaluation of the available fish seed resources for aquafarming in the participating countries is important and should be undertaken especially for species that cannot as yet be produced from hatcheries, such as most of the euryhaline and marine species.

4. The effective transfer of knowledge and skills at the village level is an integral part of the development process. A well organized extension service with trained personnel can play a major role in upgrading the living standards in the rural fisheries sector. Too often, however, efforts of extension workers are misdirected into regulatory, law enforcement, statistical collection, and other administrative activities. Moreover, many do not have the necessary practical training required for village level work. Responding to requests from participating countries to assist in improving the effectiveness of extension service, the Programme will place emphasis on designing and implementing practical training courses at the village level. These activities will be carried out in connection with the small-scale pilot development projects and in collaboration with existing training institutions. Specifically, the Programme will:

(i) design and implement short village level training courses for extension workers which will focus on training methodology, low-cost labor intensive technology and where appropriate, the use of alternate sources of energy, i.e., windmill pumps, solar drying,

etc. Rather than attempting to cover a broad range of subjects during each course, training will be limited to the particular needs of each group of participants. These will include separate courses on such subjects as fish farming, oyster culture, cooperative management, simple processing, fishing technology, and so forth.

(ii) prepare and acquire manuals, handbooks and other training aids and where appropriate, translate into local languages. These will cover a broad range of subjects, clearly illustrated and prepared in simple technical terms.

(iii) in cooperation with existing institutions, hold a series of regional training workshops for higher level extension officers concerned with organization and planning. These will be primarily concerned with methods of improving national extension services.

(iv) arrange study tours within the region as a means of enhancing technical cooperation. These are to include on-site studies in specialized fields where a particular country has proficiency, e.g., cage culture in Singapore and Hong Kong, small boat seining in the Philippines, shrimp culture in Thailand or small boat tuna fishing in Indonesia, etc.

(v) initiate programmes which involve women in the rural villages, particularly in fish culture, processing and marketing.

5. In instances where aquaculture appears to be the most suitable aspect of fisheries development, all means to support this development will be pursued by the Programme. Particular attention will be paid in areas where the problems of exclusive economic zone implementation will adversely affect existing capture fisheries. In such places, identification of suitable aquaculture ventures will be thoroughly investigated.

The role of aquaculture in small-scale fisheries development and in rural uplift programmes will also be emphasized. In the previous phase, the aspects of aquaculture suitable in small-scale fisheries pilot areas have been initially identified. The experience gained as well as new initiatives tried in similarly situated areas in the region will be fully taken advantage of in the pursuance of this sector of the Programme activities. Certain aquaculture activities are particularly appropriate at this time in this region because of the escalating price of fuel and the presence of large labour force. Aquaculture uses fuel in very minimal amount and it is characteristically labour intensive.

The diversity of development in aquaculture of the various participating countries makes exchange of technology and experience very applicable in the region. Training and technical exchange will therefore be vital in accelerating aquaculture development and this will be given special emphasis by the Programme.

6. To ensure proper execution of development projects/ regional work on aquatic pollution as well as preservation or improvement of the environment to protect economic aquatic resources is a continuing activity of the Programme. Close cooperation with the UNEP in the identification, formulation and implementation of this type of project is being undertaken. The implementation of the FAO/UNEP pollution of mangrove project is being started through the Programme while other projects (e.g., oil pollution) are being developed.

PART II. G. Inputs

1. Government inputs

Government responsibilities

Under the broad agreement for government counterpart support, letters of understanding covering all major component of activities will be drawn up to ensure that project and government support of funds, staff and equipment are clearly described and committed before the activity commences.

Following are a number of specific responsibilities required from the host government:

- (i) the use of national research and training vessel including operation and maintenance costs,
- (ii) meeting spaces and training facilities for workshops, meetings and training courses,
- (iii) office space and facilities for intermittent periods by project staff and consultants,
- (iv) transportation for project staff and consultants while carrying out project activities,
- (v) freedom of national vessels or vessels chartered by the Programme to operate in waters of other participating countries when working under regional project arrangements.

Assignment of national staff

- (a) All participating countries will provide the services of appropriate subject matter officers to work with project staff and consultants during their assignments in the country.
- (b) Participating countries agree to make available on a short-term basis, the services of certain national staff for project consultancies to work in other countries in the region.

Training provisions

Trainees will be selected by participating countries to participate in the various training courses organized by the project. The services

of national staff will also be provided to supplement instructors provided by the project.

Government-provided buildings, equipment and supplies

	<u>Location</u>	<u>Period</u>
(a) Non-expendable equipment		
(i) building and premises - host country premises rental and office furniture and fixtures to include filing and storage cabinets, bookshelves, drapes, carpets, etc.	Manila	Full-time duration
(ii) survey and training vessels	Participating countries	Intermittent
(iii) laboratories and other research facilities	"	"
(iv) offices, meeting rooms and training facilities	"	"
(v) use of vehicles in non-host countries	"	"
(vi) use of office equipment in non-host countries of region	"	"
(b) Miscellaneous		
(i) operation and maintenance of host facilities	Manila	Duration of project
(ii) sundry, e.g., water supply, electricity, telephone installation and telephone rental	"	Continuous
(iii) operation and maintenance of equipment in non-host countries	Non-host participating countries	Intermittent
(iv) internal travel costs, telephone, cables, office supplies and contingencies	"	"
(v) operation and maintenance of survey and training vessels	Participating countries	"

The above considers the joint effort in the area but the countries will no doubt be required to expand further local funds on other ancillary activities, such as certain aspects of aquaculture, marketing, infrastructure, institutional matters, etc., which cannot be quantified at present. It should be noted that such inputs as described above do not imply direct cash input or additional cash pre-emption. They are, in fact, estimates of the inputs from the budgets of the participating countries that can be attributed to the activities of the South China Sea Programme. They should reflect the activity inputs of the governments as foreseen to carry out the project workplan. Most of these costs will be identified on a case by case basis for each activity and will be the subject of informal memoranda of understanding between the Programme and the heads of Fisheries departments.

Income from the sale of catches

There will be a number of sub-project activities in each of the participating countries which may generate income from catch sales. As the arrangements for such incomes vary from country to country according to government regulations, arrangements will be included in the memorandum of understanding for such activities. The general intent shall be that the income should be retained by the project to assist in financing the respective activities.

With regard to the present regional income account of the project it will continue to be administered by the Committee where such meetings will indicate activities to be supported by the fund.

2. UNDP inputs

	<u>Location</u>	<u>Starting Date</u>	<u>Duration</u>
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a) International staff

Posts for the key staffmembers will be continued in order to maintain the momentum of project activities generated during Phase II. While a gradual phase-out of international staff is intended, some posts are expected to be shifted from the UNDP budget to Trust Fund inputs or other budgetary sources for carrying out an expanded programme. Certain key posts will be replaced by staff provided through the regional mechanism that will evolve during the course of the project. It is also intended to supplement key posts with FAO Headquarters staff assigned to the project. Key staff consists of the following:

(i) Programme Leader	Manila	1/1/80	5 years
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Responsible for leading the work of the Programme staff, coordinating all project activities as they apply to national development programmes, and maintain close collaboration with governments, industry and international organization. Ensure the establishment of a functioning regional mechanism.

(ii) Deputy Programme Leader	Manila	1/1/80	4 years
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Experienced in all aspects of fisheries development at the operational and management level to assist in the overall conduct of the project and in particular be responsible for all small-scale fisheries inputs as described in II.F.

	<u>Location</u>	<u>Starting Date</u>	<u>Duration</u>
(iii) Senior Resource Assessment Officer	Manila	1/1/80	5 years

Fishery biologist with wide experience in the field of stock evaluation and acoustic surveys. He will be responsible for all aspects of resource assessment and evaluation in the project, including the promotion, development and coordination of the stock assessment and survey activities in the participating countries on their acoustic survey programmes.

(iv) Senior Fishery Biologist	Manila	1/7/80	3 years 6 months
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Fishery biologist experienced in demersal and pelagic stock assessment. Should be specially familiar with tropical fisheries and particularly in the Asian waters. He should also be experienced in training in fisheries research. In close collaboration with the Senior Resource Assessment Officer he will be particularly responsible for the activities leading up to the formation of regional training centres in stock assessment and acoustic survey technology. In the immediate term he will coordinate such ad hoc training programmes as are required in these two fields. In this connection he will also collaborate with the Senior Acoustic Expert.

(v) Senior Acoustic Expert (Electronics)	Manila	1/1/80	2 years 7 months
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Experienced in the operation and use of experimental shore-based and on-board acoustic research equipment. He should be a qualified engineer or equivalent. Under the general direction of the Senior Resource Assessment Officer and in close collaboration with the Senior Fishery Biologist, he will organize and conduct training and experimental activities in the field of electro-acoustics and advise the participating countries on their acoustic survey programmes.

	<u>Location</u>	<u>Starting date</u>	<u>Duration</u>
(vi) Senior Aquaculture Officer	Manila	1/1/80	5 years

Experienced and has adequate knowledge of various aquaculture technologies existing in the Southeast Asian region. Responsible for identification and formulation of aquaculture projects in the region. Monitors and coordinates aquaculture activities in the region and ensures full integration of aquaculture to fishery development activities, in particular, in small-scale fishery sector. Promotes and arranges for TCDC activities in aquaculture. Cooperates in extension and training activities in aquaculture with the Senior Extension Officer.

(vii) Sr. Development Officer (TCDC)	Manila	1/1/80	4 years 9 months
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To expedite the integration and coordination of project activities to ensure smooth implementation of particularly the sub-project activities in the participating countries, with particular reference to the institutional arrangements, recruitment including local contracts, with the technical elements and general administrative direction. In cooperation with the appropriate technical officers of the project, will be responsible for the promotion, identification, coordination and implementation of TCDC activities. Ensures implementation of TCDC activities in the most appropriate and efficient manner by close cooperation with the member countries. Acts as a focal point for TCDC activities of the project. To amplify the TCDC thrust of the project.^{1/}

^{1/} Refer to Part II.C, page 2

	<u>Location</u>	<u>Starting Date</u>	<u>Duration</u>
(viii) Senior Fisheries Training/ Extension Officer	Manila	1/1/80	4 year 9 months

Experienced in one or more of the disciplines concerned with the development of fisheries and with some experience in organizing training and extension activities in his own country. Coordinate with project professional staff regarding training programmes in each of their activities. Assist in arranging national and regional training programmes in participating countries including extension officer training particularly as applicable to rural fishery development activities of the programme, utilizing national or regional institution and project sites. Assist participating countries in the preparation of extension project proposals in order to accelerate the formation of effective extension systems for small-scale fisheries development.

(ix) Senior Fisheries Economist (Statistics)	Manila	1/1/80	5 years
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Experienced in economics with emphasis on information and data management systems particularly applied to stock assessment. He will be particularly responsible for carrying out the program activities reflected in II.F. He will collaborate with the concerned staff members to carry out these functions such as the stock assessment aquaculture. In particular he should collaborate with the economist (EEZ) on activities associated with the implications of EEZ planning.

(x) Senior Economist (EEZ Planning)	Manila	1/1/80	4 years 9 months
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Experienced at a high level in government for planning fisheries development and management programmes and particularly in consideration of extended jurisdiction planning. Will be responsible for the coordination of these activities specifically concerned with extended jurisdiction.

	<u>Location</u>	<u>Starting Date</u>	<u>Duration</u>
(xi) Economist (Rural Development)			
Responsible for organizing and implementing basic, social and economic studies in selected rural coastal areas and for other related programmes in relation to small-scale fishing, aquaculture, fish processing, marketing, cooperatives, etc.	Manila	1/1/80	2 years 8 months
(xii) Stock Assessment Biologist	Indonesia	1/1/80	1 year 3 months
In order to better integrate the stock assessment activities foreseen for the Phase III and to liaise and coordinate the activities of the Regional Fishery Survey in the eastern Indian Ocean and the CIDA- supported survey of Natuna Island, the staff member under the direction of the Senior Resource Evaluation Officer will implement the activities foreseen for Indonesia with regard to stock assessment. He will further assist the Senior Biologist by fully utilizing the Indonesia surveys as a training mechanism or tool in support of the regional resource survey program.			
(xiii) Associate Expert (Biologist)	Indonesia	1/1/80	2 years
To assist the Stock Assessment Biologist in Indonesia in the implementation of the activities foreseen for Indonesia with regard to stock assessment but more particularly, to assist the Stock Assessment Biologist in the coordination of the activities of the Regional Fishery Survey in the Eastern Indian Ocean.			
(xiv) Associate Expert Biologist (Aquatic Pollution)	Manila	1/1/80	2 years
To assist the project experts/ consultants on aquatic pollution matters; to plan and implement FAO/ UNEP project on pollution of mangroves; and to assist in developing plans for national programmes on coastal water pollution.			

	<u>Location</u>	<u>Starting date</u>	<u>Duration</u>
(xv) Consultants	Participating countries		As required
<p>Legal and institutional, fishery economics, aquaculture engineering, fish hatchery, shell-fish culture, seaweed specialist, pen/cage culture, feeds, fish diseases, water/soil quality, gear specialist, facilities engineer, training instructors, tuna tagging, computerization, masterfisherman, fishery biologists in various specialized fields, acoustic engineer, statistician.</p>			
(xvi) Administrative Support Personnel	Manila	1/1/80	5 years
(b) Subcontracts			
(i) Institutions in the region will be engaged to carry out socio-economic surveys of selected rural fishing areas (in Indonesia, Malaysia, Philippines and Thailand); and for carrying out aquaculture potential surveys, fish seed resources assessment, water and soil quality, training, etc.	Participating countries	1/3/80	Intermittent
(ii) To regional university and local institutions for conducting fish sampling and data collection of the landings; and laboratory analysis for fish identification, stomach content, gonad analysis.	Participating countries		5 years

	<u>Location</u>	<u>Starting date</u>	<u>Duration</u>
c) Training provisions			
Regional group training at national institutions and/or on board national research vessels in acoustic survey, exploratory fishing, stock assessment, statistics, training of extension workers at national project sites and institutions in various rural development activities including aquaculture, processing, marketing, cooperative management and community development; and attendance at group workshops, regional meetings and working groups.	Participating countries		5 years
d) UNDP supplies and equipment			
(i) Expendable			
Office supplies, publications, training aids and materials, demonstration, tagging and laboratory equipment, miscellaneous tools, various aquaculture supplies.			
(ii) Non-expendable			
Office equipment, vehicles and aquaculture equipment.			
e) Miscellaneous			
(i) Operation and maintenance of project vehicles and equipment.			

	<u>Location</u>	<u>Starting date</u>	<u>Duration</u>
(ii) Sundry			
Terminal report, reports and publications, advisory committee meetings, cables, portage, miscellaneous.			

PART II. H. Preparation of Work Plan

A detailed Work Plan for the implementation of the project will be prepared by the leader of the international staff assigned to the project, in consultation with the governments' departments responsible for fisheries. This will be done at the start of the project and brought forward periodically. The agreed upon Work Plan will be attached to the Project Document as Annex I and will be considered as part of that document.

<u>1. Formation of a subregional coordinating mechanism</u>	<u>Timeframe</u>
(i) Prepare draft resolution for the establishment of a Committee for the Development and Management of Fisheries in the South China Sea	By September 1979
(ii) Coordinating Committee meet to consider draft resolution	October 1979
(iii) Submission of resolution to the Executive Committee of the IPFC	May 1980
(iv) Resolution acted upon at the 19th Session of the IPFC	May 1980

2. Resource assessment and management**Timeframe**

- | | |
|---|---------------------------|
| (i) Survey programme | |
| Assistance on national survey programme
(exploratory fishing and acoustic survey) | Continuous
from 1980 |
| (ii) Data collection | |
| Improving of catch-effort statistics | Continuous
from 1980 |
| Establish a subregional (IPFC) data system
for the computerization of fishery statistics,
survey data, and biological data. | 6 m/m
1980/81 |
| Establish a regional data system for the
Indian Ocean area. | 3 m/m
1980/81 |
| Biological sampling on two selected sites
(small-scale fishery sector) | Continuous
from 1980 |
| (iii) Workshops | |
| A total of 6 regional workshops over a
3-year period | intermittent
1980/83 |
| (iv) Technical consultative group on stock
assessment | |
| Formed by 10 fishery scientists from the
4 countries involved will meet four times
over a 3-year period for 2 weeks | Intermittent
1980/83 |
| (v) Regional training courses | |
| A total of 7 courses with 11 months train-
ing will be given over a 3-year period | Intermittent
from 1980 |
| (vi) A consultant engaged to prepare and coor-
dinate a tuna tagging programme in the
Philippines and Indonesia | Intermittent
from 1980 |

3. Coastal rural fisheries development

- | | |
|--|--|
| a) Supervise bilaterally financed ongoing rural
fishery projects in participating countries | January 1980 -
January 1983 |
| (i) monitor and evaluate results of these pro-
jects and prepare recommendations for
follow-up actions | Intermittent
as required |
| (ii) assist in the identification and formula-
tion of other sub-area small-scale
fishery projects for external funding | Intermittent
from Mar. 1980-
December 1983 |
| (iii) organize and conduct national and
regional workshops and training groups
to be held at project sites | Intermittent
from June 1980 |

	<u>Timeframe</u>
b) Arrange subcontracts with regional institutions for social and economic surveys at selected rural fishing areas	Intermittent from Jan. 1980 to Jan. 1983
(i) collect and compile data on fish production including catch rates, methods, major species, seasonal fluctuations, etc.	Intermittent from Jan. 1980
(ii) survey areas to determine aquaculture potentials in coastal and marine areas	Intermittent from Jan. 1980
(iii) survey available fish seed resources which can be utilized for aquaculture	Intermittent from Jan. 1980
(iv) on basis of studies, formulate development proposals for the selected sub-areas	As required
c) In connection with the small-scale fishery projects, design and arrange short training courses in various specialized subjects for extension workers	From Jan. 1980
(i) prepare and acquire handbooks, manuals and other appropriate training aids	From Jan. 1980
(ii) organize regional training workshops on extension training methodology	From June 1980
(iii) arrange regional group studies for exchange of technical information on various specialized subjects, i.e., community development, village level processing, cage/pen culture, cooperative management, aquaculture integrated with crop culture or animal husbandry, seaweed culture, etc.	Intermittent from June 1980

PART II. J. Development Support Communication

An important element of fisheries development in South East Asia and of particular interest to a regional project, is that each country has certain expertise and experience which can be of great value to other countries in the region. While some countries may be more proficient in sea farming, mariculture or fishpond engineering, other countries may be more advanced in certain aspects of fishing technology, processing and boat-building. The Programme is, therefore, in a unique position to encourage and support interaction among the countries in various technical fields. Through consultative group meetings, workshops, training courses and study tours, the Programme has been able and will continue to assist in strengthening regional cooperation with the ultimate goal being the formation of a self-reliant regional fisheries body.

In connection with its work in the rural fisheries sector, the Programme will continue to enlist active participation of the coastal fishing population in planning and implementing development projects. Ongoing projects were designed in collaboration with village leaders and are being carried out with direct participation of the communities. A self-help concept is built into these projects to provide motivation and make villages aware of national subsidy/loan programmes available for improving local conditions. The projects serve not only to demonstrate various innovations to increase incomes and employment opportunities, but also to serve as training grounds for extension workers, planners and other rural fishing communities. In this respect, film strips and technical handbooks will be prepared on the various activities of the projects as a means of disseminating the practical aspects of village development.

Part II. K. Institutional Framework

1. The organization of the project with regards to its regional responsibilities and the terms of reference of the Coordinating Committee will remain unaltered from Phase II and are shown in Appendix B. As noted on page 22 the formation of a subregional mechanism would change the institutional structure as noted on page 22 and in more detail in Appendix C. The decisions taken at the 8th Session of the IPFC Coordinating Committee meeting in Kyoto affecting the institutional structure will be appended to the project document on the occasion of an appropriate revision.

2. a) Host government - The phase III activities foresee the rapid formation of a subregional body which will require more space and facilities required in Phase II. The host government for Phase III will therefore be required to provide rent-free, furnished office facilities under a long-term arrangement which should include electricity, telephone installation and monthly rental. Depending on the nature of the facilities, the requirements should approximate 600-900 square meters.

The Ministry of Natural Resources and the Bureau of Fisheries and Aquatic Resources of the Philippines have again expressed their government's willingness to host the Phase III programme and provide suitable facilities.

b) Projects to be implemented under the umbrella of the South China Sea Programme:

1) Pollution projects - identification phase: -

UNEP/FAO Project "Impact of Pollution on the Mangrove Ecosystem and its Productivity in South East Asia"
(FP/0503-79-04)

Approved: October 1979
Duration: 7 months
Cost : US\$ 72,500

UNEP/FAO Project "Assessment of Oil Pollution and its Impact on Living Aquatic Resources in South East Asia"
(FP/0503-79-12)

Approved: October 1979
Duration: 7 months
Cost : US\$ 68,500

- 2) GCP/INT/334/NOR - Sub-project Proposal G-0406: EEZ -
 "Establishment of a Biological Data Collection System for
 Tunas and Related Species in Mindanao and Celebes Area"
 Approved: June 1979
 Duration: 1 year
 Cost: US\$ 65,100

The aim of the project is to establish an operational infrastructure for sampling in the region described and obtain biological data (species composition, length, weight, recruitment) in the tuna fishery of the Philippines and Indonesia for stock assessment and management purposes. It is intended to be an ongoing activity under the government responsibility once the project phases out.

- 3) GCP/INT/334/Norway EEZ Umbrella Programme - Sub-project Proposal -
 "Regional Fisheries Law Advisory Programmes - Western Pacific
 and South China Sea"
 Approved: October 1979
 Duration: 1 year
 Cost: US\$ 106,350

The purpose of the project is to assist governments of the region in the formulation of legislation for the management and development of fisheries within extended zones of jurisdiction, in the drawing up of bilateral and other agreements in fisheries, and in the establishment of cooperative schemes in surveillance and enforcement; to provide experience and training to government lawyers in legal problems relating to fisheries management and development; and to facilitate the harmonization of fisheries legislation in the region. The staffmember time is to be shared between the South Pacific and South China Sea regional projects

- 4) GCP/RAS/040/SWE - "Development of Small-scale Fisheries in the Bay of Bengal"

The SCSP is implementing on behalf of the GCP/RAS/040/SWE one small-scale village pilot project on the west coast of Thailand and identifying a similar project for immediate implementation on the west coast of Malaysia. Both projects involve essentially coastal aquaculture as the principal component.

Duration: approximately 2 years each
 Cost: approximately US\$ 200,000 each

- 5) CIDA small-scale fisheries pilot projects in 4 Asian countries. Individual TF agreements are now being finalized between CIDA and FAO. These are the components of the CIDA Trust Fund proposal under negotiation for several years. The financing for the Indonesia project is for \$1,300,000 is secured and implementation is planned for January-February 1980.

Malaysia component is to follow shortly and the Thailand/Philippine components should emerge during the first half of 1980.

Duration: each project covers 2 years
Cost : approximate total - US\$ 5-million

6) Resource Evaluation Proposal for ASEAN countries

Duration: 5 years
Cost : US\$ 15-18 million

This project prepared by the SCSF in close consultation with the technicians in the participating countries is being proposed for EEC financing through ASEAN and to be implemented by the SCSF under a Trust Fund arrangement. It has received preliminary discussion within the Ministerial Committee on Food, Agriculture and Forestry (COFAF) and hopefully will be dealt with at a January 1980 meeting of that body for an action decision. It is strongly supported by the Asian Development Bank who may participate in some components of the project.

7) Marketing Information and Advisory Services for Fish Products in the Asian Region

Approved: November 1979
Duration: 3 years
Funding by funds-in-trust from Norway to be implemented by SCSF
Cost : US\$ 2,004,600

The purpose of this project is to set up a service which will enable the fishery industry in the ASEAN region to develop in accordance with present and future market demand and fishery resource potentials by improving the availability of information on worldwide fish marketing possibilities and supply situation and by providing technical assistance in this field when it becomes necessary for the producers to make changes in present marketing and processing methods. Better information of and assistance to fishermen will result in more rational marketing operations and reduce the market power of intermediaries which is frequently due to the fact that they are better informed than the producers about the market situation. It will lead to a reduction in post-harvest losses in the fisheries of the ASEAN countries and augment supplies of nutritious fishery products, which the population of the region is accustomed to eat. The project will:

- (a) establish a service of providing information on marketing opportunities and supply prospects of fishery products within and outside the Asian region;
- (b) advise on product specifications, processing methods and quality standards in accordance with market requirements;
- (c) assist in developing new marketing opportunities for fishery resources presently not fully utilized for human consumption;

- (d) assist in the planning and implementation of national fish market information and research activities in the participating countries;
 - (e) train national staff in governments, institutions and industry in marketing development and strengthen national institutions involved in this field.
- 8) RAS/79/041 - Training in Food and Cash Crops Production for the Countries of Asia and Pacific Region (Umbrella Training) - This is part of a total of 16 projects to be financed by the UNDP during 1980.

(a) Training in small-scale cage and pen culture for finfish

Duration: one month
Cost : US\$ 25,000

To uplift the economy of depressed rural and fishermen communities through increased food supply, more employment opportunities and increased income and to train trainers or extension workers on the site selection, design and management of small-scale cage and pen culture of finfish.

(b) Training on Gracilaria algae

Duration: 6 weeks
Cost : US\$ 35,000 (estimate)

To improve economy of depressed coastal communities through better utilization of resources available in area; to provide training in recognition, techniques of culture and processing of Gracilaria so that the supply for this resource can be stabilized, improve income of coastal communities and provide profitable work opportunities.

(c) Utilization of Recycled Organic Wastes in Aquaculture

Duration: 4 weeks
Cost : US\$ 30,000 (estimate)

To contribute in solving a growing problem of organic waste disposal in human communities; to find ways to utilize organic wastes for the production of fish as source of food and provide additional income and employment.

(d) Training in Freshwater Prawn Farming

Duration: 3 months
Cost : US\$ 60,000

To renew a declining fishery resource and provide income and employment opportunities; to train a group of future trainers for development of prawn farming in respective countries in the region.

c) Geographical area of the Project

Includes the South China Sea, its contiguous and adjacent waters up to the outer limits of the water under the jurisdiction of the coastal countries bordering the South China Sea.

d) Association with other bodies

SEAFDEC - It is intended that closer ties be visualized with the formation of the proposed Management and Development Committee. In the interim it is intended to integrate appropriate programmes to the maximum extent possible.

ICLARM - Close cooperation is now maintained on similar activities involving the SCS countries. The areas of cooperation would probably include aquaculture and stock assessment and certain aspects of small-scale fisheries development.

While the project will eventually cover the Asian region, it will initially commence activities in the South China Sea region.

PART II. M. Future UNDP Assistance

Though one of the main objectives of the project is to establish a regional management and development body and thereby gradually reduce UNDP support, the multi-disciplinary nature of fisheries, particularly as it now applies to extended jurisdictions of coastal states, will require future UNDP assistance for some years to come. Therefore in the latter half of 1981 a thorough review will be carried out of the progress made and the future requirements. As a result of such review a further extension of the project will be prepared.

PART III. SCHEDULES OF MONITORING, EVALUATION AND REPORTS

PART III. A. Tripartite Monitoring Reviews: Technical Reviews

The project will be subject to periodic review in accordance with the policies and procedures established by UNDP for monitoring project and programme implementation.

In addition, the Project will continue to hold periodic meetings of the Coordinating Committee until such time that the Committee for the Development and Management of Fisheries in the South China Sea is established. These meetings are held to review ongoing activities and to recommend guidelines for future activities. The formation of that committee under the IPFC will effect an expansion of the work of the present coordinating committee and in fact absorb it.

PART III. B. Evaluation

The project will be subject to evaluation, in accordance with the policies and procedures established for this purpose by UNDP. The organization, terms of reference and timing of the evaluation will be decided by consultation between the Governments, UNDP and the FAO.

PART III. C. Progress and Terminal Reports

Semi-annual progress reports will be prepared by the Programme Leader and submitted at the end of June and December of each year. A draft terminal report will be submitted five months prior to the termination date of the project.

Project Budget Covering UNDP Contribution
(in US Dollars)

Country : Regional
 Project No.:
 Project Title : South China Sea Fisheries Development and Coordinating Programme (Phase III)

		1980		1981	
Total		\$	m/m	\$	m/m
10.	<u>PROJECT PERSONNEL</u>				
11.	<u>Experts</u>				
01	Programme Leader	144,840	12	69,720	12
02	Sr. Aquaculture Officer	131,760	12	63,360	12
04	Sr. Statistician	129,120	11.5	60,720	12
06	Sr. Economist (EEZ)	115,920	9	47,520	12
07	Consultants	552,750	46	253,000	54.5
08	Deputy Programme Leader	144,840	12	69,720	12
10	Sr. Fishery Biologist	100,080	6	31,680	12
11	Acoustic Technician	105,360	7	36,960	12
17	Sr. Training/Extension Officer	115,920	9	47,520	12
19	Sr. Stock Assessment Officer	131,760	12	63,360	12
20	Economist (Rural)	97,560	8	37,200	12
21	Sr. Development Officer (TCDC)	115,920	9	47,520	12
22	Stock Assessment Biologist	81,720	9	47,520	6
	Sub-Total	1,967,550	162.5	875,800	192.5
13.	<u>Support Personnel</u>	175,000		77,000	
15.	<u>Duty Travel</u>	187,000		91,000	
19.	<u>Component Total</u>	2,329,550		1,043,800	
29.	<u>SUBCONTRACTS</u>	209,000		79,000	
39.	<u>TRAINING</u>	452,000		121,000	
49.	<u>EQUIPMENT</u>	429,000		226,000	
59.	<u>MISCELLANEOUS</u>	140,000		70,000	
99.	<u>TOTAL UNDP CONTRIBUTION</u>	3,559,550		1,539,800	

Project Budget Covering UNDP Contribution
(in US Dollars)

Country : Regional
Project No. :
Project Title : South China Sea Fisheries Development and Coordinating Programme (Phase III)

		1982		1983		1984	
Total		\$	m/m	\$	m/m	\$	m/m
10.	PROJECT PERSONNEL						
11.	Experts						
	01 Programme Leader	36	264,000	12	81,360	12	87,840
	02 Sr. Aquaculture Officer	36	240,000	12	73,920	12	79,300
	04 Sr. Statistician	36	240,000	12	73,920	12	79,300
	06 Sr. Economist (EEZ)	36	240,000	12	73,920	12	79,300
	07 Consultants	251	1,380,500	91	500,500	88	484,000
	08 Deputy Programme Leader	24	169,200	12	81,360	12	87,840
	10 Sr. Fishery Biologist	24	153,720	12	73,920	12	79,300
	11 Acoustic Technician	12	65,160	12	65,160	-	-
	17 Sr. Training/Extension Off.	36	240,000	12	73,920	12	79,300
	19 Sr. Stock Assessment Officer	36	240,000	12	73,920	12	79,300
	20 Economist (Rural)	12	65,160	12	65,160	-	-
	21 Sr. Development Officer (TCDC)	36	240,000	12	73,920	12	79,300
	22 Stock Assess. Biologist	-	-	-	-	-	-
	Sub-Total	575	3,537,740	223	1,310,980	196	1,218,280
13.	Support Personnel		218,000		90,000		70,000
15.	Duty Travel		287,500		111,500		98,000
19.	Component Total		4,043,240		1,512,480		1,386,280
29.	SUBCONTRACTS		35,000		35,000		-
39.	TRAINING		435,000		165,000		140,000
49.	EQUIPMENT		136,000		59,000		46,000
59.	MISCELLANEOUS		165,000		60,000		55,000
99.	TOTAL UNDP CONTRIBUTION		4,814,240		1,831,480		1,627,280
							1,355,480

A N N E X I

INSTITUTIONAL FRAMEWORK

Details of Regional Responsibilities of the
 South China Sea Fisheries Development and
 Coordinating Programme and Terms of
Reference of the Coordinating Committee

1. Regional Responsibilities of the South China Sea Programme

The Programme shall act as an umbrella and in that capacity should coordinate and foster UNDP/FAO-supported fisheries development in the region. In particular, it will:

- (a) Participate directly or by representation in the identification and formulation of all country and other regional fisheries programmes in the region.
- (b) Coordinate the programmes and activities conducted by sub-regional projects and those which have regional implications in the several countries' projects.
- (c) Follow and monitor on a continuing basis the progress of fisheries programmes in the region.
- (d) Participate directly or by representation in periodic reviews of UNDP fishery projects in the region.
- (e) Assist in the preparation of the technical and institutional duty qualifications for key personnel of proposed UNDP-supported fishery projects in the region and review and advise on the selection thereof.
- (f) Assist in the development of the rational use of the international resources of the South China Sea for the maximum benefit of the regional participants.
- (g) Assist in the preparation of and coordinate advice, recommendations and programmes on fisheries matters to the individual governments participating in the regional project.

2. Terms of Reference of the Coordinating Committee of the South China Sea Programme

- (i) The functions of the Coordinating Committee shall in particular include the following:
 - (a) to act for the IPFC during inter-sessional periods with respect to matters relating to the South China Sea Fisheries Development and Coordinating Programme, hereinafter referred to as the Programme;
 - (b) to maintain the closest liaison between the Programme and the IPFC;
 - (c) to provide guidance and assistance to the Programme;
 - (d) to consult, as appropriate, with member countries of the IPFC that are not represented on the Coordinating Committee, and with other competent international organisations;
 - (e) to report to the IPFC, at each session, on its activities during the preceding inter-sessional period.

More particularly concerning the operational aspects of the Programme, essentially the purposes of the Committee are to keep participating governments informed of progress and thereby involve them actively in forward-planning of project activities and to deal with major operational problems that may develop in the course of project activities.

(ii) Membership:

The membership of the Coordinating Committee shall consist of the members of the IPFC Executive Committee and of a representative of each participating country that is not already represented on the Executive Committee;

(iii) Financing:

The travelling expenses of the representatives of the participating countries when attending meetings of the Coordinating Committee shall be borne by the programme.

ANNEX II

ORGANIZATION OF THE PROJECT

1. Pending finalization of the new consolidated Standard Agreement with Governments, the following standard text is to be appended to all project documents.

General responsibilities

2. The Government, the UNDP and the Executing Agency shall jointly be responsible for the execution of the project and the realization of its objectives as described in Part II of this Project Document.

3. The Government shall provide to the project the national project personnel, training facilities, land, buildings, equipment and other required services and facilities. It will designate the Government Cooperating Agency named in the cover page of this document, which will hereinafter be referred to as the "Co-operating Agency" and which will be directly responsible for the implementation of the Government contribution to the project.

4. The UNDP undertakes to complement and supplement the Government participation and will provide through the Executing Agency the required expert services, training equipment and other services within the funds available to the project.

5. Upon commencement of the project the Executing Agency may be requested to assume primary responsibility for project execution. However, that primary responsibility shall be exercised in consultation and in agreement with the Co-operating Agency. Arrangements to this effect shall be stipulated in the project Work Plan as well as for the transfer of the responsibility to the Government or to an entity designated by the Government during the execution of the project.

6. Part of the Government's participation may take the form of a cash contribution to UNDP. In such cases, the Executing Agency will provide the related services and facilities and will account annually to the UNDP and to the Government for the expenditure incurred.

Participation of the Government

7. The Government shall provide to the project the services, equipment and facilities in the quantities and at the times specified in the Work Plan. Budgetary provision - either in kind or in cash - for the Government's participation so specified shall be set forth in the Project Budgets.

8. The Co-operating Agency shall in consultation with the Executing Agency assign a director for the project on a full-time basis. He shall carry out such responsibilities in the project as are assigned to him by the Co-operating Agency.

ANNEX II
Page 2

9. The estimated cost of items included in the Government Contribution, as detailed in the Project Budget, shall be based on the best information available at the time of drafting this project proposal. It is understood that price fluctuations during the period of execution of the project may necessitate an adjustment of said contribution in monetary terms; the latter shall at all times be determined by the value of the services, equipment and facilities required for the proper execution of the project.

10. Within the given number of man-months of personnel services described in the Work Plan minor adjustments of individual assignments of project personnel provided by the Government may be made by the Government in consultation with the Executing Agency, if this is found to be in the best interests of the project.

11. The Government shall continue to pay the local salaries and appropriate allowances of national project personnel during the period of their absence from the project while on UNDP fellowships.

12. The Government shall defray any custom duties and other charges related to the clearance of project equipment, its transportation, handling, storage and related expenses within the country. It shall be responsible for safe custody of the equipment, its installation and maintenance, insurance, and replacement if necessary, after delivery to the project site.

13. The Government shall make available to the project - subject to existing security provisions - any published and unpublished reports, maps, records and other data which are considered necessary to the implementation of the project.

14. The Government shall assist all project personnel in funding suitable housing accommodation at reasonable rents.

15. The services and facilities specified in the Work Plan which are to be provided to the project by the Government by means of a contribution in cash shall be set forth in the Project Budget. Payment of this amount shall be made in local currency to the UNDP in accordance with the Schedule of Payments by the Government.

16. Payment of the above-mentioned contribution to the UNDP on or before the dates specified in the Schedule of Payments by the Government is a prerequisite to commencement or continuation of project operations.

Participation of the UNDP and of the Executing Agency

17. The UNDP shall provide to the project through the Executing Agency the services, equipment and facilities described in the Work Plan. Budgetary provision for the UNDP contribution as specified shall be set forth in the Project Budget.

18. The Executing Agency shall consult with the Government on the candidature of the Project Manager^{1/} who, under the direction of the Executing Agency, will be responsible in the country for the Executing Agency's participation in the project. The Project Manager shall supervise the experts and other agency personnel assigned to the project, and the on-the-job training of national project personnel. He shall be responsible for the management of all equipment provided to the project from UNDP funds.

19. The Executing Agency, in consultation with the Government, shall assign international staff and other personnel to the project as specified in the Work Plan, select candidates for fellowships and determine standards for the training of national project personnel.

20. Fellowships shall be administered in accordance with the fellowships regulations of the Executing Agency.

21. The Executing Agency may, in agreement with the Government and UNDP, execute part or all of the project by subcontract. The selection of sub-contractors shall be made, after consultation with the Government, in accordance with the Executing Agency's procedures.

22. All material, equipment and supplies which are purchased from UNDP resources will be used exclusively for the execution of the project, and will remain the property of the UNDP in whose name it will be held by the Executing Agency. Equipment supplied by the UNDP shall be marked with the insignia of the UNDP and of the Executing Agency.

23. Arrangements may be made, if necessary, for a temporary transfer of custody of equipment to local authorities during the lifetime of the project, without prejudice to the final transfer.

24. Prior to completion of UNDP assistance to the project, the Government, the UNDP and the Executing Agency shall consult as to the disposition of all project equipment provided by the UNDP. Title to such equipment shall normally be transferred to the Government, or to an entity nominated by the Government, when it is required for continued operation of the project or for activities following directly therefrom. The UNDP may, however, at its discretion, retain title to part or all of such equipment.

25. At an agreed time after the completion of UNDP assistance to the project, the Government and the UNDP, and if necessary the Executing Agency, shall review the activities continuing from or consequent upon the project with a view to evaluating its results.

^{1/} May also be designated Team-Leader or Chief Technical Adviser, as appropriate

ANNEX II

Page 4

Facilities, privileges and immunitiesUNDP and Executing Agency personnel.

26. In accordance with the Agreement concluded by UNDP and the Government concerning the provision of assistance, the personnel of UNDP and other United Nations organizations associated with the project, shall be accorded facilities, privileges and immunities specified in the said Agreement.

Subcontractors and their personnel

27. The Executing Agency's contractors and their personnel (except Government national employed locally) shall:

- (a) Be immune from legal process in respect to all acts performed by them in their official capacity in the execution of the project;
- (b) be immune from national service obligations;
- (c) be immune together with their spouses and relatives dependent on them from immigration restrictions;
- (d) be accorded the privileges of bringing into the country reasonable amounts of foreign currency for the purpose of the project or for personal use of such personnel, and of withdrawing any such amounts brought into the country, or, in accordance with the relevant foreign exchange regulations, such amounts as may be earned therein by such personnel in the execution of the project;
- (e) be accorded together with their spouses and relatives dependent on them the same repatriation facilities in the event of international crises as diplomatic envoys,

28. All the personnel of the Executing Agency's contractors shall enjoy inviolability for all papers and documents relating to the project.

29. The Government shall either exempt from, or bear the cost of any taxes, duties, fees or levies which it may impose on any foreign firm or organization which may be retained by the Executing Agency and on the foreign personnel of any such firm or organization in respect of:

- (a) The salaries or wages earned by such personnel in the execution of the project;
- (b) any equipment, materials or supplies brought into the country for the purposes of the project or which, after having been brought into the country, may be subsequently withdrawn therefrom;

- (c) any substantial quantities of equipment, materials and supplies obtained locally for the execution of the project, such as, for example, petrol and spare parts for the operation and maintenance of equipment mentioned under (b) above, with the provision that the types and approximate quantities to be exempted and relevant procedures to be followed shall be agreed upon with the Government and, as appropriate, recorded in the Work Plan; and
- (d) as in the case of concessions currently granted to UNDP and Executing Agency's personnel, any property brought, including one privately owned automobile per employee, by the firm or organization or its personnel for their personal use or consumption or which after having been brought into the country, may subsequently be withdrawn therefrom upon departure of such personnel.

30. The privileges and immunities to which such firm or organization and its personnel may be entitled, referred to in the paragraphs above, may be waived by the Executing Agency where, in its opinion or in the opinion of the UNDP, the immunity would impede the course of justice and can be waived without prejudice to the successful completion of the project or to the interest of the UNDP or the Executing Agency.

31. The Executing Agency shall provide the Government through the Resident Representative with the list of personnel to whom the privileges and immunities enumerated above shall apply.

UNITED NATIONS DEVELOPMENT PROGRAMME

Tripartite Review ReportRAS/74/013 South China Sea Fisheries Development and
Coordinating Programme
(SCSP)

1. The combined Tripartite Review and Coordinating Committee Meeting took place at the SCSP Office, Manila, on 28 and 29 September 1978. A list of participants is attached as Appendix I.
2. Cmdr. Swarnng Charernpol (Thailand) was elected chairman and the following agenda was adopted:

Tripartite Review

- Work carried out in 1978
- 1979 work plan and budget requirement
- Phase III proposal

Report from CIDA on the state of REFIDEP (Regional Fisheries Development Project) project with regard to implementation

Any other matters

Date and place of next meeting

Adoption of report

A list of the documents presented for consideration by the meeting is attached as Appendix II.

I. Tripartite Review

3. In his introductory remarks, Mr. Bhagirathan R. Devarajan (UNDP) said that the UNDP recognized the substantial contribution the SCSP was making and the importance of its continuing. However he considered that the meeting should begin to consider how the participating countries could take over the financing of the institutional aspects of the Programme.

4. Mr. Ripley (UNDP) asked the countries to include the following aspects to their contributions to the meeting which would greatly assist in planning the future of SCSP.

- a) the effects of the SCSP on fisheries development in the area;
- b) the governments' views concerning the contribution of the SCSP;
- c) possible financial and other contributions of various agencies to the SCSP;
- d) views on what should ultimately follow the SCSP;
- e) governments' views on probable fisheries developments in the area;
- f) review TCDC (technical cooperation among developing countries) activities in fisheries in the SCSP area.

5. Mr. Kojima stressed the importance of a regional approach in fisheries because of its common property nature. The project will be entering a third and final phase in which the building up of local competence and TCDC should be emphasized. It would also be necessary to consider a future coordinating mechanism under the IPFC (Indo-Pacific Fisheries Commission).

6. The Programme Leader suggested and it was accepted that Mr. Nichols of Hongkong, Mr. Shima of the UNDP and Mr. Simpson of the SCSP, would act as rapporteurs for the meeting and would be responsible for the preparation of the draft report which would be reviewed and approved by the meeting as the last agenda item.

II. Review of the Programme's Activities in 1978

7. The Programme Leader presented the report of the work of the Programme since the last Tripartite Review and outlined the great financial difficulties that had seriously limited its activities. The Programme had started the year anticipating the speedy implementation of the CIDA contribution, but this has not yet been implemented and the Programme had to reduce its activities and take emergency action to retain its core team of experienced staff. Reserve money from the sale of fish, etc. was put together with the UNDP contribution, however, many contracts expired in March 1978 and most of the staff were outposted for varying periods with other projects to keep them on the books pending the acceptance of the UNDP to the Revision "F".

8. The revised programme for 1978, Revision "E", (Doc. SCS:C/78/7) to meet the emergency situation had been drawn up and approved and formed the basis of the year's work and budgeting. The staff were brought together again, but it was anticipated that the total expenditures for the year would reach US\$ 666,000. The saving however from outposting of

staff and sale of certain equipment no longer necessary produced some savings which served to reduce this amount and produce some balance which would be carried over into 1979.

9. The Programme Leader outlined the considerable amount of work that had been achieved inspite of the emergency situation (Doc. SCSP:C/78/4).

10. The member countries were very appreciative of the work the SCSP was doing inspite of the difficulties, although there was considerable disappointments that the small scale fisheires CIDA project have had to be delayed and that the ongoing Kuala Besut project had been halted. Countries were considering whether they could wait for the CIDA contribution or could make other funding arrangements for the activities that are being delayed by it at the country level.

11. There was general approval of the work on resource evaluation and expression of the importance of continuing this work because of its value to the countries for the planning of their development programmes.

12. Other SCSP activities which were specifically mentioned as having been of particular value were - help with the design of Hongkong's new research vessel, the supply of acoustic equipment, and the acoustic survey programme, assistance with cage culture of fish in Malaysia, the assistance regarding the workshops, assistance in aquaculture development, etc.

13. It was however considered that the SCSP should give further assistance and support to national development projects and to the organisation of resource research. It was stated by one country that assistance was also required in determining the ecological factors and development needs.

III. Programme for 1979

14. The Programme Leader explained that the money earmarked from UNDP for 1979 was US\$ 350,000 while some approximately US\$ 200,000 more was required to carry out the work that the Programme considers it should undertake and which has been set out in Revision "F" (Doc. SCSP:C/78/6) and the series of plans for 1979 presented by the staff of the Programme. It would therefore be necessary to select the priorities from these proposals in order to attempt to keep the activities within the budget.

15. Small scale fisheries. With the exception of the project in Thailand which was being funded by Swedish (SIDA) all work in this field with regard to the pilot projects which have been identified would have to await the Canadian (CIDA) contribution unless other funding arrangements were made by the countries concerned.
16. Statistics. The proposed continuation of assistance on the improvement of national statistics was welcomed and after some discussion on the work of SCSP and SEAFDEC (Southeast Asian Fisheries Development Centre) in this field there was satisfaction that there was good cooperation and that there was minimal overlapping.
17. There was considerable discussion on the proposed establishment of a Fishery Management Information System and while the concept was welcomed there were some doubts about how it should be implemented.
18. Resource assessment. The proposed programme was welcomed and all three proposed workshops were considered of importance. Particular emphasis was put on the shrimp workshop which it was pointed out had been specifically requested at previous workshops. An attempt to give priorities between the three workshops was indecisive as the shrimp and acoustic workshops were important to all countries while the tuna workshop was only of immediate relevance to the Philippines and Indonesia. It was however of considerable importance to them as it would be related to the proposed tagging and sampling programme which is also linked to similar work being undertaken throughout the western Pacific.
19. Discussions on the provision of additional Species Identification Sheets showed that a great deal of information was already available on the groups to be included. Several countries also offered to provide information and facilities for the work. However the major problem was the money required for the final preparation of the sheets and their printing. It was recommended that priority be given to solving the taxonomic problem and producing the necessary sheets for the Rastrelliger spp. and Decapterus spp. (roundscads) as this would involve only some six revised or additional sheets. The possibility of initially mimeographing these sheets should be investigated.
20. Aquaculture. It was pointed out that due to the different developments in aquaculture in the countries of the SCSP, each country had developed its own expertise and that therefore this was likely to be a particularly fruitful field for TCDC. More attention to freshwater aquaculture was requested and although strictly this was outside present programme activities of the SCSP, it was agreed that this could be included. It was pointed out that increased collaboration with the RAFF regional aquaculturist could help meet this need as well as permit the sharing, and therefore reduction in the cost of consultancy requirements.

21. Extension. The proposed development of the SCSP as a technical information centre and the provision of training manuals and literature were welcomed, though it was considered that inter-regional training might not prove of much value, due to the different requirements of the regions. It was recognised that some provision of money beyond salary and travel was necessary.

22. The need for training manuals, etc. for trainees in national languages as well as those in English for teachers was recognised, and money would be needed for translation, though it was anticipated that the countries themselves might provide translations. The SCSP could assist in printing the translated material.

23. It was considered that the prime need was for the training officer to identify the needs of the different countries to assist in the preparation of extension programmes and for him to therefore spend sufficient time in each country, both to become familiar with local conditions and requirements and to help share with each his experience and that of other member countries.

24. Regional training workshop on joint ventures. The workshop was widely welcomed and it was noted that the costs were being met by various agencies and would not be a financial burden on the SCSP.

25. The importance of getting the most appropriate people from each country was recognised and how to achieve this was discussed at some length. It was found that the situation differed greatly from country to country. In some countries the foreign ministry or the department of fisheries were involved while in others a development authority would be important, while in Hongkong and Singapore which were investment centres rather than countries likely to negotiate joint ventures, the need would be for someone to participate who would be an advisor to possible investors. It was considered that the invitation should stress the need for the participants to be individuals or representatives from departments, actively engaged in processing or advising on joint ventures.

IV. 1979 Budget and Phase III

26. The Programme Leader opened the discussion of Phase III by indicating that the discussions on the 1979 activities lead into the Phase III consideration and the mechanisms needed to maintain the capabilities of the Programme. Vital to this is the need to identify the various proposals and determine what total funding was needed. The need

now and the need for the Phase III is to plan the activities and maintain the core staff needed to continue and expand the activities of the Programme.

27. Mr. Ripley considered that the most important matter at this point is to be able to view a transition of the Programme, particularly the core staff, towards independence of UNDP funding. He also indicated UNDP's need to hear the governments' views on the impact of the current and past activities of the Programme. This would greatly aid in UNDP's evaluation and assessment of regional capabilities. He further said it is important to establish the priorities for 1979 as the next year will be the transitional period to the Phase III. At this point it is not certain what total funding is available for 1979 so if priorities can be established the available funds can be effectively allocated.

28. Mr. Shima briefly indicated that one of the UNDP's primary concern is to have some indication of when the Programme will be self-sustaining and UNDP can phase out its funding.

29. Mr. Kojima said no matter what institutional arrangement emerges there would be no doubt that UNDP/FAO's assistance in certain specialised areas will continue to be required.

30. Discussions then turned to the draft budget for Phase III where Mr. Ripley noted that at the end of 1982 the complete core staff abruptly ends. He suggested that perhaps the Committee should consider a gradual phasing out of UNDP financed core staff as part of the transitional period towards self-sufficiency. The Programme Leader said the draft budget was not meant to reflect the actual phasing out and in fact it is the purpose of this meeting to discuss the phasing out process.

31. In the general discussion of the programme it was generally agreed that UNDP funding may be needed for the core group, alternative funding should be secured for a permanent coordinating body. All countries expressed their strong support for the programme as a necessary and vital activity for the region. There was a comment from Mrs. Delmendo of the RAFF (FAO Regional Office for Asia and the Far East) that the idea that perhaps in Phase III workshops can be conducted at the grassroot level rather than being held for the technical personnel of the department.

32. Malaysia recognised the need for a regional mechanism. However, the establishment of a regional mechanism to replace SCSP should be examined in greater depth and a gradual approach should be adopted.

33. The Thailand representative expressed a vital need for the Programme to expand into a management expertise which needs to be strengthened in the region. This includes coastal management which is crucial to small scale fisheries.

34. The Philippines welcomes the setting up of a regional mechanism through the SCSP Programme. It is considered timely to facilitate intra-regional cooperation and among others to promote exchange of regional expertise and information.

35. It was agreed that the priority need is the assessment of resources and that something must be done for small scale fisheries with or without CIDA participation.

36. Thailand representative indicated a concern that the project should move for total regional participation which includes China. Therefore in future years perhaps a regional body could be established covering the whole region rather than a part as it is now. The Programme Leader said it is certainly possible that efforts could be taken to enlarge regional participation.

37. The Hongkong representative pointed out that both Kampuchea and Vietnam were signatories to the original Project Document, and thus there was no question of their not being entitled to "full participation". He suggested that whether or not other countries adjoining the South China Sea, including China, wished to participate in the Programme was a decision which must be left to themselves. However, no doubt the present members would endorse and welcome the strengthening of the Programme by such additional membership.

38. In commenting on the transitional aspects of the Programme, it was agreed that many national institutions will in time be able to take over some activities of the Programme.

39. The Hongkong representative said that the existence of the core staff of the Programme had stimulated a variety of activities and projects which would have not occurred without its existence. The relative cost of the core staff is decreasing as national programmes and external funding of other projects increase. He felt that it is not yet possible now to really see how the UNDP supporting the core group can be phased out. What can be done now is to begin the initial stages to make a regional mechanism self sustaining both in status and funding under the framework of IPFC. The Committee emphasized that the need is being given great thought.

40. Mr. Ripley said that UNDP HQ does not have the benefit of sitting in this meeting and therefore does not know the requirements of the problem in terms of priorities and needs in other areas. To this Mr. Kojima replied that fishing is the most important activity in the region where fish is at the highest per capita consumption of any region and one of the highest populated regions, and UNDP should always consider this in establishing priorities.

41. Mr. Simpson said that this has been an exciting programme and that over the period has established an awareness of the needs of the area by its very presence in the area and there is no question of its importance. That further the needs of the area are expanding and felt this should be seen as a different question from that of UNDP funding.

42. The Chairman asked the Programme Leader to revise the 1979 budget. At the request of the Programme Leader there was a discussion on what activities should be taken to expand regional participation. The Programme Leader said that the 3-year proposed budget for Phase III is also arbitrary and that UNDP have a different time frame. Mr. Ripley said that the real question is how long will it take the Programme to be a self-sufficient institution or one that does not need continuing UNDP institutional support. It was felt that a 5-year period would be more realistic.

43. For the Phase III project which would be proposed to UNDP for UNDP programming cycle beginning in 1980, it was felt that the level of UNDP support indicated in the Phase III proposal is essential in order to maintain the present momentum of the Programme. Finalization of the project document, phasing and detailed description of project activities will be carried out in due course during 1979 taking account of further review of project progress and development in coordinating mechanism.

44. The revised detailed budget and workplan for 1979 (Revision F) was finalized based on the discussions and approved by the Committee for urgent endorsement by the UNDP and is attached as Appendix III.

45. With regard to the travel cost of the participants to this meeting, it was confirmed by the Committee that this should be charged to the income account.

46. The Committee noted with appreciation the TCDC report of the Argentina meeting which could only be made available to the meeting of the opening day. It was therefore not able to deal with this lengthy report substantially, nor was it of course possible to commit their countries to TCDC activities as outlined in the report. It was agreed that the report would be closely studied and discussed in light of the Phase III activities. As implied the 1979 activities will attempt to fully utilize these principles.

47. The meeting noted with regret the absence of Singapore representative but was informed by the Programme Leader that he had the opportunity to visit Singapore on his recent mission with Mr. Ripley where it was reported that the director was unable to come as he would be in the United States at the same time meeting was to be held. He wished to express his support for the programme and his hope for more active participation of Singapore in the programme. He indicated his pleasure of inclusion of such item as fishery seed bank in the Phase III proposal.

48. There was a discussion on Mrs. Delmendo's trip to Hanoi. Certain areas in which immediate assistance could be provided by the SCSP were pointed out.

49. In the absence of a CIDA representative the matter of the REFIDEP project was not discussed.

50. The date and place of the next meeting was left open.

51. The draft report was reviewed paragraph by paragraph and revised as required and approved by the Committee.

Appendix IRAS/74/013 South China Sea Fisheries Development
and Coordinating ProgrammeTripartite Review

28 and 29 September 1978

LIST OF PARTICIPANTSHong Kong

Mr. E. H. Nichols	Director of Agriculture & Fisheries Agriculture & Fisheries Department
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Indonesia

Mr. Vicentius Soesanto	Director of Resource Management Directorate General of Fisheries Ministry of Agriculture
Mrs. Boediningsih Soenyoto	Chief, Foreign Relations Division Directorate General of Fisheries Ministry of Agriculture

Malaysia

Mr. Tan Cheng Kiat	Senior Fisheries Development Officer East Coast Development Fisheries Division Ministry of Agriculture & Fisheries
Mr. Ibrahim Salleh	Fishery Extension Officer (Aquaculture) Fisheries Division Ministry of Agriculture & Fisheries

Philippines

Mr. Felix R. Gonzales	Director, Bureau of Fisheries and Aquatic Resources
Mrs. Aurora B. Reyes	Liaison Officer Bureau of Fisheries & Aquatic Resources
Mr. Candido Ramos	Chief, Statistics Division Bureau of Fisheries & Aquatic Resources

Singapore

Dr. Siew Teck Woh (Regrets unable to attend in view of his trip to the U.S.)	Director of Primary Production Primary Production Department Ministry of Law & National Development
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Thailand

Cmdr. Swarng Charernpol	Deputy Director General of Fisheries Fisheries Department Ministry of Agriculture & Cooperatives
Dr. Varavat Hongkul	Chief, Marine Fisheries Branch Fisheries Department Ministry of Agriculture & Cooperatives
Mr. Kachornsak Wetchagarun	Fishery Economist Fisheries Department Ministry of Agriculture & Cooperatives
Mr. Sumon Swegwan	Chief, Fisheries Economics & Planning Div. Fisheries Department Ministry of Agriculture & Cooperatives

Vietnam

(cable regrets unable to participate in view of urgent commitments due to flood situation in Hanoi area)

South China Sea Fisheries Programme (SCSP)

Mr. Erling O. Oswald	Deputy Programme Leader
Dr. Herminio R. Rabanal	Sr. Fishery Officer, Aquaculture
Mr. David B. Thomson	Sr. Fishery Extension/Training Officer
Mr. Debidas Chakraborty	Sr. Fishery Statistician
Mr. Ramon Buzeta	Sr. Fishery Biologist (Survey and Resource Assessment)
Mr. Arthur Simpson	Consultant (Stock Assessment)
Mr. Gislí Jonasson	Consultant/Masterfisherman (Smallscale Fisheries - Kuala Besut, Malaysia)

Secretariat

Mr. Arthur G. Woodland	Programme Leader South China Sea Fisheries Programme
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United Nations Development Programme (UNDP)

Mr. Bhagirathan R. Devarajan	Principal Project Representative Manila
Mr. William E. Ripley	Sr. Technical Adviser Regional Bureau for Asia and the Pacific New York
Mr. Patrick R. Shima	Asst. Resident Representative Manila

Food and Agriculture Organization (FAO)

Mr. N. Kojima	Director, Operations Service Fisheries Department Rome
Mr. Campbell MacCulloch	FAO Representative Manila
Mrs. Medina N. Delmendo	Regional Aquaculture Officer Regional Office for Asia and the Far East Bangkok
Mr. Paul Osborn	Project Manager PHI/75/005 Brackishwater Aquaculture Devl. and Training Project Quezon City
Mr. Paul Vlaanderen	Programme Officer Manila

OBSERVERCanadian Embassy, Manila

Mr. John Schram	First Secretary and Consul
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LIST OF DOCUMENTS

SCSP:C/78/1	Provisional Agenda
SCSP:C/78/2	Provisional Annotated Agenda
SCSP:C/78/3	Provisional Timetable
SCSP:C/78/4	Project Progress Report of the South China Sea Fisheries Development and Coordinating Programme for the period 1 January to 30 June 1978
SCSP:C/78/5	Excerpts from the UNDP Manual on Guidelines for Tripartite Reviews
SCSP:C/78/6	Draft Project Revision - RAS/74/013/F South China Sea Fisheries Development and Coordinating Programme for the year 1979
SCSP:C/78/7	Signed Project Revision - RAS/74/013/E South China Sea Fisheries Development and Coordinating Programme for the year 1978
SCSP:C/78/8	Phase III Extension Proposal (preliminary discussion draft only)
SCSP:C/78/9	Documentation from the Argentina meeting on TCDC (29 August to 2 September 1978)
Appendix 1	Original Project Document - RAS/74/013/A/01/12 South China Sea Fisheries Development and Coordinating Programme (Phase II)

Appendix III

UNITED NATIONS DEVELOPMENT PROGRAMME

PROJECT REVISION

COUNTRY: Regional

PROJECT TITLE: South China Sea Fisheries Development
and Coordinating Programme (Phase II)

PROJECT NO.: RAS/74/013/F/01/12

28-29 September 1978

UNITED NATIONS DEVELOPMENT PROGRAMMEPROJECT REVISION

COUNTRY: Regional

PROJECT TITLE: South China Sea Fisheries Development and
Coordinating Programme (Phase II)

PROJECT NO.: RAS/74/013/F/01/12

The purpose of this revision as a follow-up to Revision "E" of April 1978 is to outline a detailed budget and workplan for 1979.

As mentioned in the Memorandum of Understanding prepared in Colombo when the revision E was approved, a further revision would be prepared later to rationalize the 1979 activities. This was necessary as the extent of surplus income funds would only be known near the end of 1978, and furthermore, the extent of the CIDA Trust Fund subproject would possibly be known and the relationship to the Programme could be reconciled at that time as well.

Essentially the 1979 activities are an intensification of those proposed for 1978 and pave the way for Phase III of the Programme. It will, of course, utilize the same core project team.

The revision will therefore contain no changes in the objectives, but will specify the extent of surplus income monies that can be used to supplement the UNDP funding. It will also take note of the Trust Fund subproject of CIDA and outline the state of other TF pipeline projects proposed to be implemented in association with the South China Sea Programme.

The detailed workplan and budget was prepared during the Coordinating Committee/Tripartite Review Meeting by the Committee and approved as revised.

Signed in behalf of the Executing Agency

Date

Signed in behalf of UNDP

Date

Part II-A thru F are as outlined in Revision "E".

Part II-G. Inputs

1. Government inputs

These are indicated in original document number
RAS/74/013/A/01/12, page 28, item C.

2. UNDP/Income Account inputs

	International staff	<u>Total m/m 1978</u>
(i)	Programme Leader	12
(ii)	Senior Aquaculture Officer	12
(iii)	Senior Statistician	12
(iv)	Consultants	14
(v)	Deputy PL	12
(vi)	Sr. Stock Assessment/Acoustic Biologist	12
(vii)	Sr. Training Officer, Extension	11

The general job description of staff under (i), (iii), (v) are indicated in original project document number RAS/74/013/A/01/12, page 25 item B. The same for the rest of the staff is indicated below.

Deputy Programme Leader (as described under an earlier revision) will assist in the overall conduct of the project and specifically supervise the small-scale fisheries inputs as indicated under activity item No. 1-7. He will as well coordinate the development aspects of small-scale fisheries and identify pilot areas and sectoral development schemes based on pilot models that can be part of regional plans.

Sr. Aquaculture Officer will be mainly responsible for the identification and implementation of aquaculture activities in small-scale fisheries development through largely pilot project schemes. He will as well collaborate with the Training Officer in carrying out aquaculture training and extension programme in the region.

Sr. Stock Assessment/Acoustic Biologist will be responsible for the development and coordination of acoustic surveys in the SCS region and assessment of fishery resources as indicated under activity item No. 9.

Sr. Training Officer, Extension will review extension training in the region and assist participating countries in the identification and preparation of training programmes as outlined in project activities.

Sr. Fishery Statistician will be responsible for the development of statistical systems suitable to the region, and for organizing programmes of implementation in each of the countries, as reflected in the original Project Document, and specifically as in items 7 and 8 of Part II-F. Activities, of the Revision "E".

Part II-H. Work Plan and Budget1979 Work Plan Activities

Resource assessment and management

The staff member will continue to coordinate the resource survey activities utilizing regional vessels and acoustic methods and the regional evaluation activities as outlined in the detailed annex.

Three workshops are planned which have been considered by the Coordinating Committee as essential to be held in 1979. 1/

a) Shrimp resources - a workshop of 5 days will be held in one of the participating countries involving 10 participants from the region and will require the use of 2 consultants to be hired from the region or outside of the region as required for approximately 2 weeks each. They will be specialists - shrimp resources. One will be from FAO HQ and the other an external consultant.

consultant services -	
.5 mm	2,500
travel costs of	
participants from	
training component	12,500

b) Acoustic surveys - a consultation workshop to review and direct the acoustic survey activities will be held in Thailand or Hong Kong for 5 days involving 10 participants and requiring 2 consultants on acoustic oceanograph and electronic engineer.

consultant services -	
1 mm	5,000
travel costs of	
participants from	
training component	12,500

c) Tuna resources - a workshop centering mainly on the resources of the Philippines and Indonesia will be held if possible in the southern Philippines or the Sulawesi region of Indonesia for 5 days involving 7 participants and requiring consultancy in stock assessment from FAO HQ and an external consultant in tuna stock assessment.

consultant services -	
.5 mm	2,500
travel and per diem	
costs of participants	
from training	
component	8,750

1/ It was the hope of the coordinating committee that some of the costs of these workshops could be reduced by TCDC participation.

Training activities will be carried out on national vessels in acoustic survey work where the costs and arrangements will be sought by TCDC methods, if not the activity will be financed in the normal position.

Ad hoc advice to participating countries in electro-acoustic work will be required to assist in the training of servicing and operation of equipment. This is planned by intermittent use of a specialist probably located in the region. Travel costs only will be required.

Species identification sheets for marine resources of the SCSP. While this activity was highly rated and should be urgently carried out, particularly for Rastrelliger and Decapterus, it was appreciated that the costs would probably be beyond the resources of the programme. It was suggested by the Committee that some regional consultants could be used to reduce the costs. The Programme would endeavour to seek other funding for this activity.

Legal and institutional activities and particularly those associated with the implications of EEZ

Regionally

Joint negotiations workshop for SCSP and South West Pacific region. All expenses are to be borne by UNCTC and FAO HQ.

Thailand

Continuation of activities commenced in 1978 to assist Thailand on urgent measures to be taken resulting from the direct effects of extended jurisdiction actions by other countries to the fish production of Thailand. Legal, institutional and marketing advisory teams as well as statistics, stock assessment and management expertise, arranged by and in cooperation with the SCSP whereby Rome HQ staff and SCSP plus other regional and inter-regional project inputs will be utilized.

consultant needs:

legal	- 3 mm
institutional/ planning	- 2 mm

Malaysia

Development planning arising from the consideration of the effects of extended jurisdiction in the region to the full utilization of Malaysia's fisheries.

Preliminary discussions with the Director General indicate their wish to start this work as soon as possible. This could include the role of aquaculture development as a complementary activity. The government wishes this planning to direct its whole thrust in fisheries development, particularly as it applies to external assistance required, both nationally and regionally. It is planned that this work will be coordinated by the Programme utilizing FAO HQ staff as well as that of the Programme and draw upon the inter-regional aquaculture project as well for assistance and collaboration. The basis for this work is the planning and legal/institutional work already conducted by the Programme.

consultancies - 2 mm

Philippines

The continuation of the work to date on the legal/institutional constraints centering around the fishery laws and institutional arrangements for fishery bodies in the Philippines is necessary. It was recently decided that this work should now consider extended jurisdiction implications, including joint venture arrangements, not only with private firms but between countries as well as licensing arrangements for resource management.

consultant needs:
legal advice - 2 mm

Indonesia

Indonesia is interested at this stage mainly in national and subregional stock assessment which would be covered by the stock assessment and statistics workplans. It is not indicated that legal/institutional activities requiring programme input would be necessary during 1979.

The above consultancy requirements noted will be provided by FAO HQ staff members and as such only the travel costs will be borne by the Programme.

Statistics

Advice and assistance of staff member in statistics data collection programmes in participating countries, sampling systems and data processing, etc. To assist the Sr. Statistician in this programme will require a statistics consultant.

Consultant services -
3 mm

16,500

Establishment of a fishery management information system. To start this in 1979 will require at least one man-month of a specialist consultant and advise in computer services from the Asian Institute of Technology. This work will therefore be started in 1979 only on availability of funds.

Small-scale fisheries

The concerned staff member assisted in a team approach by the staff members in aquaculture and extension and as required by the statistician and SA officer will attempt to ensure implementation of these projects already identified by seeking funding sources and by collaborating with other interested agencies involved in rural development. They will continue to identify other rural development activities and particularly in association with larger sectoral development plans where particularly regional or World Bank funding is involved.

Aquaculture

The staff member will assist in the work outlined in small-scale fisheries. He will as well as suggested by the Coordinating Committee include activities on freshwater aquaculture. To do this he will seek the assistance of and coordination with the regional aquaculturist of the RAFF. It may be that some additional manmonths or consultant may be available from RAFF funding.

Regional exchange of expertise will be continued to assist participating countries in support of particularly small-scale fisheries activities. This is planned to be carried out by TCDC where local funding will be sought. The further identification of aquaculture programmes in participating countries, particularly for UNDP and/or bilateral funding will be continued where assistance will be sought from the global aquaculture programme. This will include investment programmes by the Asian Development Bank (ADB) or World Bank.

Extension and training

The staff member as well as assisting in the small-scale fisheries team will continue to assist each of the participating countries in preparing extension programmes particularly in small-scale fisheries where funding support can, if necessary, be sought from bank or UNDP IPF sources.

Training information and manuals - the Programme will advise participating countries on appropriate information sources for manuals and particularly will assist also in the preparation of manuals in English and local languages as appropriate. Costs of production will be met from the participating countries and/or national projects. An effort will be made to increase the technical literature manuals and reference works in the main library for training purposes.

47. The meeting noted with regret the absence of Singapore representative but was informed by the Programme Leader that he had the opportunity to visit Singapore on his recent mission with Mr. Ripley where it was reported that the director was unable to come as he would be in the United States at the same time meeting was to be held. He wished to express his support for the programme and his hope for more active participation of Singapore in the programme. He indicated his pleasure of inclusion of such item as fishery seed bank in the Phase III proposal.

48. There was a discussion on Mrs. Delmendo's trip to Hanoi. Certain areas in which immediate assistance could be provided by the SCSP were pointed out.

49. In the absence of a CIDA representative the matter of the REFIDEP project was not discussed.

50. The date and place of the next meeting was left open.

51. The draft report was reviewed paragraph by paragraph and revised as required and approved by the Committee.

Explanatory Note to 1978-1979 Budget

This proposed project revision F shows a total savings of approximately US\$24,050 in 1978 as a result of experts outposting and transfer/sale of equipment.

On top of this, it is foreseen that some savings will be derived in the income fund where experts and consultants costs were calculated at standard cost which is relatively high figure against actual cost.

These surpluses are expected to be carried over and used to augment the 1979 fund.

Increase in support personnel is due largely to the recent general increase in salaries and allowances of GS staff.

The former team leader - Malaysia, J. McAlister's separation indemnities costs due to extended sick leave which could total one year are not shown as this is reimbursable arrangement with CIDA.

SCSP ANTICIPATED TOTAL EXPENDITURES FOR 1978

Please note that while the approved UNDP budget for 1978 is US\$383,750 and supplemented by Income Fund of US\$240,980 for a total fund of US\$624,730, we have additional credits for experts outposting to assist other projects and agencies for a total of 12.9 m/m amounting to US\$62,109. We also have credits for transfer/sale of project equipment no longer needed for US\$13,000. We therefore will actually expend US\$665,789. Already deducted are anticipated surpluses of US\$24,050 from UNDP fund and US\$10,000 from Income Fund for a total surplus of US\$34,050 to be carried over and utilized to augment the 1979 budget.

DETAILED BREAKDOWN OF 1979 BUDGET

	<u>m/m</u>	<u>\$</u>
11. Consultants		
Stock assessment		
Shrimp specialist	0.5	2,500
Acoustic oceanographer	0.5	2,500
Electronic engineer	0.5	2,500
Tuna specialist	0.5	2,500
Statistics	3.0	16,500
Miscellaneous to provide for, i.e. assistance to Vietnam	<u>5.0</u>	<u>25,000</u>
	10.00	51,500
30. Training		
Shrimp workshop		12,500
Acoustic workshop		12,500
Tuna workshop		<u>8,750</u>
		33,750

Explanatory Note:

The increased costs over those shown in the draft revision F prepared for the meeting were those covering staff travel to reflect the additional travel requirements for consultants where no man-month charge has been shown. The training component was increased to \$33,750 to reflect the above detailed training workshops component approved by the Coordinating Committee.

INDICATIVE DRAFT REVISION OF UNDP BUDGET
RAS/74/013/F/01/12

		<u>1 9 7 8</u>				<u>1979</u>	
		<u>UNDP</u>		<u>INCOME</u>		<u>UNDP</u>	
		<u>m/m</u>	<u>\$</u>	<u>m/m</u>	<u>\$</u>	<u>m/m</u>	<u>\$</u>
10. PERSONNEL SERVICES							
11. Experts							
Programme Leader (Woodland)	12	61,920	-	-	12	66,960	
Sr. Aquaculture Officer (Rabanal)	4.8	22,608	3	14,130	12	61,080	
Sr. Statistician (Chakraborty)	8	37,680	3	14,130	12	61,080	
Consultants	3.9	21,450	14	77,000	10*	51,500	
Deputy Programme Leader (Oswald)	6	30,960	3	15,480	12	66,960	
Sr. Fishery Biologist (Buzeta)	8.5	40,035	3	14,130	12	61,080	
Masterfisherman/P&L-PHI (Lee)	-	-	2.5	11,775	-	-	
Masterfisherman-MAL (Jonasson)	-	-	2	9,420	-	-	
Masterfisherman-MAL (Katanyuwong)	-	-	2	9,420	-	-	
Trng. Officer (Ext.) (Thomson)	5.3	24,963	2	9,420	12	61,080	
	48.5	239,616	34.5	174,905	82	429,740	
.13 Support Personnel		43,555		17,700		54,000	
.15 Duty Travel		48,500		17,200		52,800	
.16 Mission Costs		7,224		-		-	
Component Total		338,895		203,805		536,540	
29. SUBCONTRACT		-		-		-	
30. TRAINING		5,000		4,000		33,750*	
49. EQUIPMENT		8,380		20,900		15,000	
		(13,000)**					
Component Total		(4,620)		20,900		15,000	
59. MISCELLANEOUS		19,425		6,275		18,060	
99. UNDP TOTAL CONTRIBUTION		359,700		240,980		603,350	

1978 OUTPOSTING OF EXPERTS

		<u>Index</u>	<u>Expert</u>	<u>m/m</u>	<u>\$</u>	<u>Period</u>	
* See attached for breakdown.							
** This credit represents transfer/sale of equipment.							
	67300	E. Oswald	3	15,480	INT/77/016	14/4-15/7	
	73131	H. Rabanal	1.2	5,652	UAE/78/002	4/4- 9/5	
	73131	H. Rabanal	1	4,710	INS/72/003	10/5-23/5	
						28/6-12/7	
	73131	H. Rabanal	2	9,420	THA/75/008	24/5- 6/6	
						12/7-29/7	
						13/8-25/8	
						17/9-5/10	
	17077	D. Chakraborty	1	4,710	INT/77/016	28/4-31/5	
	89456	D. Thomson	1.3	6,123	INT/76/012	20/4-31/5	
	89456	D. Thomson	2.2	10,362	World Bank	1/6- 7/8	
	89456	D. Thomson	0.2	942	FAO/NORAD	29/10-5/11	
	52594	R. Lee	0.5	2,355	Investment	21/1- 3/2	
					Centre, Rome		
	13649	R. Buzeta	0.5	2,355	World Bank	28/5-11/6	
			<u>12.9</u>	<u>62,109</u>			

Project Budget Covering UNDP Contribution
(in U.S. Dollars)

Country : Regional
Project No.: RAS/74/013/E/01/12
Title : South China Sea Fisheries Development and Coordinating Programme (Phase II)

		TOTAL	1974	1975	1976	1977	1978	1979
		m/m	\$ m/m	\$ m/m	\$ m/m	\$ m/m	\$ m/m	\$ m/m
10	PROJECT PERSONNEL							
11	Experts							
-01	Programme Leader	66	6	12	12	53,254	12	61,920
-02	Sr. Aquaculture Officer	58.8	6	12	12	45,161	12	22,608
-03	Dir. Res. Evaluation	12	-	12	-	-	-	-
-04	Sr. Statistician	32.1	-	3.3	8.8	-	8	37,680
-05	Sr. Industrial Dev.	12.2	0.9	11.3	-	-	-	-
-06	Sr. Economist	13.1	1	12.1	-	-	-	-
-07	Consultants	134.6	9.2	65.7	26.6	76,749	3.9 ^{3/}	21,450
-08	Deputy Programme Leader	31	1	12	-	-	6	30,960
-09	Cons. (art. fishery)	-	-	-	-	-	-	-
-10	Fishery Biologist	20.5	-	-	-	-	8.5	40,035
-11	Acoustic Biologist	-	-	-	-	-	-	-
-12	Masterfisherman/P&L-PHI	-	-	-	-	-	-	-
-13	Mktg. Off./Team Leader-MAL	-	-	-	-	-	-	-
-14	Masterfisherman-MAL	-	-	-	-	-	-	-
-15	Masterfisherman-MAL	-	-	-	-	-	-	-
-16	Sr. Reg'l. Dev. Coord.	-	-	-	-	-	-	-
-17	Trng. Off. (Extension)	17.3	-	-	-	-	5.3	24,963
		(2.7)	-	-	14.8 ^{1/}	(17.5) ^{2/} (66,000)	-	61,080
	m/m	394.9	24.1	140.4	74.2	25.7	48.5	82
	\$	1,598,117	60,250	483,617	275,730	109,164	239,616	429,740
12	OPAS Experts							
13	Support Personnel	249,572	14,271	43,429	64,414	29,903	43,555	54,000
15	Duty Travel	170,150	-	-	39,837	29,013	48,500	52,800
16	Mission Costs	7,224	-	-	-	-	7,224	-
	Component Total	2,025,063	74,521	527,046	379,981	168,080	338,895	536,540

	TOTAL	1974	1975	1976	1977	1978	1979
	m/m \$	m/m \$	m/m \$	m/m \$	m/m \$	m/m \$	m/m \$
29 <u>SUBCONTRACT</u>	12,828	-	12,828	-	-	-	-
30 <u>TRAINING</u>							
31 Individual Fellowships							
32 Group Training	161,386	-	54,610	38,256	28,770	6,000	33,750
33 In-service Training							
38 Expenditure prior to 1972							
39 Component Total	161,386	-	54,610	38,256	28,770	6,000	33,750
40 <u>EQUIPMENT</u>	188,643	18,420	147,820	5,572	6,451	(4,620) ^{5/}	15,000
50 <u>MISCELLANEOUS</u>	104,564	27,354	16,628	9,474	13,423	19,425	18,060
UNDP Total Contribution	2,492,484	120,295	759,132	433,283	216,724	359,700 ^{4/}	603,350

1/ Adjustment of 14.8 m/m \$50,007 to 1975

2/ Adjustment of (17.5) m/m (US\$66,000) to 1976

3/ 3.9 m/m represents consultancies incurred in 1977 not charged. This 1977 outstanding obligation is therefore being carried over in 1978. Breakdown: Chikuni 1 m/m, Gulland 0.4, Ruppini 0.5, Maynard 2, for a total of 3.9 m/m

4/ The Project Budget for 1978 includes an unspent carryover of \$33,750. This amount is proportionately spread over item 3/ and correspondingly affects Administrative Support - 13, Duty Travel - 15, Training - 39, Equipment - 49, Miscellaneous - 59, additionally, as requested by the Coordinating Committee.

5/ The equipment component shows a credit balance as the net result of transfer/sale of equipment no longer needed by the Project

SUMMARY REPORT
OF THE SIXTH SESSION OF THE
IPFC COORDINATING COMMITTEE FOR THE SOUTH CHINA SEA FISHERIES
DEVELOPMENT AND COORDINATING PROGRAMME
(SCSP)
Manila, Philippines, 28-29 September 1978

INDO-PACIFIC FISHERIES COUNCIL

Executive CommitteeFifty-Seventh Session

Tokyo, Japan, 30 October - 1 November 1978

SUMMARY OF INTERSESSIONAL ACTIVITIES OF THE COORDINATING
COMMITTEE FOR THE SOUTH CHINA SEA FISHERIES DEVELOPMENT
AND COORDINATING PROGRAMME (SCSP)

BACKGROUND

1. The Committee held its 6th meeting in Manila on 28 and 29 September 1978 and included in its Agenda the conduct of its annual Tripartite Review carried out in collaboration with the UNDP.
2. The Committee reviewed the work of the programme to-date in accordance with the Tripartite Review procedures and further reviewed in detail, appropriately amended and approved the work programme and budget for 1979 (Revision "F"). This revision which required additional funding than that provisionally allocated by the UNDP for 1979 has been submitted to UNDP New York for approval.
3. The Committee reviewed a draft document outlining proposed activities and staffing for a projected Phase III of the SCSP which will commence on completion of the Phase II on 31 December 1979. Considerable discussions took place on the activities that should be part of the Phase III including the primary wish of the UNDP to see the formation of a coordinating mechanism that would not require the continuous support of the UNDP. It was decided that the preparation of a document could not be finalized at the meeting but would be dealt with at another meeting probably before mid-1979.
- ... 4. The report of the Tripartite Review summarized well the discussions. A detailed complete document with annexes will be available in due course.
- ... Attached also is a copy of the Revision "F" for 1979.

FAO'S COMPREHENSIVE PROGRAMME OF ASSISTANCE IN THE
DEVELOPMENT AND MANAGEMENT OF FISHERIES IN ECONOMIC ZONES

Summary

This paper describes the special Programme of Assistance being established by FAO to help developing coastal states in the management and development of the fisheries of their economic zones. It briefly reviews the plans to decentralize the delivery of the Programme through a network of technical support units in the regions and indicates the estimated levels of extra-budgetary funding required for the Programme's implementation. The paper notes the unanimous support for and endorsement of the Programme expressed at the recent Sessions of the FAO Committee on Fisheries, the Council and the Conference. The Indo-Pacific Fishery Commission is invited to review the framework for action provided by the Programme and to comment upon the special needs and basic priorities of the fisheries of the Indo-Pacific region.

INTRODUCTION

1. The new legal regime of the ocean, which is being developed and codified at successive sessions of the Third UN Conference on the Law of the Sea, is having a radical effect on world fisheries. The traditional concept of open access to common property resources is being replaced by national control over waters within which are found the majority of the world's fish resources and whose combined areas are almost as great as the world's entire surface area of land. The extension of national jurisdiction - commonly to 200 mi - by coastal states thus presents a new and unprecedented opportunity for the developing countries to reap the full benefit of the living resources off their shores.

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2. At the same time, few developing countries have the capabilities - human, physical, financial and institutional - to take advantage of the new opportunities and to fulfil the concomitant responsibilities for rational management and optimum use of the resources over which they now have jurisdiction. In response to a request made by the Committee on Fisheries at its Eleventh Session and endorsed by the Conference of FAO in November 1977, FAO has therefore established a programme of assistance to developing coastal states in the management and development of fisheries in exclusive economic zones.

THE PROGRAMME

3. The new programme is designed to capitalize upon FAO's special ability to marshal internationally the expertise and resources required to improve national capabilities not only to increase fisheries production but also the net socio-economic benefits to be gained by the peoples of developing countries. It has two main objectives:

- (i) to promote rational management and full use of fishery resources in the economic zones of developing countries;
- (ii) to enable these countries, as part of efforts to establish the New International Economic Order, to secure a greater share of living marine resources.

4. The programme provides a framework for action involving two major and interrelated elements: a medium-term action plan of activities designed to respond to the priority needs of developing coastal states for assistance; and supporting basic, long-term studies of the concepts and mechanisms involved in resource management and development.

5. The medium-term plan covers five major areas of activity to meet priority needs arising from the new legal regime for fisheries:

- (i) inter-disciplinary missions to assist in preparing fisheries policies and plans;
- (ii) advice on specific problems ranging from resource management to national legislation and enforcement;
- (iii) training for fisheries administrators and others responsible for the management and development of economic zones;
- (iv) mobilizing bilateral and multilateral funding for fisheries, and
- (v) promoting collaboration in fisheries development and management through FAO's regional bodies and programmes.

6. The long-term studies will centre primarily on basic questions arising from the development of fisheries management at national, regional and sub-regional levels. Special attention will be given to the preparation of development options for developing countries based on socio-economic and technical studies of all aspects of their fisheries and national plans. Other studies will be concerned with the development of a practical framework for fisheries management and the review of principles and methods involved in resource conservation, in particular the questions of shared stocks, and surveillance and control systems.

THE IMPLEMENTATION OF THE PROGRAMME

7. The experience gained in providing preliminary assistance under the programme has clearly demonstrated three fundamental factors. The first is that the programme cannot be defined in rigid, short-run terms; it must above all be flexible and equipped, both in terms of people and funds, to act quickly and effectively on the request of the developing countries themselves. Secondly, regional fishery bodies will have an essential role to play in both the planning and execution of the programme. Finally, it is abundantly clear that FAO will be unable to provide the assistance required without substantial additional financial and technical support.

8. It is intended that the programme will be delivered in a decentralized manner through a network of multidisciplinary technical units in the regions designed to respond to the specific needs of groups of countries in natural management areas, based upon such factors as shared stocks or fisheries, common problems or opportunities and other natural affinities such as language, culture and traditions. These units, supported by a strengthened and reoriented structure of FAO regional fishery bodies, should also be primary vehicles for cooperation among developing countries and facilitate and stimulate the use of expertise and institutions in each region.

FUNDING REQUIREMENTS

9. Approximately U.S.\$ 35-40 million will be required over the next three years alone to plan and execute the programme of assistance; subsequently extra-budgetary funding in the order of U.S.\$ 18-20 million will be needed annually.

10. As a result of discussion with UNDP and other donors firm agreement has already been reached on the provision of nearly U.S.\$ 13 million to finance the programme during the 1980-81 biennium and additional support to the extent of some U.S.\$ 8-9 million is presently being discussed with potential donors.

11. The rate at which the programme can be delivered and the network of technical support units expanded clearly depends upon the success which can be achieved in securing the additional, long-term extra budgetary assistance required. Also of considerable importance will be the mobilization of technical and other forms of collaboration between developing countries, in a spirit of TCDC, as well as between developed and developing countries.

THE THIRTEENTH SESSION OF THE COMMITTEE ON FISHERIES

12. The above framework to the programme of assistance was presented by the Director-General of FAO to the Thirteenth Session of the FAO Committee on Fisheries, held in Rome from 8 to 12 October 1979, and received the Committee's unanimous support.

13. The Committee particularly welcomed the key role accorded to FAO regional fishery bodies in the execution of the programme and approved the decentralized approach to be taken in delivering the necessary technical support.

14. Inter alia the Committee also expressed the opinion that small-scale fisheries should receive special attention in the implementation of the programme, placed considerable importance upon the question of the surveillance of economic zones and the cost-effective enforcement of the management measures introduced, emphasized the need to introduce improved methods of processing, storage and marketing of fishery products and stressed the importance which should be attached to assistance in the policy formulation and legal and institutional aspects of economic zone management.

15. A proposal that an FAO Technical Conference on the Management and Development of Fisheries should be held in 1980 was supported by many delegations.

THE SEVENTY-SIXTH SESSION OF THE FAO COUNCIL

16. At its 76th Session (Rome, 6-8 November 1979), the FAO Council endorsed the recommendations of the Committee on Fisheries regarding the economic zone programme, welcomed the high priority being accorded by the Director-General to the programme and approved the efforts being made by FAO to mobilize the financial and other forms of external support required.

17. In supporting the general thrust of FAO's programme of work in fisheries in 1980/81, the Council expressed its satisfaction at the steps being taken to reorient the resources available so as to increase FAO's capacity to meet the challenges of the new legal regime of the oceans.

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THE TWENTIETH SESSION OF THE FAO CONFERENCE

18. The development and management of fisheries in exclusive economic zones was a major item on the Agenda of the FAO Conference at its Twentieth Session in Rome, 10-29 November 1979. The Conference endorsed the unanimous support expressed by the Committee on Fisheries and by the FAO Council for the leadership and timely initiative taken by the Director-General in establishing a comprehensive programme of assistance to developing coastal states in the management and development of the fisheries in their economic zones.

19. The Conference agreed that one of the main objectives of the programme should be the strengthening of the capability of coastal countries, and grouping of countries, to manage and develop their fisheries. High priority under the programme was accorded to fish stock location, identification and quantification, to improved data collection on all aspects of fisheries, to the preparation and implementation of fisheries policies and plans and to the training of fisheries administrators and managers. The assistance being provided by FAO in legal and institutional aspects of fisheries development and management was also welcomed.

20. The Conference expressed its particular satisfaction that the Programme would be delivered in a decentralized but integrated manner. It acknowledged the vital role to be played by FAO regional bodies in executing the programme as well as in managing and monitoring shared stocks and recognized that there would in some cases be a need to strengthen and adjust the existing structure of these bodies.

21. In adopting a special Resolution endorsing the proposals for the economic zone programme, the Conference also laid emphasis upon benefits which might accrue from small-scale fisheries development and supported the proposal to hold in 1982 an FAO Technical Conference on the Management and Development of Fisheries. In its Resolution, the Conference urged international, regional, bilateral and other donor agencies and financial institutions to give maximum support to the FAO programme of assistance and invited the Director-General to continue and intensify efforts to mobilize the financial, technical and other forms of assistance required to implement the Programme.

SUGGESTED ACTION BY THE INDO-PACIFIC FISHERY COMMISSION

22. The Commission is invited to review the proposals for FAO's Programme of Assistance in the Development and Management of Fisheries in Economic Zones and to comment upon special needs and basic priorities in the context of the fisheries of the Indo-Pacific region. The Commission's attention is particularly drawn to the importance of cooperation in fisheries management and development at the regional and sub-regional level in a spirit of TCDC and to the vital necessity of obtaining adequate financial and other support for the Programme if it is to satisfy the needs of the developing coastal states.

THE FAO FIELD PROGRAMME IN THE IPFC REGION

Summary

The FAO's field programme in the region is being strongly influenced by the increasing importance of the Exclusive Economic Zones. The programme has two main aspects, inter-regional and regional projects, of which there were eight in the region during 1978/79, and national projects, which were 45 in number in 25 countries in 1978/79.

1. FAO's field programme is funded mainly by the United Nations Development Programme (UNDP) but is receiving substantial and increasing bilateral support as well as funds from FAO's own sources under its Technical Cooperation Programme. The field programme is directed to dealing with specific immediate or medium and long-term problems, often in one particular country, although regional or inter-regional projects, such as the South China Sea Fisheries Development and Coordinating Programme and the Regional Fisheries Coordinator for the South Pacific, have become more and more important, particularly in their coordinating rôles. The increasing significance of Exclusive Economic Zones (EEZs) in the development plans of member countries is resulting in particular emphasis being placed on EEZ-related problems in the field programme, and this will lead to reorganization of some of the regional or inter-regional activities. The details of the field programme follow. It will be seen that there are 45 national projects in the FAO member countries in the IPFC region. At present 51 experts and many consultants are working in the region, and the total budget is over U.S.\$ 36 million.

2. The inter-regional and regional programmes coordinate their activities with national programmes for development. They provide expert services in planning project identification, project formulation, resource assessment and development and investment identification. The inter-regional aquaculture programme is providing advice to fishery planners and development authorities on the importance of aquaculture as part of a balanced agricultural development strategy for increasing food production and rural incomes. The field programme designed for the IPFC region provides expertise in a wide range of fisheries development activities including aquaculture, small-scale fisheries development, resource surveys, marketing, fish processing, quality control, product development and institution building.

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REGIONAL AND NATIONAL FIELD PROGRAMME

1. REGIONAL PROJECTS

Development of Small-Scale Fisheries in the Bay of Bengal - GCP/RAS/040/SWE

This SIDA-funded project was declared operational in November 1978 with Bangladesh, India, Malaysia, Sri Lanka and Thailand participating. The total duration of the project is five years for which the donor will contribute U.S. \$ 6.7 million. So far U.S. \$ 4.2 million have been committed for the first three years. The project headquarters are based in Madras, India

Small-Scale Fisheries Promotion in South Asia - RAS/77/044

The headquarters of this project have recently been moved from Colombo, Sri Lanka to Madras, India. The participating countries are Bangladesh, Pakistan, Sri Lanka and Thailand. The Project Manager of the SIDA-funded project is responsible for the operations of the project. The tripartite review held in November recommended an extension or expansion of this project to cover the activities of the Indian Ocean Programme which was completed at the end of 1979 for the Bay of Bengal area. A first revision has been submitted to UNDP for approval accordingly.

INTER REGIONAL AQUACULTURE DEVELOPMENT AND COORDINATION PROGRAMME - INT/76/016

The objectives of this ongoing programme are to increase the awareness of policy-makers and fishery development officers of the importance of aquaculture and the requirements for expanded programmes; to investigate the potentials and constraints in developing programmes; to identify countries interested in technical assistance; and to organise a World Conference on Aquaculture. Under the overall umbrella of this programme, regional projects in aquaculture have been formulated. In the IPFC region, these include:

Regional Aquaculture Project for Asia - RAS/77/003

This became operational in early 1979. The major elements of this project are lead-centres in three participating countries in the region, namely Philippines, Thailand and India. A fourth lead centre in China is expected to be established in the near future.

SOUTH CHINA SEA FISHERIES DEVELOPMENT AND COORDINATING PROGRAMME - RAS/74/013

Since the inception of its operational phase on 1 July 1974, the Programme has played the role of coordinator and catalyst and has generated a large number of other national projects which are financed by bilateral agencies and regional and international banks. The pelagic fish component of the Programme, supported financially by CIDA, has discovered, through its exploratory fishing surveys, sizeable schools of small and medium-sized pelagic fish which are accessible to small-scale fishermen in the region. This CIDA-funded component of the Programme came to an end as of mid-1977, and the Programme has continued with emphasis on development of small-scale fisheries, including fisheries training and coastal aquaculture. The Programme has also organized a large number of successful workshops in the region.

The South Indonesia survey is being carried out to establish the identity, abundance and seasonal distribution of the main fishery resources in the area and on the basis of these investigations to draw up development proposals.

The sub-project consists of three modules provided by the Government of Indonesia, Australia and the Federal Republic of Germany respectively. The survey work of the first two modules is being carried out by vessels provided by the Governments concerned, while the third module is making use of a vessel chartered from the UNDP/FAO vessel pool. Up to the end of 1979, this sub-project had been carried out as a part of the Indian Ocean Fishery Survey and Development Programme.

The operational phase of the Programme has come to a close at the end of 1979. In view of the need to manage the fish resources in the region and to establish a regional mechanism to take over the activities of the Programme, a Phase III project proposal with an estimated total budget of U.S.\$ 3.4 million for a period of two years starting from January 1980 has been submitted to UNDP for consideration.

REGIONAL FISHERIES COORDINATOR - RAS/74/013

A Regional Fisheries Coordinator based in Suva is providing assistance to Fiji, Western Samoa, Tonga, Cook Islands, Kiribati and other territories of the South Pacific in the development of their fisheries. The main activities include preparation of development plans, formulation of development proposals for funding by UNDP and other sources, identification of training needs, introduction of improved fishing craft and fishing gear and the development of information facilities.

These activities are being expanded and extended up to the end of 1981. Assistance will be rendered to the S.P. Forum Fisheries Agency by way of two posts, a Management Programmer and Statistician. A Regional Aquaculturist is also expected to be attached to this project.

2. NATIONAL ACTIVITIES

In addition to the various national activities mentioned above in connexion with the regional activities, a number of other country projects are being implemented.

Bangladesh

The project Fisheries Advisory Service BGD/72/016 is continuing. Two other projects, Fish Marketing TF BGD/4/DEN and Fisheries Training TF BGD/5/NOR were completed in 1978. A TCP project Freshwater Aquaculture TCP/BGD/6704 trained 45 Bangladeshi technicians in aquaculture in China in 1978.

A project receiving Swiss assistance for Development of Inland Water Transport for Food Security is operational.

Burma

A TCP project for Crash Courses for Deck Officers and Engineers, TCP/BUR/8801, was completed in 1979. This is being followed by a large-scale project for establishing a Fisheries Training Institute, BUR/78/014.

Another project, Marine Fisheries Resource Survey and Exploratory Fishing, BUR/77/003, will become operational in 1980. The objectives are to carry out exploratory and experimental fishing to establish the resources position and suitable methods of catching.

Cook Islands

A one-year project for skipjack survey (CKI/79/005) is being put into operation to enable the government to develop the industry.

Fiji

A Fisheries Management Project, FIJ/77/001, provides for a General Manager (OPAS) and two Masterfishermen to assist the Government owned IKA Corporation operate its fishing fleet.

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India

Intensification of Aquaculture - IND/75/031

The project has been in operation since mid 1979. This is a nationally implemented project with FAO providing short-term consultants, fellowships and equipment.

Pelagic Fisheries Investigations - West Coast of India - IND/75/038

The second phase of this project, originally recommended by an FAO/UNDP Review Mission lead by the Programme Leader was completed in March 1979.

Indicative Fishing Project - East Coast of India

This project proposal, formulated in cooperation with the Government of India is expected to be executed by the Government, using two vessels to be chartered from the UNDP/FAO Vessel Pool.

Indonesia

The Training Centre on Improved Fishing, Larantuka, FFHC/INS-14, funded by Misereor, Germany, was successfully concluded.

As a follow-up to the INS/72/063 project a one-year preparatory assistance project on Fisheries Extension Services for small-scale fishermen (INS/78/014) has been operational since July 1979 and this will be followed by a two-year operational phase starting around the first quarter of 1980 with the major aim of extending its training programme to outer stations.

The Brackishwater Shrimp and Milkfish Culture Applied Research and Training Project (INS/72/003) at Jepara, operational since 1973, is being extended to the end of 1980 in order to allow the project to refine and stabilize the methodology developed.

Kiribati

A project for tuna and baitfish resources evaluation, KIR/75/002, has been operational since 1976. The objectives of the project are to assist the government in developing programmes to establish the extent of exploitable baitfish and tuna resources and their utilization.

Korea

The sub-project on livebait fishery development (ROK/68/525) has been in operation and a training boat was provided by the project.

Lao

A three-year large-scale project entitled "Rehabilitation of Fish Seed Farms and Fish Culture Development" (LAO/78/014) has been operational since April 1979 with a total UNDP contribution of U.S.\$ 577 000. Major objectives are to assist the government in rehabilitating, expanding, improving and operating five existing fish seed farms in Pakse, Savannakhet, Luang Prabang, Xieng Khouang and Houa Phan.

Malaysia

There are no ongoing projects at the moment, but as a result of the UNDP/FAO Aquaculture Programming Mission which took place in February 1979, following project proposals are in the pipeline: a) Coastal Aquaculture Development (MAL/77/008), b) Small-scale Brackishwater Fish Farming Demonstration, Ban Merbok, c) Reservoir Fisheries Development, d) Development

of Seaweed Farming, e) Institutional Support for Majuikan, and Animal Waste Management, Penang. In the marine sector, a follow-up project entitled "Small-scale Fisheries Development, Kuala Besut" is expected to become operational in the first half of 1980 with CIDA contribution of U.S.\$ 1.6 million. A proposal on Acoustic Survey for TCP funding is also under consideration.

Nepal

A large-scale UNDP/FAO project (NEP/73/025) for integrated development of fisheries has been in operation since 1975. A limnologist, a boatbuilder and three associate experts joined the project in 1976. Two other FFHC/AD projects (TF-NEP-7(FH) and TF-NEP-18(FH) one for supply of fishing equipment to fish farmers and the other for supply of pituitary glands donated by Hungary were also implemented.

New Hebrides

A Fishery Development Adviser, NHE/77/002, is provided to assist in fisheries development and train local people.

Pakistan

The Baluchistan Small-scale Fishery Project, PAK/77/004, has been in operation since May 1978. The main objectives are to assist small-scale fishermen in boat motorization, improved fishing techniques and handling of fish.

Papua New Guinea

An FAO Fishery Development Adviser, PNG/74/002, has been appointed to assist the government in setting up a Fisheries Department, to assist in its operation and to formulate plans for fishery development.

Philippines

Apart from being the host country of the South China Sea Fisheries Development and Coordinating Programme (RAS/74/013), the Philippines is at present receiving UNDP/FAO assistance through the following ongoing and pipeline projects.

- a) The Aquaculture Development and Training Project (PHI/75/005) became operational in June 1977 for a duration of 3.5 years. The project is to assist the government in strengthening aquaculture extension services.
- b) An FAO/TCP project has been approved in August 1979 with a total budget of U.S.\$ 60 000 to provide a fisheries specialist, a fisheries economist and an institution specialist who will assist the Municipal Fisheries Development Programme of the Philippines in identifying and preparing the projects related directly to the investment programme.
- c) A Pre-Investment Feasibility Study of a Pilot Project on Sea Farming to assist small-scale village fishermen is under consideration for FAO/TCP funding.

Samoa

A project (WES/73/009), which provides the services of a Fishery Development Adviser, became operational on 1 January 1974 and is continuing. Its main objectives are to advise the government on fishery development planning, formulation of projects for external assistance and to train local fisheries officers. A project document, including provision of equipment funded by DANIDA, and extending the project beyond 1979, has now been completed.

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A project for development of baitfish culture (SAM/77/001) has been in operation since June 1978. The objectives are to assist the government in developing production of livebait for the local tuna fishery.

Singapore

Since the conclusion of the Fisheries Training Centre Project (SIN/68/506) in 1974, there has been no FAO assistance in fisheries to this country. However, advisory assistance has been rendered to Singapore on an ad hoc basis by the South China Sea Fisheries Development and Coordinating Programme, RAS/74/013.

Solomon Islands

There are two projects in operation, Fish Distribution and Offshore Fisheries Development (SOI/75/006) and Localization of Baitfish Industry (SOI/77/003). The main objectives of the former are to assist the government in creating fish marketing infrastructure, investigating offshore fishing opportunities, training fishermen and investigating potential for export, while those for the latter involve assistance to the government to develop local baitfish operations.

Sri Lanka

A SIDA assisted project "Fish Technology Institute", GCP/SRL/028(SWE), has been in operation since 1976 and will continue until the end of 1980. The objectives are to develop improved fish handling, processing and marketing techniques and train local scientists to take over the Institute on completion of the project.

A TCP project for the survey of fisheries potential in manmade lakes and reservoirs is in operation (TCP/SRL/8804).

Thailand

From 1977 on, FAO/UNDP assistance to the Thai government in the field of fisheries has increased rapidly and considerably. The on-going projects are (a) Expansion of Freshwater Prawn Production (THA/75/008), (b) Pole and Line Tuna Fishing in Southern Thailand (THA/77/008), (c) Pond Management Techniques (THA/75/012), (d) Acoustic Survey in the Gulf of Thailand and the Andaman Sea (TCP/THA/8801), (e) Aquaculture Demonstration in Phang Nga (subproject of GCP/RAS/040/SWE), and (f) Workshop on the Management of Tropical Demersal Fish (GCP/RAS/075/DEM).

Tokelau

Assistance was rendered in Boat Design (TOK/78/006) through a short-term consultancy.

Tonga

A project vessels construction and bottom fishing demonstration (TON/77/002) has been in operation since March 1979. The objectives are to design prototype vessels, upgrade local shipwrights and assist in developing snapper fishery.

Tuvalu

Equipment for local bêche-de-mer industry (TUV/77/010) was supplied.

Vietnam

A Shrimp Culture and Production Project (VIE/76/007) with a total UNDP contribution of U.S.\$ 1 773 000 and a duration of three years has been in operation since June 1978. The

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project comprising a heavy component of equipment (more than 90 percent of the total budget) is to assist the government in strengthening the Institute for Shrimp Culture in Haiphong and increasing its research capability in both experimental and applied fields.

In July 1979, the TCP of FAO approved an allocation of U.S.\$ 98 000 to be used for assisting the government in rehabilitating and equipping the Thah Liet Fish Seed Farm of Hanoi.

FAO/GOVERNMENT COOPERATIVE PROGRAMMEPLAN OF OPERATION

(DRAFT)

Donor Government: Norway

Countries: UN/ESCAP Member Countries

Project Symbol and title:

Marketing Information and Advisory
Services for Fish Products in the
Asian Region (INFOFISH-ASIA)

PLAN OF OPERATION

1. Within the framework of its agreement with the Government of Norway (the Donor Government), and upon request from the various Governments in the Asian/Pacific region (the Governments) the Food and Agriculture Organization of the United Nations (FAO) will supply assistance for the execution of the following project:

<u>Project title:</u>	Marketing Information and Advisory Services for Fish Products in the Asian Region
<u>Estimated costs:</u>	(Plan of expenditure in Appendix I): Donor Government contribution - US\$ 1 998 500
<u>Planned duration:</u>	Four years
<u>Background and purpose:</u>	Appendix II
<u>Description and Work Plan:</u> (including job description of Project Manager/Team Leader)	Appendix III

FAO OBLIGATIONS

2. FAO shall be responsible for the recruitment, international travel, salaries and emoluments of the international staff (except volunteers) shown in Appendix I. All staff will work under the direction of the Project Manager who, on behalf of FAO, is responsible for the technical execution of the project.

3. All FAO's obligations arising under this Plan of Operation shall be subject to the decisions of its governing bodies and to its constitutional, financial and budgetary provisions. Any obligations

assumed by FAO may, at any time, be taken over by the Donor Government.

4. FAO may, in consultation with the Governments, execute part or all of the project by sub-contract. The selection of the sub-contractors shall be made, after consultation with the Governments, in accordance with FAO's procedures.

GOVERNMENT OBLIGATIONS

5. The Governments shall take all necessary measures to facilitate the execution of the project and to assist the FAO staff in obtaining such services and facilities as they may require to fulfil their tasks. The Governments shall apply to FAO, its property, funds and assets; its officials and to other persons performing services on its behalf, in connexion with the project, the provisions of the Convention on Privileges and Immunities of the Specialized Agencies; the currency exchange rate agreed upon by the International Monetary Fund shall be granted.

6. The Governments shall deal with any claims brought by third parties against FAO, its personnel or other persons performing services on its behalf in connexion with the project, except when it is agreed by FAO and the Governments that such claims arise from gross negligence or wilful misconduct of such persons.

7. The Governments shall grant to the staff of FAO and of the Donor Government and to persons acting on their behalf, access to areas where project activities are carried out and to any material or documentation relating to the project and shall provide any relevant information to such staff or persons.

REPORTING

8. Every six months FAO shall report to the Donor Government and to the Governments of participating countries on the progress of the project.

9. The Governments shall agree to the dissemination of information like descriptions of the project and of its objectives and results, for the purpose of educating public opinion.

AMENDMENTS AND TERMINATION

10. This Plan of Operation may be amended or terminated by mutual consent. Termination shall also take effect sixty days after receipt by either party of written notice from the other party. In the event of termination, the obligations already assumed by the Governments shall remain in force to the extent necessary to permit orderly withdrawal of the funds and assets of FAO and of personnel performing services on its behalf.

11. This Plan of Operation shall enter into force upon signature by FAO and at least two of the Governments concerned.

For the Government of

For the Food and Agriculture
Organization of the United Nations

Date: _____

Date: _____

Date: _____

Date: _____

APPENDIX I

ESTIMATED COSTS

A. Donor Contribution in US\$

4

Code		Total		1980		1981		1982		1983		1984	
		m/m		m/m		m/m		m/m		m/m		m/m	
10	PERSONNEL SERVICES												
.01	Principal Marketing Adviser/Team Leader	48	256 800	6	32 100	12	64 200	12	64 200	12	64 200	6	32 100
.02	Marketing Expert (Communications)	36	180 000	-	-	12	60 000	12	60 000	12	60 000	-	-
.03	Marketing Expert (International Trade)	29	134 800	5	22 000	12	52 800	12	60 000	-	-	-	-
.04	Marketing Expert (Fishery Products)	30	150 000	-	-	6	30 000	12	60 000	12	60 000	-	-
.05	Consultants	33	165 000	6	30 000	9	45 000	9	45 000	6	30 000	3	15 000
	Subtotal	176	886 600	17	84 100	51	252 000	57	289 200	42	214 200	9	47 100
	SECRETARIAL SERVICES	84	94 000		8 000		26 000		26 000		26 000		8 000
	Admin. Assist.	36	51 000		-		17 000		17 000		17 000		-
	Component Total		1 031 600		92 100		295 000		332 200		257 200		55 100
20	Official Duty Travel		95 000		15 000		30 000		30 000		15 000		5 000
30	Contractual Services		120 000		-		40 000		60 000		20 000		-
40	General Oper. Expenses		80 000		5 000		25 000		25 000		20 000		5 000
50	Supplies and Materials		23 000		5 000		5 000		5 000		5 000		3 000
60	Equipment		54 000		7 000		30 000		13 000		3 000		1 000
80	Training and Fellowships		75 000		-		25 000		25 000		25 000		-
	Subtotal		1 478 600		124 100		450 000		490 200		345 200		69 100
90	Project Servicing Costs 14 %		207 004		17 374		63 000		68 628		48 328		9 674
	Total		1 685 604		141 474		513 000		558 828		393 528		78 774
	Inflation Factor		312 634		-		51 300		111 766		118 058		31 510
	GRAND TOTAL		1 998 238		141 474		564 300		670 594		511 586		110 284

1 998 200

Rounded to

APPENDIX IIBackground and PurposeThe Problem

Persons involved with the fishery industry have generally realized the need for an international market information service for fish products which would benefit the consumers as well as the producers, since it would lead to a more balanced supply situation on the markets, ensure^a/more regular pattern of fish prices and encourage the best use to be made of fishery resources. Moreover, a number of producers in developing countries have encountered difficulties in meeting the high quality standards and increasingly stringent public health regulations in some importing countries. Rejections of fishery products from Asian countries by the U.S. Food and Drug Agency alone amount to several million U.S. dollars per annum. Producers and exporters often lack the required up-to-date information to make use of marketing opportunities, to diversify their business and to obtain the best returns for their production. In other instances, the governments want to ensure a high and undisturbed level of fish supplies on the domestic markets, thus looking for additional sources for products which their populations are accustomed to eat. In the region, considerable quantities of fish are wasted, either because of losses during handling and distribution or because unwanted species, caught incidentally in some fisheries, are discarded at sea or used as animal feed, giving only a minimal return to the fisherman.

An adequate fish market information service does not exist in the Asian region and neither the private industry nor the government of any one country may be expected to operate an international information service of this type as successfully as could a cooperative effort of countries with a common interest in this field.

The Purpose

The purpose of this project is to set up a service which will enable the fishery industry in the Asian region to develop in accordance with present and future market demand and fishery resources potentials by improving the availability of information on worldwide fish marketing possibilities and supply situation and by providing technical assistance in this field when it becomes necessary for the producers to make changes in present marketing and processing methods. Better information of and assistance to fishermen will result in more rational marketing operations and reduce the market power of intermediaries which is frequently due to the fact that they are better informed than the producers about the market situation.

The objectives of the project are to ensure a balanced supply of fishery products to the participating countries and to make the best use of export opportunities within and outside the region. More specifically, the project will:

- a) establish a service of providing information on marketing opportunities and supply prospects of fishery products within and outside the Asian region;

- b) advise on product specifications, processing methods and quality standards in accordance with market requirements;
- c) assist in developing new marketing opportunities for fishery resources presently not fully utilised for human consumption;
- d) assist in the planning and implementation of national fish market information and research activities in the participating countries;
- e) train national staff in governments, institutions and industry in marketing development and strengthen national institutions involved in this field.

APPENDIX IIIDESCRIPTION AND WORK PLANA. Preparatory activities (1980)

Within the limitations of the budget provisions for 1980 all preparatory activities required to make the service fully operational can be completed. They will mainly consist of:

- (1) establishing the project headquarters including recruitment of staff and ordering of equipment;
- (2) deciding on and establishing national liaison offices by the countries participating in the project, and
- (3) certain technical preparations to create the nucleus of an information base.

Preparatory activities will be carried out using the offices of the South China Sea Development and Coordinating Programme in Manila with appropriate support from FAO headquarters in Rome.

1. Establishment of Project Headquarters

Project headquarters will be identified and decided on in consultation with participating countries and the donor. The location selected should have good communication facilities with all parts of the Asian/Pacific region.

The host government is expected to contribute the following to the project:

(a) Personnel

The host government will be expected to support the project with administrative and clerical personnel, details of which will be discussed and agreed upon with the host government.

(b) Facilities

Similarly the host government will provide adequate furnished office space, details to be agreed upon.

2. Establishment of National Liaison Offices

The Government of each participating country will designate a liaison office which will be the official contact point of the project in the respective country. The liaison offices will be adequately staffed and equipped in order to fulfil their functions (see B 1 & 3).

The liaison offices should be established in an institution or Government administration which is connected with fisheries and, therefore, is in regular contact with the industry and cognizant of its present and future development needs.

Interim arrangements may be necessary to allow for budgetary adjustments required to make liaison offices fully functional. The project will consult with governments and advise on the establishment of these liaison offices.

3. Technical preparations

During 1980 the service will be prepared to respond swiftly and comprehensively to the information requests from participating countries. The nucleus of a market information and technical documentation centre will be planned and built up. The market information requirements of participating countries will be identified

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through visits of consultants. Applicable information available in FAO headquarters and in INFOPESCA (Panama) will be reviewed and consolidated. A quick storage and retrieval system for market information will be organised at the headquarters of the project.

B. Full-scale Operation (1981-1984)

1. Data collection inside the region

The project will receive from the national liaison offices designated by the participating countries weekly information on the availability of fish products, prices, storage holdings, etc., in accordance with a pre-determined schedule agreed to with each country. This information will be transmitted by telex.

The project will receive monthly data from the national liaison offices on sales on the national market, imports of fishery products, export shipments, detailed description of products available for export, and any other information considered relevant for the commercialization of fish products. This information will be transmitted by airmail.

2. Data collection outside the region

The project will arrange with governmental and private institutions in countries outside the region for the regular receipt of information on sales of fish in these markets (volumes, prices) and also on import possibilities (product specifications, market demand, trading conditions, government restrictions, etc.). Depending on types of products and market demand, this information will be transmitted to the project weekly by telex or monthly by airmail. The project will seek the collaboration of other FAO fishery projects, FAO Regional Offices, and other national, regional and international institutions to secure a regular input of data on market situations

APPENDIX III

for products of particular relevance as either export or import items for the participating countries. The project experts will undertake specific investigation on new possibilities for the marketing of fish products of present or potential interest to the participating countries.

3. Data distribution

The project will send weekly by telex to its liaison office in each participating country data on the present situation and prospects for the marketing of fish products. Once a month the project will distribute to these offices detailed information on trade possibilities, prices for fishery products in the most important markets, storage holdings etc. It will also identify possibilities of making the best use of under-exploited fishery resources.

The national liaison offices will be responsible for distributing the information to the fishery industry and other interested bodies in the respective country. In special cases, the project will send information directly to private firms or fish marketing organizations, with a copy to the liaison office in the country.

Contacts in countries outside the region will be supplied with data and publications as requested. Information on trading possibilities and trade contacts within the region will be made available to them as appropriate.

4. Advisory services

The project staff will assist government and industries in the participating countries in making the best use of the market information provided to them. Such assistance will cover all aspects of fish handling, processing, packaging, labelling, quality control, trading, shipping, etc., as required. This service will be made available upon request by the relevant government unit or private company and will be arranged through the national liaison office.

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The project will assist in the planning and implementation of national fish market information services and the required communication systems. If required, the project will help in identifying donor support for equipping and putting into operation such systems. The project will assist in the planning of national fish market investigation and in the evaluation of their results used as a basis for the formulation of national fish marketing development plans. The project will make available information on new product lines for domestic consumption purposes and assist in the planning of fish promotion and consumer education activities.

The project will advise national administrations and institutions on improved marketing conditions for the small-scale fisheries using information emanating from the project.

5. Research and development

While the project itself will not have the required staff and facilities at its disposal for technological investigations and experimental work on fishery products, it will collaborate with national institutes and regional organisations involved in this field. Close contact will be maintained with all institutions participating in the work of the IPFC Working Party on Fish Utilization Technology and Marketing, and with the Southeast Asian Fisheries Development Centre (Post-Harvest Technology), Singapore. The project will contract the services of institutions and R & D organisations in the region for undertaking specific investigations on fishery products and marketing, giving emphasis to applying the most appropriate technology for the conditions in the relevant participating country.

6. Training

Staff of the participating countries will be trained in the operation of a fish market information service with the aim to prepare

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a sufficient number of persons in each country to continue this service after termination of the project. The project will also organise short workshops/training courses on specific aspects of fish marketing development and export promotion. The project will fund fellowships/study tours for staff from the participating countries to initiate and follow-up specific new export opportunities.

7. Documentation service

A collection of references and basic documentations on the marketing of fish products and related subjects will be established in the project headquarters. This will consist of producers and exporters guide of countries in the region, an importers guide of countries within and outside the region, a register of products presently or potentially produced in the region and a data centre for trade regulations, technological and industrial requirements and shipping conditions.

The project will prepare a catalogue of fishery products, giving detailed specifications and processing instructions.

The project will contribute to up-dating the FAO/EEZ Worldwide Register of Import Regulations for Fishery Products.

The project will periodically issue reports on trends in markets for selected fishery products.

8. ECDC in Fish Trade

The project will cooperate with national governments and regional organisations to foster a closer collaboration among participating countries in all matters affecting the intra-regional and international exchange of fish and fishery products. The project will on request of relevant institutions or organisations undertake studies to identify areas for such cooperation.

9. Monitoring and reporting

The project will report every six months on project progress.

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An advisory and coordinating committee will be designated by participating countries to regularly review the work done by the project and to advise on future activities to be undertaken according to the project's objectives and according to requirements of the fishery in the region. The members of this committee will be persons with long experience in fishery industry activities.

In consultation with national governments, the committee will prepare a plan for the continuation of the service after termination of the donor support.

10. Collaboration with other projects and organizations

Close collaboration will be established with other projects and organizations operating in the region and having an interest in the promotion of fishery development in general and of fish marketing in particular, notably the following:

- South China Sea Fisheries Development and Coordinating Programme;
- Indo-Pacific Fishery Commission; (IPFC)
- Southeast Asian Fisheries Development Centre; (SEAFDEC)
- Association of Southeast Asian Nations; (ASEAN)
- International Centre for Living Aquatic Resources Management; (ICLARM)
- Project for the Development of Small-Scale Fisheries in the Bay of Bengal;
- Economic and Social Commission for Asia and the Pacific; (ESCAP)
- South Pacific Forum Fisheries Agency (SPFFA);
- Indian Ocean Fisheries Commission and its subsidiary bodies;
- International Trade Centre (ITC/UNCTAD/GATT);
- International Chamber of Commerce (ICC).

Exchange of market information will be arranged on a current basis with the sister project in Latin America, INFOPESCA.

APPENDIX IIIC. Job Description of the Project Director

The Project Director will be responsible for the overall conduct of project activities and the implementation of project objectives. He will plan, direct and coordinate the work of the other experts and project staff. He will prepare six-monthly and annual reports on the progress of work. He will organise the meetings of the Coordinating and Advisory Committee of participating countries to advise on the implementation of the project. He will ensure full collaboration with appropriate national and international institutions and agencies in the region involved in the technological and/or economic aspects of fish marketing development. At the end of the project he will present a terminal report giving the results of the project and recommendations for continuing this type of information and advisory service.

MAXIMIZING BENEFITS FROM SHRIMP FISHERIES

Summary

A short review of the management measures aimed at maximizing the benefits of the penaeid shrimp fisheries is presented (mesh size regulations, fishing effort monitoring, improved quality control of the products, conservation of nursery areas).

Some promoting actions that could be taken by the Commission are then suggested.

1. Shrimp are probably the most important single product of the fisheries in the IPFC region. Annual landings for the region as a whole have been in the order of 800 000 tons, of which about half have been taken in the central part of the region (statistical area 71, the western central Pacific). This constitutes about 7 percent of the total weight landed in that region.
2. The real importance of shrimp is understated by the statistics of the weight caught. The larger penaeid shrimp in particular fetch very high prices on local and international markets. The total value at the time of landing is not well known, but probably accounts for at least a quarter of the total regional value. For many of the developing member countries of IPFC, shrimp is a major earner of foreign currency. Imports of shrimp from developing member countries of IPFC by Japan alone were worth close to U.S.\$ 1 billion in 1979. Unlike many parts of the world, pure shrimp fisheries are relatively rare in the IPFC region, most shrimp being caught in trawl fisheries that also produce large quantities of fin fish. The earnings from shrimp ensure the economic viability of these fisheries, and hence in one sense support a higher production of fish.
3. The high value of shrimp also has disadvantages. The high prices attract high levels of fishing effort, and lead to the well known effects of too much fishing - small catches for the individual fisherman, and excess costs. In addition, many of the fish caught by shrimp trawlers are very small, and the weight of fish landed could be, in principle, increased if they could be permitted to grow to a better size. In many countries shrimp are harvested by a number of distinct groups of fishermen (both industrial and small-scale) and fishing methods (large and small trawlers, stake nets, etc.) which take shrimp at different stages in their life history, and which interact in complex ways.

IPFC/80/10

4. There are therefore, in principle, several opportunities for managing shrimp fisheries, and a number of different benefits that might be obtained by various forms of government intervention and control. In a paper (IPFC/RRD/11/79/6) presented to SCORRAD at its meeting in Hong Kong in December the potential benefits were identified as:

- (i) increased weight of shrimp landed;
- (ii) increased gross value of the landings, including the gross value of foreign exchange earnings;
- (iii) reduction of costs (including fuel costs);
- (iv) better distribution of benefits between different interests (large trawlers, inshore fishermen, etc.);
- (v) increased use of the fish caught by trawlers fishing primarily for shrimp;
- (vi) increased catches of commercial sizes of fish due to reduced incidental catch of small fish by shrimp trawlers.

5. SCORRAD discussed assessment and management of the fisheries for shrimp and demersal fish (which need to be considered together) at some length (see paragraphs 27 to 37 of its report IPFC/80/5). It identified a number of aspects of the population dynamics of shrimp and fish and their interactions that need further study - for example, the effect on the recruitment of small shrimp of the abundance of adult shrimp and of fish. It also identified specific data that needed to be collected, especially on the species of fish caught by shrimp trawlers, for which joint action by national biological and technological institutions was recommended.

6. Despite these outstanding research questions, the available information is sufficient to show that nearly everywhere the demersal fisheries as a whole (i.e., shrimp plus fish) would benefit from the use of larger meshes by trawlers and that in many shrimp fisheries it would be desirable to reduce the total amount of fishing. The present mesh size used by trawlers in the region are often in the range 20-25 mm, whereas the optimum mesh size, which depends on the species caught, and the intensity of fishing, is probably at least 45-55 mm. The difference between the likely optimum mesh size and the present one is so great that it would almost certainly be impracticable to change from one to the other in one step. Such a preliminary move, say to 35-40 mm, would also enable further scientific and other studies to be made to determine, for each fishery, what would be the optimum size.

MESH REGULATIONS

7. The objective of using a larger mesh is to release the small fish and shrimp so that they can be caught later when they have grown to a better size. The problem is that, even, though small, some of the fish and shrimp released do have a market value. Their release therefore, represents an immediate loss to the individual fisherman. Against this noticeable short-term loss, the long-term benefits from the actions of any individual fisherman will be shared throughout the whole fishery and the individual will receive very little direct benefit as a result of his own actions. There is, therefore, a clear incentive for individuals to use a small mesh. Because most fishermen do not like the idea of fish, however small, escaping from the net once caught, there is often a temptation to use a small mesh even when the short-term losses are negligible or even when there are immediate improvements in average catches because of the slightly greater efficiency of larger-meshed nets.

8. This problem is intensified because of the difficulty of controlling what fishermen do, particularly after they leave port. Effecting the general use of larger meshes must start with persuading the fishermen of the value of the change, and only then can the administration proceed with devising proper measures for control and enforcement, and introducing appropriate legislative or other measures.

9. The methods used to convince fishermen of the value of larger mesh sizes must be adapted to the particular conditions of each fishery. The details will therefore vary between countries and often also within countries. Nevertheless, there are likely to be common features in all fisheries. Methods that may be useful include practical demonstrations of the immediate effect of using different mesh sizes, particularly in terms of the sizes of fish and shrimp caught. This would probably be best done by having two well matched local trawlers use different mesh sizes alternately. In addition, the usual tools of the extension worker - film strips, talks, etc. - will be important.

10. The size of meshes can be checked at any point from the place of manufacture of the netting (or port of landing in the case of imported netting) until the fisherman sets his nets. The further the control is begun from the actual fishing grounds, the less will be the availability of undersized nets, and the more difficult for the fishermen to use them. The ideal situation from the enforcement point of view is when all nets (or at least all netting) are imported, and there are no other legitimate users of small-meshed netting of a type suitable for shrimp nets. Then the prohibition of the importation of small-meshed nets, which is relatively easy to enforce, would go most of the way to ensure the effective use of the right mesh size. This may not always be practicable, but in any case adoption by adjacent countries of the same minimum mesh size could simplify enforcement.

11. Whatever other controls are applied, there will also need to be direct enforcement to ensure that the individual fisherman is using nets with large enough meshes, and that he is not undermining the effectiveness of the regulations by, for example, adding extra material inside or outside the cod-end so that the small fish cannot escape. Here it may be noted that in some areas a "hula" skirt around the outside of the cod-end is needed to prevent shark damage.

REDUCTION OF FISHING EFFORT

12. A reduction in the amount of fishing, in general, or by certain sections of the fishery, can serve a variety of biological, economic or social objectives. In some fisheries a reduction in effort, especially on the smaller shrimp and fish, will increase the weight and value caught; in these and others, a selective reduction in some sections of the fishery could serve important social ends by increasing catches of other sections: in nearly all shrimp fisheries, a reduction in effort provides the opportunity to reduce costs (especially costs of imported items such as fuel) with no loss in the gross value of the catch. Reduction in effort may be achieved by direct controls, or indirectly, by reducing the incentives for fishermen or fishing enterprises to increase their activities.

13. Direct controls include closing all fishing at certain seasons or in certain areas as well as limiting entry to the fishery by licences or similar systems. The former group do not, in general, lead to any long-term reduction in costs. Realizing the full economic benefits, therefore, requires some form of limiting entry. A number of different methods have been recently the subject of extensive review. All raise some problems, and the choice will depend on local conditions, but a general conclusion is that it is very much easier to prevent overinvestment by the early introduction of controls than to reduce capacity level to the optimum after overexpansion has taken place.

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14. In some fisheries the continued existence of measures (e.g., favourable conditions for importing nets, reduced taxes on fuel) introduced some years ago to encourage fishery development has been partly responsible for the amount of fishing growing to an excessive level. Removal of such incentives is a simple measure to help reduce excessive fishing. Introduction of related measures (e.g., higher duties on imported nets) to actively discourage fishing is less easy, except where most of the shrimp are exported. In that case it may be possible to impose an export tax or levy, which would discourage growth in fishing effort beyond what may be considered the optimum. Such a levy could also be used to give greater discouragement to fishing of smaller shrimp, e.g., if it were a flat rate, or even increased for smaller shrimp (higher counts).

BETTER USE AFTER CAPTURE

15. It is also possible to increase the benefits from the fishery, without changing the pattern of capture at all, by making better use of what is caught, both shrimp and fish. Though the proportion of the fish caught in the shrimp fisheries that is discarded at sea and not used at all is smaller in the IPFC region than in other parts of the world, it is not negligible, especially in the industrial fisheries with larger trawlers. IPFC's Working Party on Fish Technology and Marketing has drawn attention to the possibilities of making better use of these fish, and SCORRAD has (as noted above, paragraph 5), endorsed the Working Party's recommendation that studies should be made jointly between technological and biological institutions, of the species of fish caught by shrimp trawlers. Research and development work on methods of utilization of the generally small by-catch species is under way in the region, but needs to be increased.

16. The value of shrimp fisheries to national economies would also be increased if exported products fetched higher prices. Unfortunately, there is strong evidence that shrimp from developing countries in the region attracts lower prices than that from elsewhere. This is because importers are not prepared to offer maximum prices for products of irregular, and often poor quality. Lack of confidence in quality levels has led importing countries to introduce regulations imposing stringent standards on the product. Recently, standards have been tightened and there is every indication that they will become stricter. Although there has been considerable disagreement between importers and exporters on standards and their interpretation, there is no doubt that buyers should receive safe and wholesome products of guaranteed weight and of the quality they expect. Once standards have been set, regulations introduced and methods agreed, then it is to the advantage of all parties to ensure that rejections by regulatory agencies in importing countries no longer occur.

17. The international demand for shrimp is greatest in the United States where the Food and Drug Administration establishes and applies the standards which products must meet to gain access to the market. It is instructive to review recent events which demonstrate the need for better attention to quality control and inspection in the producing countries. During the period May to August 1979, slightly more than 5 200 tons of shrimp from the IPFC Region failed to meet the import requirements in the U.S.A. This represents a declared value of more than U.S.\$ 15 million. The reasons for rejection were: presence of salmonella (76%), decomposition (17%) and insect filth (2%). Although there is some possibility of reconditioning the shrimp contaminated with salmonella, the economic losses are still very substantial.

18. The FDA has imposed a procedure known as blocklisting on India, Hong Kong, Thailand, Bangladesh and Indonesia. Blocklisting is put into effect when FDA sampling has resulted in at least 10 detentions over a six-month period representing at least 25 percent of all similar shipments. Under this procedure, shrimp is detained until the owner or importer provides analytical results, from a laboratory accepted by FDA, that show the shrimp are free from salmonella, decomposition and filth. These three defects are the major causes of rejection. The rationale of selecting them as indices of quality are that they are all conditions which are avoidable. The presence of salmonella is an indication of faecal contamination as this organism is not found in shrimp in their natural environment.

The FDA affirms that this situation is different from the red meat industry where salmonella organisms are commensal with the animals and the processing chain reduces but cannot eliminate the organism. Decomposition speaks for itself and inevitably indicates mishandling. Filth, usually parts of insects, is also an indication of lack of hygienic control.

19. The problem goes deeper than the obvious need to tighten up inspection procedures to ensure that defective shipments are not presented for export. Observations of FAO staff and others indicate that the principal problem area is catch handling on board and up to the time the shrimp enter processing plants for final packaging. Hygienic conditions and personal hygiene of processing plant staff also require improvement through better staff training. That these problems are surmountable is demonstrated by the fact that there are a number of processing plants in the region that have never suffered a rejection. However, they employ trained quality control staff and maintain high standards. The Commission may wish to suggest ways of improving the situation in the other plants, bearing in mind that the problem is well known to government staff but the stumbling block is application of improvements at the processing plant level. It is clear that these improvements will cost money but that this would be more than recoverable by improved prices and fewer claims.

MANGROVES

20. Several of the most valuable species of penaeid shrimp spend the early months of their life in shallow inshore waters. Recruitment of young shrimp to the offshore fishery grounds can therefore be reduced if there are unfavourable changes in the conditions in the inshore areas. Some of the more important nursery grounds for shrimp in the IPFC area are mangroves. SCORRAD therefore viewed with concern (paragraph 33 of its report) the continued destruction of mangroves in the area. The effect of this is the more serious since the relation between shrimp recruitment and mangrove area appears to be logarithmic, so that the loss in shrimp due to the destruction of a given area of mangroves can be expected to increase rapidly as the remaining area of mangroves decreases.

SUGGESTED ACTION BY THE COMMISSION

21. The details of the actions that need to be taken along the lines suggested in this paper - increase in mesh size, reduction in fishing effort, more effective quality control and inspection, use of by-catches, conservation of mangroves - will be specific to the individual fishery. They will have to be decided upon and implemented by each country individually. However, the general similarity of the problems between different countries means that IPFC can help promote the solution of the problems. This may be done in a number of ways, including:

- (i) general discussions of the problem at regular Commission meetings;
- (ii) arrangement for more detailed discussions of selected aspects at other meetings, probably of one of the Commission's subsidiary bodies;
- (iii) arranging for studies that could be of interest to all or most of member countries;
- (iv) arranging for interchange of expertise between countries with similar problems, especially in the spirit of TCDC;
- (v) requesting assistance from FAO Regional Programmes to advise on upgrading industrial facilities.

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22. So far as general discussions are concerned, it could clearly be useful for countries now considering possible management actions to hear, at the present session, from countries already implementing or attempting management measures, about the problems or successes that they have encountered in such matters as increasing the mesh size, reducing or controlling the fishing effort, or conserving mangrove areas.

23. SCORRAD in its report (paragraph 55), stressed the general value of workshops, seminars and similar technical meetings, and of wide attendance from all IPFC member countries at most of the meetings. SCORRAD suggested (paragraph 36 of its report) that a workshop on the basic scientific problems of shrimp stock assessment (stock and recruitment, long-term variability of production, interaction between fish and shrimp, etc.), including participation from outside the IPFC region would be useful. There may be other non-biological topics (e.g., problems of implementation of a minimum mesh size; regulating artisanal fisheries; methods of limiting entry; resolution of conflicts between different groups of fishermen interested in the same stock) which could also be usefully discussed at a special seminar or workshop.

24. One general study requested by SCORRAD (paragraph 34) was a study by FAO of the relation between mangroves and shrimp production. Other studies that might be useful include aspects of the problems identified as possible topics for seminars, to be used either as working papers for the meetings, or for guidance of governments in implementing national policies.

25. The state of development of shrimp fisheries, and more particularly of research into these fisheries, and of action to manage them varies from country to country. Within IPFC as a whole there is, in one country or another, expertise in many of the specialities needed to make better use of the resources. There are, therefore, good opportunities for TCDC activities through visits by specialists from one country to other countries where that speciality is lacking.

26. The improvement of in-plant quality control by the industry and the strengthening of government inspection agencies require urgent attention. An action programme is required to advise the industry on upgrading both working arrangements and facilities. Governments will have to provide assistance with the investment and training requirements. In-plant quality control is a responsibility of the industry but monitoring its effectiveness requires strong governmental inspection agencies.

27. The Commission may wish to consider possible actions along the lines discussed above. It should give particular, but not exclusive, attention to the activities suggested by SCORRAD (workshop on shrimp assessment, preparation of a study of the relation of mangroves to shrimp fisheries). In doing this it should take account of the opportunities provided by FAO's EEZ programme, and of the support that could be given by the FAO sub-regional projects (especially the South China Sea and Bay of Bengal Programmes).

COOPERATION WITH OTHER BODIES IN THE IPFC AREA

Summary

This document provides information on matters of common interest to the Indo-Pacific Fishery Commission and to other international bodies concerned with fisheries in the Indo-Pacific area. The Commission is invited to express its views in this regard.

INTRODUCTION

1. The purpose of this document is to provide summary information on matters that interest both the Indo-Pacific Fishery Commission (IPFC) and other international bodies. Some of the material and particularly the details on the activities of the Indian Ocean Fishery Commission (IOFC) can be found elsewhere in the documents before IPFC. Special reference should be made to the report of the sixth session of IOFC, held in Perth, Australia, from 25 to 29 February 1980 (document IPFC/80/Inf.5) and to the report of the sixth joint meeting of the IOFC Committee on Management of Indian Ocean Tuna and IPFC Special Committee on Management of Indo-Pacific Tuna, also held in Perth from 20 to 22 February 1980 (document IPFC/80/9).

SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER (SEAFDEC)

2. Active cooperation continued between FAO, the IPFC Secretariat and the South China Sea Fisheries Development and Coordinating Programme, on the one hand, and the three departments of SEAFDEC located in Thailand (Training Department), Singapore (Research Department) and the Philippines (Aquaculture Department) on the other. In particular, there has been reciprocal attendance at each other's meetings, seminars and workshops. Reference can be made in this respect to SEAFDEC's Regional Workshop on Aquaculture Development Strategies for Asia, International Management Study Mission, Workshop on Fishery Statistics, Consultative Meeting on Fisheries Education and Training in Southeast Asia. To further promote TCDC in the region, FAO will assist SEAFDEC in assessing opportunities and planning training programmes for selected categories of fisheries personnel through exchange visits to various institutions in the region.

REGIONAL ANIMAL PRODUCTION AND HEALTH COMMISSION FOR ASIA, THE FAR EAST AND THE SOUTH-WEST PACIFIC (APHCA)

3. The IPFC Secretariat maintains collaboration and cooperation with APHCA in the promotion of integrated fish/crop/livestock production systems in the region.

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COMMITTEE FOR COORDINATION OF INVESTIGATIONS OF THE LOWER MEKONG BASIN (MEKONG COMMITTEE)

4. The IPFC Secretariat/FAO Regional Office consulted and collaborated with the Mekong Committee in complementary field fisheries programmes in the Lao People's Republic.

ASSOCIATION OF SOUTH-EAST ASIAN NATIONS (ASEAN)

5. The IPFC Secretariat participated in and contributed a paper to the ASEAN Workshop on Fisheries Extension (Manila, 18-25 February 1979).

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE (IDRC)

6. Technical input was provided by the IPFC Secretariat to the IDRC-sponsored Workshop on tropical fish diseases held in Jakarta, Indonesia.

ASIAN INSTITUTE OF TECHNOLOGY (AIT)

7. The IPFC Secretariat continues to have frequent consultations with AIT on studies concerning small-scale rural aquaculture, fish/crop/livestock integration and small-scale rural aquaculture systems like fish pens/cages.

ASIAN DEVELOPMENT BANK (ADB)

8. Information and ad hoc advice and assistance to several ADB missions were given by the IPFC Secretariat.

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

9. FAO is cooperating with UNEP's Regional Seas Programme Activity Centre on the establishment and implementation of an Action Plan for the protection and development of marine and coastal areas of the East Asian seas. Following a resolution of the Governing Council of UNEP, activities have started in a subregion, covering ASEAN States only. Based on proposals of the IPFC Working Party on Aquaculture and Environment and recommendations of the seventeenth session of IPFC, FAO developed jointly with UNEP two preparatory projects, which are now being implemented through the South China Sea Fisheries Development and Coordinating Programme, Manila:

- (i) Impact of pollution on the mangrove ecosystem and its productivity in south-east Asia
- (ii) Assessment of oil pollution and its impact on living aquatic resources in south-east Asia.

Results of the preparatory phases of these projects will be reviewed by a meeting of government-nominated experts, scheduled for March 1980.

10. The UNEP-funded consultancy on fish silage has been completed and the IPFC Secretariat published the resulting studies on fish silage as "Prospects for fish silage in Malaysia, Sri Lanka, Bangladesh and the Philippines", IPFC Occ. Pap. 1979/1 and "Prospects for the production and utilization of fish silage in Thailand", IPFC Occ. Pap. 1979/2.

UN INTER-AGENCY COMMITTEE AND TASK FORCE ON INTEGRATED RURAL DEVELOPMENT

11. The IPFC Secretariat provides advice and assistance to the Committee and Task Force on programmes/projects on integrated rural development, particularly to the IRD project in the Maldives.

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INTERNATIONAL CENTER FOR LIVING AQUATIC RESOURCES MANAGEMENT (ICLARM)

12. The IPFC Secretariat participated in the workshop organized by ICLARM/SEARCA on integrated aquaculture/agriculture farming systems held on 6-8 August 1979 in Manila. Discussions were held with ICLARM concerning the respective programmes of FAO and ICLARM in the field of aquaculture to ensure complementarity of these programmes. As a result several of the planned publications of both ICLARM and FAO have either been altered in scope or in priority.

UNITED NATIONS CHILDREN'S FUND (UNICEF) AND INTERNATIONAL COMMITTEE OF THE RED CROSS (ICRC)

13. The IPFC Secretariat/FAO Regional Office cooperated with these two international agencies in providing emergency assistance to Democratic Kampuchea in the field of fisheries.

SOUTH PACIFIC FORUM FISHERIES AGENCY

14. Close cooperation is also being established with the South Pacific Forum Fisheries Agency, particularly on matters related to tuna management and development. The Agency, which has had formal legal status as an international organization since 9 August 1979, comprises the following member countries: Australia, Cook Islands, Fiji, Kiribati, Nauru, New Zealand, Niue, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, and Western Samoa. Its major responsibilities are to collect and report on analyses of catch and effort data, to advise on developments in management within and beyond the region, to advise on fish prices and marketing of products, to assist in the development of fisheries policies, in negotiations, in technical matters, in issue of licences and collection of fees, in surveillance and enforcement and in communication with similar international organizations beyond the region.

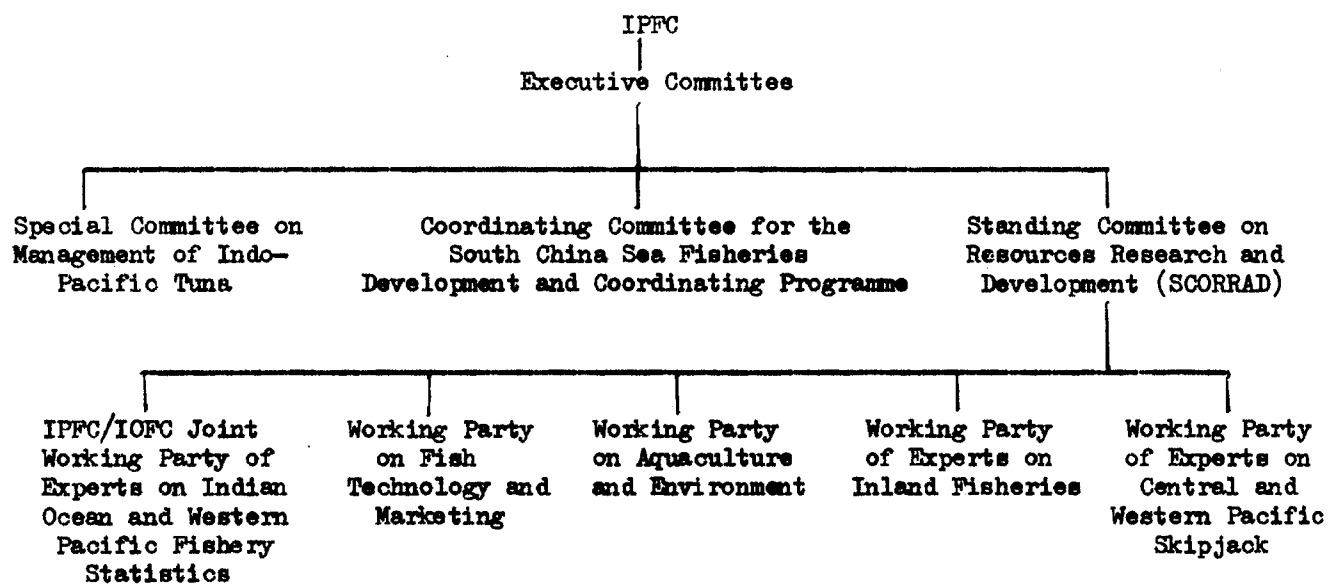
SUGGESTED ACTION BY THE COMMISSION

15. The Commission is invited to consider the information provided in this paper and to provide any guidance it may deem appropriate.

DIRECTORY OF SUBSIDIARY BODIES OF THE
INDO-PACIFIC FISHERY COMMISSION

(During the inter-sessional period 1978-1980)

The following chart indicates the structure of IPFC and its subsidiary bodies:



INDO-PACIFIC FISHERY COMMISSION (IPFC) ^{1/}Executive Committee(i) Establishment

9 November 1948, date in which the Agreement for the establishment of IPFC came into force.

(ii) Sessions

First Session: 1 April 1949, Singapore

Fifty-Seventh Session: 30 October-1 November 1978, Tokyo, Japan

(iii) Membership ^{2/}

(1978) Chairman of IPFC (Japan)

Vice-Chairman of IPFC (Malaysia)

Immediately retired Chairman (Philippines)

Two members elected by IPFC (Bangladesh and New Zealand)

Secretary of IPFC (ex officio member without vote)

(iv) Terms of reference

(a) To direct the conduct of the business and affairs of the Commission between its Sessions

(b) To prepare estimates of expenses for the next succeeding two years

(c) To coordinate the work of the other committees and working parties of the Commission

(d) To act as an editorial and publications committee

(v) Chairman

The Chairman of IPFC. (1978) K. Yonezawa (Japan)

(vi) Secretary

The Secretary of IPFC. (1978) D.D. Tapiador (RAFE)

^{1/} The original name "Indo-Pacific Fisheries Council" was changed by its Seventeenth Session (Colombo, Sri Lanka, 1-5 November 1976) to "Indo-Pacific Fishery Commission".

^{2/} At each session the Commission can decide whether to appoint all officers as countries or individuals.

INDO-PACIFIC FISHERY COMMISSION (IPFC)

Special Committee on Management of Indo-Pacific Tuna^{1/}(i) Establishment

Fourteenth Session of IPFC, 18-27 November 1970, Bangkok, Thailand
(Proc. Fourteenth Session IPFC, Section I, para. 138)

(ii) Sessions

First Session: 21-23 April 1971, Rome, Italy, followed by joint meetings with the IOFC Committee on Management of Indian Ocean Tuna

First Joint Meeting: 22-23 April 1971, Rome, Italy

Second Joint Meeting: 5-6 October 1972, Colombo, Sri Lanka

Third Joint Meeting: 18-19 July 1975, Mombasa, Kenya

Fourth Joint Meeting: 29-30 October 1976, Colombo, Sri Lanka

Fifth Joint Meeting: 3-4 March 1978, Manila, Philippines

Sixth Joint Meeting: 20-22 February 1980, Perth, Australia

(iii) Membership

The membership of the Committee should be designated by the Director-General of FAO in consultation with the Chairman of IPFC from member nations of IPFC who have an interest or have indicated to FAO their present or future interest in tuna fisheries in the region.

(1978) Australia, France, Indonesia, Japan, Korea (Republic of), New Zealand, Philippines, Sri Lanka, Thailand, United Kingdom, United States of America

(iv) Terms of reference

- (a) To review the state of the stocks of tuna in the Indo-Pacific area, in relation to the present level of exploitation and likely future development
- (b) To consider the boundaries of the area that have to be taken into account in any future management of tuna in the Western Pacific, considering the movements of fish and fishing vessels
- (c) To review, for purposes of discussion and information, measures that might be considered for management and development planning of the tuna fisheries in the IPFC area, and to suggest the administrative and other actions that would be required to put such measures into effect
- (d) To consider arrangements for ensuring the continuation and coordination of the necessary research and the continuing re-assessment of the state of the stocks

(v) Chairman of the Joint Meeting

(1978) T.B. Curtin (Australia)
R.S. Shomura (U.S.A.) Vice-Chairman

(vi) Secretary

J.A. Gulland (FIRM)

^{1/} This Committee reports to the Commission through the Executive Committee.

INDO-PACIFIC FISHERY COMMISSION (IPFC)

Coordinating Committee for the South China Sea Fisheries Development and Coordinating Programme 1/(i) Establishment

Sixteenth Session of IPFC, 30 October-8 November 1974, Jakarta, Indonesia
(Proc. Sixteenth Session IPFC, Section I, paragraph 62)

(ii) Sessions

6 November 1974, Jakarta, Indonesia
9 April 1976, Manila, Philippines
24-25 February 1977, Manila, Philippines
11-12 October 1977, Manila, Philippines
11 March 1978, Manila, Philippines
28-29 September 1978, Manila, Philippines

(iii) Membership

The membership consists of the members of the IPFC Executive Committee and of a representative of each participating country that is not already represented on the Executive Committee; the participating countries being Indonesia, Democratic Kampuchea, Malaysia, Singapore, United Kingdom (Hong Kong) and Vietnam.

(iv) Terms of reference

- (a) To act for IPFC during inter-sessional periods with respect to matters relating to the South China Sea Fisheries Development and Coordinating Programme, hereinafter referred to as the Programme
- (b) To maintain the closest liaison between the Programme and IPFC
- (c) To provide guidance and assistance to the Programme
- (d) To consult, as appropriate, with member countries of IPFC that are not represented on the Coordinating Committee and with the competent international organizations
- (e) To report to IPFC, at each session, on its activities during the preceding inter-sessional period

(v) Chairman

(1978) Y.M. Tengku Ubaidillah bin Abdul Kadir (Malaysia)

(vi) Secretary

A.G. Woodland (SCSP)

1/ This Committee reports to the Commission through the Executive Committee.

INDO-PACIFIC FISHERY COMMISSION (IPFC)

Standing Committee on Resources Research and Development (SCORRAD) ^{1/}(i) Establishment

Seventeenth Session of IPFC, 1-5 November 1976, Colombo, Sri Lanka
(Proc. Seventeenth Session IPFC, Section I, page 15, paragraph 43)

(ii) Sessions

4, 6 and 7 March 1978, Manila, Philippines
 3-8 December 1979, Hong Kong

(iii) Membership

Open to all member nations of IPFC. Each member government to designate one expert as member, plus an alternate and an adviser.

(1978)	Australia	Japan	Philippines
	Burma	Korea (Rep.of)	Sri Lanka
	France	Malaysia	Thailand
	India	New Zealand	United Kingdom
	Indonesia	Pakistan	United States of America

(iv) Terms of reference

The Committee shall advise IPFC on scientific matters, relating to the development and rational utilization of the fish resources in the Indo-Pacific region. In particular it shall:

- (a) advise on the state of resources and of the fisheries based on them
- (b) encourage research, in the fields of biology, technology, socio-economics, and related disciplines
- (c) encourage the improvement of national statistics in the region

(v) Chairman

(1978) G.D. Waugh (New Zealand)

(vi) Secretary

J.A. Gulland (FIRM)

(vii) Regional Office Contact Officer

D.D. Tapiador, Secretary of IPFC (RAFE)

^{1/} The Working Party on Coastal and High Seas Pelagic Resources and the Ad Hoc Working Party of Scientists on Stock Assessment of Tuna have been absorbed within the new Standing Committee. SCORRAD reports to the Commission through the Executive Committee.

INDO-PACIFIC FISHERY COMMISSION (IPFC)

IPFC/IOFC Joint Working Party of Experts on Indian Ocean and Western Pacific Fishery Statistics 1/(i) Establishment

First Session of IOFC, 16-20 September 1968, Rome, Italy (FAO Fish Rep. (60) page 2, paragraphs 12-13) and Thirteenth Session of IPFC, 14-25 October 1968, Brisbane, Australia (Proc. 13th Session IPFC, Section I, page 79)

(ii) Sessions

1-5 December 1969, Bangkok, Thailand
 13-17 December 1971, Bangkok, Thailand
 25-30 October 1974, Jakarta, Indonesia
 25-28 October 1976, Colombo, Sri Lanka
 1- 3 March 1978, Manila, Philippines

(iii) Membership

(1978) Experts from Australia, India, Indonesia, Japan, Kenya, Philippines, Thailand

(iv) Terms of reference

- (a) To examine and assess the existing national statistical system in the area
- (b) To encourage and assist member governments of both bodies to improve and to initiate statistical programmes to meet the requirements of the national governments and of international bodies
- (c) To define the statistical limits and sub-areas of the Indian Ocean, Western Pacific and adjacent seas and sponsor the preparation of authoritative maps for statistical purposes; also to define smaller sub-divisions as the need arises, taking into account specific and separate fish stock units
- (d) To develop a joint comprehensive reference list of the scientific and vernacular names in English, French and other local languages of the area of species having commercial interest in the Indian Ocean, Western Pacific and adjacent seas, taking into account the International Standard Statistical Classification of Aquatic Animals and Plants elaborated by FAO
- (e) To prepare from the comprehensive reference lists suitably abridged versions of statistical categories identified by the scientific and vernacular names of the species included in such categories
- (f) To prepare a classification of craft and gears with such sub-classification as may be necessary including the requirements for effort statistics
- (g) To develop standard reporting forms with instructions for their completion taking into account the FAO/ICES/ICNAF "STANA" system to eliminate as far as possible any duplication in the reporting and processing of data.

- (h) To consider the need for and the means of introducing biological sampling techniques and collection covering economic data
 - (i) To consider the employment of computer techniques in the design and operation of statistical systems
 - (j) To recommend to national agencies the form of publication of statistical data to avoid duplication and to ensure comparability of data
- (v) Convener
- (1978) I. Yamanaka (Japan), Convener
C.M. Ramos (Philippines), Vice-Convener
- (vi) Secretary
- L.P.D. Gertenbach (FIDI)

1/ This Working Party reports to the Standing Committee on Resources Research and Development (SCORRAD)

INDO-PACIFIC FISHERY COMMISSION (IPFC)

Working Party on Fish Technology and Marketing ^{1/}(i) Establishment

Sixteenth Session of IPFC, 30 October-8 November 1974, Jakarta, Indonesia
(Proc. Sixteenth Session IPFC, Section I, paragraph 52)

(ii) Sessions

12-14 November 1975, Bangkok, Thailand
25-26 October 1976, Colombo, Sri Lanka
28-30 November 1977, Kuala Trengganu, Malaysia
17-21 September 1979, Jakarta, Indonesia

(iii) Membership

(1977) Experts from Australia, Bangladesh, India, Indonesia, Malaysia,
New Zealand, Philippines, Sri Lanka, Thailand

(iv) Terms of reference

- (a) To assist with and coordinate the implementation of projects involving cooperation in fish technology research similar to those drawn up by the second ad hoc Liaison Group meeting (October 1974)
- (b) To discuss and evaluate project ideas from the region and to prepare them as project proposals for submission to the IPFC Executive Committee
- (c) To monitor the progress of cooperative research projects between institutes, to advise on technological matters and on choice of partners for proposed programmes

(v) Chairman

(1977) Ahmad Zaharudin Idrus

(vi) Secretary

D.G. James (FIU)

^{1/} This Working Party reports to the Standing Committee on Resources Research and Development (SCORRAD)

INDO-PACIFIC FISHERY COMMISSION (IPFC)

Working Party on Aquaculture and Environment ^{1/}(i) Establishment

Fifteenth Session of IPFC, 18-27 October 1972, Wellington, New Zealand
 (Proc. Fifteenth Session IPFC, Section I) ^{2/}

(ii) Sessions

14-17 October 1972, Wellington, New Zealand
 26-29 October 1974, Jakarta, Indonesia
 31 August - 3 September 1976, Bangkok, Thailand
 1-2 March 1978, Manila, Philippines
 22-26 January 1980, Bogor, Indonesia

(iii) Membership

Can change from one session to the next depending on the specific subject matter(s) to be discussed.

(1980) Experts from India, Indonesia, Korea (Republic of), Malaysia, Nepal, New Zealand, Philippines, Thailand, United Kingdom (Hong Kong)

(iv) Terms of reference

The terms of reference were originally proposed by the Working Party at its first session, 14-17 October 1972, Wellington, New Zealand, and approved by the Commission at its fifteenth session (18-27 October 1972, Wellington, New Zealand). They were subsequently enlarged to include item (e) below of the former IPFC Working Party on Economics of Aquaculture.

- (a) To coordinate the FAO/IPFC Cooperative Research Programme on Aquaculture
- (b) To assist in the collection and dissemination of information on aquaculture research
- (c) To promote and assist in the studies of the effect of aquatic pollution on aquaculture
- (d) To promote and coordinate the survey of existing aquaculture and the potential for future development
- (e) To promote and coordinate studies of the economics of aquaculture covering the levels of the cost benefit ratios and investment in different types of aquaculture in comparison with alternative uses of land and water; and the economics of different culture practices in relation to the most efficient utilization of capital investment.

(v) Chairman

(1976) G.D. Waugh (New Zealand), Third Session (Environment)
 (1978) R. Djajadiredja (Indonesia), Fourth Session (Aquaculture)

(vi) Secretaries

H. Naevé (FIRI) (Environment)
 Medina N. Delmendo (RAFE) (Aquaculture)

^{1/} This Working Party reports to the Standing Committee on Resources Research and Development (SCORRAD)

^{2/} The original "Working Party on Coastal Aquaculture" was established by the Twelfth Session of IPFC, Honolulu, Hawaii, 3-17 October 1966; this was changed to "Working Party on Coastal Aquaculture and Environment" by the Fourteenth Session of IPFC, Bangkok, Thailand, 18-27 November 1970; and further changed to present name by the Fifteenth Session of IPFC, Wellington, New Zealand, 18-27 October 1972.

INDO-PACIFIC FISHERY COMMISSION (IPFC)

Working Party of Experts on Inland Fisheries ^{1/}

(i) Establishment

Seventeenth Session of IPFC, 1-5 November 1976, Colombo, Sri Lanka
(Proc. Seventeenth Session IPFC, Section I, paragraph 46)

(ii) Sessions

17-19 January 1978, Bangkok, Thailand

(iii) Membership

(1978) Experts from Bangladesh, India, Indonesia, Malaysia, Philippines,
Thailand, United States of America

(iv) Terms of reference

- (a) To advise on the state of inland fishery resources in the IPFC Region and to identify needs for international action leading to their better development and management
- (b) To encourage and outline lines of approach to common research programmes on inland fishery biology and ecology to lead to better development, management and conservation of the resources
- (c) To identify problems of inland fishery statistics, technology and aquaculture-related aspects of inland fishery management and liaise with the appropriate working party through SCORRAD as to the best means of accomplishing work in these fields.

(v) Chairman

(1978) G.V. Jhingran (India)

(vi) Secretary

R.L. Welcomme (FIRD)

^{1/} This Working Party reports to the Standing Committee on Resources Research and Development (SCORRAD)

INDO-PACIFIC FISHERY COMMISSION (IPFC)

Working Party of Experts on Central and Western Pacific Skipjack ^{1/}(i) Establishment

Seventeenth Session of IPFC, 1-5 November 1976, Colombo, Sri Lanka
(Proc. Seventeenth Session IPFC, Section I, paragraphs 46-47)

(ii) Sessions

1-2 March 1978, Manila, Philippines

(iii) Membership

(1978) Experts from Australia, Fiji, France, Indonesia, Japan, Korea (Rep.of)
New Zealand, Papua New Guinea, Philippines, United States of America

(iv) Terms of reference

1. To facilitate the better identification of separate skipjack stock or stocks in the region by
 - (a) an intensive tagging experiment
 - (b) genetic studies
 - (c) other relevant studies
2. To investigate the feasibility of a workshop on skipjack catch and effort data no later than two years hence

The Group should also seek the active cooperation of other regional organizations interested in tuna resources in the central and western Pacific and serve as the scientific body for development and overview of any research projects that might be carried out under international funding, referring broad policy matters to the IPFC Special Committee on Management of Indo-Pacific Tuna.

(v) Chairman

(1978) G.D. Waugh (New Zealand)

(vi) Secretary

G.D. Sharp (FIRM)

^{1/} This Working Party reports to the Standing Committee on Resources Research and Development (SCORRAD)

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