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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION  
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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# FIRST CONSULTATION ON THE FISHERIES INDUSTRY

Gdańsk, Poland, 1-5 June 1987

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## REPORT

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## PREFACE

The Second General Conference of the United Nations Industrial Development Organization (UNIDO), held at Lima, Peru, in March 1975, recommended in paragraph 66 of the Lima Declaration and Plan of Action on Industrial Development and Co-operation <sup>1/</sup> that UNIDO should include among its activities a system of continuing consultations between developed and developing countries, with the object of raising the developing countries' share in world industrial output through increased international co-operation. The General Assembly, at its seventh special session in September 1975, endorsed the recommendation and requested UNIDO to implement it under the guidance of the Industrial Development Board.

At its fourteenth session, in May 1980, the Industrial Development Board decided to establish the System of Consultations on a permanent basis. <sup>2/</sup> At its sixteenth session, in May 1982, the Board adopted the rules of procedure, <sup>3/</sup> according to which the System of Consultations was to operate, together with its principles, objectives and characteristics (ID/B/258, annex). Notably:

The System of Consultations shall be an instrument through which UNIDO is to serve as a forum for developed and developing countries in their contacts and consultations directed towards the industrialization of developing countries;

The System of Consultations would also permit negotiations among interested parties at their request, at the same time as or after consultations;

Participants of each member country should include representative of Governments, industry, labour, consumer groups and others, as deemed appropriate by each Government;

Each Consultation meeting shall formulate a report, which shall include conclusions and recommendations agreed upon by consensus and also other significant views expressed during the discussions.

Twenty-nine Consultations have been convened since 1977, covering the following industries and topics: capital goods, agricultural machinery, iron and steel, fertilizers, petrochemicals, pharmaceuticals, leather and leather products, vegetable oils and fats, food-processing, industrial financing, training of industrial manpower, wood and wood products and building materials.

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<sup>1/</sup> See Report of the Second General Conference of the United Nations Industrial Development Organization (ID/CONF.3/31), chap. IV.

<sup>2/</sup> Report of the Industrial Development Board on its fourteenth session (Official Records of the General Assembly, Thirty-fifth Session, Supplement No. 16 (A/35/16)), vol. II, chap. XI, para. 153.

<sup>3/</sup> Report of the Industrial Development Board on its sixteenth session (Official Records of the General Assembly, Thirty-seventh Session, Supplement No. 16 (A/37/16)), chap. IV, para. 46).

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## INTRODUCTION

1. The First Consultation on the Fisheries Industry was held at Gdansk, Poland, from 1 to 5 June 1987. The First Consultation was attended by 119 participants from 38 countries and 8 organizations (see Annex I). The Consultation was co-sponsored by the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Industrial Development Organization (UNIDO) and was held at the invitation of the Government of Poland, with logistical support from the Central Union of Work Co-operatives.
2. The Industrial Development Board, at its nineteenth session in May 1985, decided to include the First Consultation on the Fisheries Industry in the Programme of Consultation Meetings for the biennium 1986-1987. Prior to the decision of the Board, an ad hoc Expert Group Meeting was held at Vienna in February 1984 to identify priority areas in which international co-operation in the fisheries industry was possible and desirable. Areas identified included shipbuilding, harvesting techniques and equipment manufacture, fish processing and preservation, storage, packaging and transport, marketing and scientific research and training.
3. A Regional Meeting for Latin America and the Caribbean was held at Lima, Peru, from 27 to 30 May 1986. It was organized in close co-operation with the Sistema Económico Latinoamericano (SELA) and the Organización Latinoamericana de Desarrollo Pesquero (OLDEPESCA) and was hosted by the Government of Peru. A Regional Meeting for Africa was held at Dakar, Senegal, from 16 to 19 September 1986. It was organized in close co-operation with the Government of France and was hosted by the Government of Senegal.
4. The objectives of the regional preparatory meetings were:
  - (a) To discuss the current situation in the fisheries industry in the regions and its potential for expansion within the framework of the exclusive economic zone, established in the United Nations Convention on the Law of the Sea; <sup>1/</sup>
  - (b) To identify common and particular constraints that hampered the development of the industry in the developing countries of the regions;
  - (c) To examine and propose ways and means for international co-operation and action needed to overcome identified constraints;
  - (d) To select specific issues for further elaboration to be discussed at the Global Preparatory Meeting and for possible submission to the First Consultation on the Fisheries Industry.
5. A Global Preparatory Meeting was held at Mexico City from 26 to 29 January 1987, hosted by the Government of Mexico, to advise UNIDO and FAO on the selection of the issues that might be considered at the Consultation.

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<sup>1/</sup> Official Records of the Third United Nations Conference on the Law of the Sea, vol. XVII (United Nations publication, Sales No. E.84.V.3), document A/CONF.62/122.

6. Regional surveys on the situation of the fisheries industry in Africa, Asia and Latin America were prepared by the UNIDO Secretariat, in collaboration with FAO, for the meetings.

7. Taking note of the complexity and wide diversification of all aspects of the fishing industry, experts at the Global Preparatory Meeting identified the following two main groups of issues connected with the industrialization of the fishery sector to be discussed at the First Consultation on the Fisheries Industry:

Issue 1: Improvement and modernization of boats and fishing equipment to increase productivity and efficiency:

- (a) Small-scale fishing boats;
- (b) Industrial fishing vessels;
- (c) Fishing gear and equipment;
- (d) On-board handling facilities and techniques;
- (e) Engines for small-scale fishing boats;
- (f) Maintenance and ship-repair facilities;
- (g) Training, including electronics.

Issue 2: Improvement of the fish-production chain and the increase of added value:

- (a) Awareness and choice of adequate processing technologies:
  - (i) Small-scale processing;
  - (ii) Industrial processing;
- (b) The need to improve and disseminate proper handling and preservation techniques, including low-cost cold chains;
- (c) Training of technicians in fish processing and refrigeration;
- (d) Product development, packaging, fish inspection and quality control for quality assurance;
- (e) Market development and improving of marketing channels and systems for domestic, as well as export markets.

8. As a follow-up to the recommendations of the Global Preparatory Meeting, UNIDO and FAO prepared background documentation for the discussion of the proposed issues (see annex II).

## AGREED CONCLUSIONS AND RECOMMENDATIONS

### Issue 1: Improvement and modernization of boats and fishing equipment to improve productivity and efficiency

#### Conclusions

9. The importance of improving artisanal, semi-industrial and commercial fisheries is recognized, and there is a need to attract investment for each of the subsectors in accordance with national development plans. There is also a need to ensure that such development plans reflect the actual needs of the country concerned for management, planning, fishing boats and fishing gear, support installations, etc.
10. More attention should be given to the provision of credit to the fisheries sector and to those engaged in artisanal fisheries in particular.
11. Considering the scarcity of hardwood for fishing boats in many countries, there is a need for the application of alternative construction materials, taking into account the experience gained so far and the results of studies performed previously.
12. Closer international co-operation, with emphasis at the regional and interregional levels, should be encouraged in fields such as boat building and the manufacture of fishing gear and auxiliary equipment, as well as in the utilization of ship repair facilities.

#### Recommendations

13. An integrated approach to industrial development and fisheries development, both industrial and artisanal, should be adopted, taking into consideration, among others, social-economic aspects, the need for the effective organization of the sector and available information on fish stocks.
14. Studies should be carried out to ensure the introduction of appropriate equipment and technology to the country or region in question, as identified in investment projects.
15. National and international bodies should promote investment and ensure the availability of credit on appropriate conditions, for artisanal and industrial fisheries, including supporting industries, with special reference to developing countries.
16. In programmes for the transfer of technology, training should be tailored to meet the actual needs of recipient countries.
17. Closer international co-operation should be encouraged on a regional and interregional basis. Such co-operation should make use of appropriate formulae, taking greater account of both the global nature of development conditions and local needs. For this purpose, industries, national and regional organizations and enterprises in the public and private sectors should be involved.



18. Studies on the suitability of other materials for use in the construction of boats as an alternative to hardwood, where these are scarce, should continue to be carried out.

19. Wide participation of developed and developing countries in the UNDP/FAO Programme for the Co-operative Use of Vessels for Fisheries Research, Development and Training should be encouraged.

Issue 2: Improvement of the fish production chain  
and the increase of added value

Conclusions

20. Public and private institutions dealing with the fisheries industry do not always have the means and capacities to cope with the problems faced by the sector in many developing countries.

21. The problems posed by small-scale processing and industrial processing are of a different nature in terms of possibilities for improving equipment and technology and training of manpower. Industrial production is mainly geared towards international markets, whereas small-scale or artisanal processing is, in most cases, oriented towards the local market.

22. The problems encountered in handling and preservation, from catching to consumption, are some of the main constraints to the increase of value added. The lack of adequate cold chains results in high post-harvest losses and the supply of poor quality raw material for different forms of consumption.

23. Appropriate training continues to be a necessity in developing countries in order to ensure the further development of the fisheries industry. Training is needed at all levels and for different purposes, although special emphasis should be put on the need for training middle-level technicians and managers.

24. Regarding product development, the most interesting possibilities are found in better utilization of small pelagic species and the use of by-catch and some unconventional species. Production for direct human consumption should have priority over the production of animal feed. The lack of adequate packaging results in limited access to domestic and external markets. It is necessary to implement effective quality-control schemes and transport systems, particularly for products destined for export.

25. To reach foreign markets with value added products from developing countries, it is necessary to use alternative marketing channels.

26. Improved distribution and transport facilities are required to widen domestic markets for perishable fishery products.

27. Financing mechanisms, either from bilateral or multilateral institutions, for the purpose of promoting the fishery industries are inadequate, and the banking system is also not adapted to meet the requirements of the fisheries sector, especially in the case of small-scale fishery development.

## Recommendations

28. It is essential that governmental institutions dealing with the fisheries industry in developing countries be strengthened, and proper institutional infrastructure should be established.

29. UNIDO, FAO and other concerned international bodies should increase their co-ordinated efforts to improve processing techniques at all levels and disseminate knowledge, as well as advice on equipment. Efforts should also be made to improve transfer of technology adapted to conditions prevailing in developing countries.

30. UNIDO, FAO and other concerned organizations should increase their efforts to promote solutions to the problem of the shortage of ice in developing countries by promoting the installation of ice-producing equipment, the use of insulated containers and the establishment of cold storage facilities. They should also promote research on new technologies such as solar-powered ice plants.

31. In the field of training:

(a) FAO and UNIDO are requested:

- (i) To continue and strengthen their efforts in the field of training;
- (ii) To continue with the development of training material and visual aids, and to study the possibility of utilizing new and more effective teaching techniques,
- (iii) To disseminate information on training activities of interest to developing countries;
- (iv) To increase their efforts in supporting research and development work, as well as extension services in fish processing in the developing countries;

(b) Financing institutions and countries that provide training are requested:

- (i) To continue providing support to training programmes based on the needs of the recipient countries, including training of trainers;
- (ii) To promote training activities in developing countries themselves;
- (iii) To favour, whenever possible, on-the-job training;

(c) Governments are requested:

- (i) To link training to the real needs of fisheries development;
- (ii) To take into account not only the training needs of industry and the artisanal sector but also the needs of public institutions;
- (iii) To promote training activities within the scheme of technical co-operation among developing countries.

32. With respect to product development:

(a) International organizations should make an effort to help developing countries to make better use of underutilized species for direct human consumption, studying the possibility of introducing new products and new production techniques or presentations, including waste-processing technologies;

(b) Efforts should be made to develop new types of packaging in order to reduce the cost of products presently canned;

(c) New types of economic packages for dried, smoked and other products should be developed with the aim of reducing losses;

(d) International organizations should perform a vital role in quality control, advising on the implementation of adequate control systems, as well as on training of the necessary technical personnel;

(e) Appropriate systems of quality assurance should be implemented to enhance the acceptance of fishery products on international markets;

(f) Regional and interregional co-operation on fish inspection and quality control, including training schemes for fish product inspectors, should be promoted.

33. In order to gain access to foreign markets, developing countries should look into the possibilities of using alternative channels. UNIDO, FAO and other international organizations should advise developing countries on such alternatives.

34. With the co-operation of international institutions such as UNIDO and FAO, assessments should be made of the technical possibilities of improving the transport of fishery products from the landing site to the consumer.

35. Financial resources should be increased and the implementation of new credit systems suitable for financing the fishery sector, particularly small-scale operations, should be promoted, taking into consideration the local situation in each particular country.

## I. ORGANIZATION OF THE CONSULTATION

### Opening of the Consultation

#### Statement on behalf of the Director-General of UNIDO

36. The Deputy Director-General of the Department for Industrial Promotion, Consultations and Technology of UNIDO, in a statement presented on behalf of the Director-General of UNIDO, said that the fisheries industry was of importance because it accounted for a considerable part of the GDP of many developing countries, stimulated growth in a range of ancillary sectors, created jobs and was an important source of animal protein. The United Nations Convention on the Law of the Sea, he noted, had played a major role in focusing the interest of many developing countries in exploiting valuable fish resources. With regard to industrialization, he said that UNIDO, in collaboration with FAO, was looking at the fisheries industry with a view to identifying the constraints hampering its development and exploring various ways and means of increasing international co-operation in overcoming those constraints.

#### Statement on behalf of the Director-General of FAO

37. The Assistant Director-General a.i. of the Fisheries Department of FAO, speaking on behalf of the Director-General of FAO, noted that his Organization was primarily concerned with promoting and monitoring the production of fish and fishery products. He outlined the information and technical assistance elements involved in that task. The promotion of fisheries industries depended, however, on the establishment and strengthening of supporting and ancillary industries. Attention was drawn to the small and artisanal sector, which constituted a major part of the fisheries industries in many developing countries. The Assistant Director-General a.i. drew attention to the fact that fish was a renewable, but limited resource, and it should therefore be exploited judiciously. He pointed out that through effective management and improved technologies, large increases in fish supplies could be obtained.

#### Statement by the President of the Central Union of Work Co-operatives

38. The President of the Central Union of Work Co-operatives and Chairman of the Organizing Committee for the Consultation described the co-operation that existed between UNIDO and the Central Union, which in the last few years had been carried out within the framework of an agreement on international co-operation for the development of industrial co-operatives in developing countries. He drew attention to the role that fishing and fish-processing co-operatives could play in developing the fisheries industry and to the challenges they faced owing to a scarcity of fishing equipment, inadequacy of cooling, repair and maintenance and transport facilities and increasing prices of equipment.

Statement by the Deputy Mayor of Gdańsk

39. The Deputy Mayor of Gdańsk welcomed the participants to the First Consultation on the Fisheries Industry. The venue of the meeting was appropriate, he said, as Gdańsk was the major seaport of Poland and the major location of Poland's fisheries industry.

Statement by the Minister of Foreign Trade of Poland

40. In opening the Consultation, the Minister of Foreign Trade of Poland drew attention to the current economic situation world-wide and stressed the necessity of a co-ordinated approach to economic development in developing countries. It was essential for developing countries to draw on the experience of other countries and to increase co-operation between countries with different levels of economic development. The Minister outlined the various forms of co-operation between Poland and UNIDO to assist developing countries in their industrialization. He stressed the importance of the System of Consultations in promoting industrialization and expressed the willingness of his country to share its experiences in the fisheries industries and related sectors.

Statement by the Director of the UNIDO System of Consultations Division

41. The Director of the UNIDO System of Consultations Division pointed out that one of the objectives of the Consultation meetings was to promote the industrialization of developing countries by looking at specific sectors in order to identify constraints and arrive at policy recommendations. He stressed that it was important for those recommendations to correspond to the socio-economic environment of developing countries and pointed to the need to find new forms of international assistance and international co-operation. From the point of view of UNIDO, the System of Consultations was unique in that it provided representatives of Governments, industries, co-operatives and trade unions an opportunity to identify problems that hampered industries and to propose solutions. It was therefore the aim of UNIDO to listen closely to experts who had first-hand knowledge of specific problems facing industries. The Consultation meetings also provided a forum for developing countries to explain their needs for assistance and technical co-operation and to initiate informal discussions with other developing countries, developed countries, aid agencies and representatives of industry.

42. The Consultation paid tribute to the work of the late Mr. Jean E. Carroz, former Assistant Director-General of the Fisheries Department of FAO, and observed a minute of silence in his memory.

Election of officers

43. The following officers were elected:

Chairman: Zbigniew Stefan Karnicki (Poland), Deputy Director,  
Sea Fisheries Institute, Gdynia

Rapporteur: Aloy Fernando (Sri Lanka), Additional Secretary,  
Ministry of Fisheries, and Chairman, Ceylon  
Fishery Harbours Corporation, Colombo

Vice-Chairmen: Luc Affoyon (Benin), Directeur, Projet FAO/Développement  
intégré pêche artisanale en Afrique de l'Ouest, Cotonou

Boris Graiver (USSR), Chief, Division of International  
Organizations, VNIRO, Moscow

Alonso López Cruz (Mexico), Director General de Asuntos  
Pesqueros Internacionales, Secretaría de Pesca,  
México

Thomas Johan Tienstra (Netherlands), Chairman,  
Holland Fish Foundation, Shertogenbosch

44. It was agreed that two of the Vice-Chairmen would serve as chairmen of the working groups.

Statement by the Chairman of the Consultation

45. The Chairman thanked the Consultation for his election. In his statement, he pointed out that although according to the forecast world demand for fish in the year 2000 could be met, there was a need for conscious and wise exploitation of resources. He emphasized the need for close and well co-ordinated international co-operation, indicating that the First Consultation on the Fisheries Industry was an example of the consequent approach UNIDO and FAO were taking in that matter. The excellent attendance by specialists from so many countries was a success, but the results of the Consultation could only be measured in the future by the follow-up to the recommendations agreed upon.

Adoption of the Agenda

46. The Consultation adopted the following agenda:

1. Opening of the Consultation
2. Election of Chairman, Vice-Chairmen and Rapporteur
3. Adoption of the agenda and organization of the work
4. Presentation of the issues by UNIDO and FAO
5. Discussion of the issues

Issue 1: Improvement and modernization of boats and fishing equipment to increase productivity and efficiency

Issue 2: Improvement of the fish production chain and the increase of added value

6. Other matters
7. Conclusions and recommendations
8. Adoption of the report of the meeting

Establishment of working groups

47. The Consultation established two working groups to discuss the issues and to propose conclusions and recommendations for consideration at the plenary. Mr. Thomas Johan Tienstra (Netherlands) chaired the working group on issue 1, and Mr. Alonso López Cruz (Mexico) chaired the working group on issue 2.

Documentation

48. The documents issued prior to the Consultation are listed in annex II.

Adoption of the report

49. The report of the First Consultation on the Fisheries Industry was adopted by consensus at the plenary on 5 June 1987.

Concluding remarks

50. At the closing session, statements were made on behalf of the Directors-General of UNIDO and FAO and by representatives of the Latin American Organization of Fisheries Development (ODESPESCA), the President of the Central Union of Work Co-operatives, the Chairman of the Consultation and the Director of the UNIDO System of Consultations Division. In those statements, attention was drawn to the significance of such Consultation meetings, to the importance of the conclusions and recommendations and to areas for follow-up and further action. The spirit of co-operation and cordiality that had prevailed throughout the Consultation was commended. Participants expressed their satisfaction with the deliberations of the Consultation and thanked the Chairman for his efforts, which had contributed to the success of the meeting. The work of UNIDO and FAO in organizing the Consultation was cited as an excellent example of co-operation between specialized agencies of the United Nations system. Appreciation was expressed to the Government of Poland for its generous hospitality.

51. During the course of the Consultation, a number of participants offered to provide various facilities in the fisheries sector to developing countries. At the closing session, Brazil pledged its co-operation, and the Polish Foreign Trade Enterprise, Centromor, offered to provide, free of charge, feasibility studies, designs/drawings and technology for vessels or engineering designs, including layouts, for three UNIDO projects. The Consultation expressed its appreciation to all countries that had made offers of assistance.



## II. REPORT OF THE PLENARY SESSION

### Presentation of the issues

52. A member of the FAO Secretariat introduced issue 1 by identifying some of the factors in the harvesting sector of the fisheries industry. In presenting issue 2, a member of the UNIDO Secretariat discussed the improvement of the fish-production chain and reported on the work carried out at the regional and global meetings.

### Summary of discussion

53. The Polish authorities were thanked for their generous hospitality and for their effectiveness in providing very good facilities for the Consultation. Special mention was made of the efforts of the Central Union of Work Co-operatives. The Secretariats of FAO and UNIDO were congratulated for maintaining close and effective co-operation, thus making optimal use of their resources and competences.

54. A participant from Mexico expressed regret on behalf of the Mexican Minister of Fisheries who was unable to participate in the Consultation owing to his attendance at an engagement associated with Mexico's Day of the Marine. He transmitted a message from his Minister wishing the Consultation every success.

55. Some participants introduced papers based either on their long experience in the industry or on extensive discussions with a wide range of their industrial specialists. The need for integrated development of the sector was stressed, with emphasis being placed by some participants on effective planning, on domestic and export markets and marketing arrangements and on the need to have an appropriate balance in capacities from fish catching to retail distribution.

56. Many participants noted the importance of technology in the industry and emphasized that technology should be appropriate to the socio-economic and financial environment. One participant noted that some modern technologies had been successfully adopted by the artisanal sector. Since women were involved in the processing and marketing of fish in the artisanal sector in some countries, the effect of new technologies on the family and the community had to be considered. Appropriate technology needed to be effectively transferred to and mastered in developing countries through the provision of training, after-sale service and the eventual design and local production of spare parts.

57. A number of participants provided outlines of the extensive facilities offered by their countries to developing countries, covering the diverse range of activities involved in the fisheries industry. The need to extend various forms of co-operation, as well as a better exchange of information and experiences on the basis of shared and mutual benefits was stressed. Several participants noted the importance of subregional and regional co-operation in overcoming some of the obstacles faced by developing countries in expanding the industry.

58. Some participants observed, however, that too many assistance programmes to the industry in developing countries had failed and attached importance to an assessment of those programmes, so as to analyse failures and successes.

59. Referring to the recommendations of the FAO World Conference on Fisheries Management and Development, some participants indicated that there was a need for agreement between developed and developing countries on the exploitation of fishing grounds and on issues related to the natural replenishment of fish stocks, the size of catches and international fisheries management, in accordance with the principles established in the Convention on the Law of the Sea and countries' interests. Other participants noted the importance of protecting the marine environment, possibly through an international agreement.

60. Reference was made to the fact that developing countries should contribute with their fisheries resources in a greater proportion than that contained in landing statistics. However, fishing activities in those countries were not making an effective contribution to the solution of the problem of hunger and malnutrition, which was ever more acute. That was why the encouragement of fisheries industries in those countries was a priority matter for greater international and regional co-operation.

III. REPORT OF THE WORKING GROUP ON ISSUE 1:  
IMPROVEMENT AND MODERNIZATION OF BOATS AND FISHING  
EQUIPMENT TO INCREASE PRODUCTIVITY AND EFFICIENCY

61. Several participants and representatives of regional organizations gave an account of the status of the fisheries industry in their countries and regions, highlighting their experiences in the development of the sector. Special mention was made of the strategy for fisheries management and development, which was endorsed by the FAO World Conference on Fisheries Management and Development in 1984. The stage of development of the industry was said to vary greatly from one country to another, and that factor should be taken into account when national and regional development plans were being formulated.

62. A number of participants from developed countries, as well as the more industrialized developing countries expressed the willingness of their countries to co-operate with developing countries in a wide range of activities, among others in the transfer of technology, training, joint ventures, the exchange of information and other forms of co-operation in the fishing industry.

63. Several participants felt that, although planning in fisheries was a national prerogative, some countries did not have the means at their disposal to implement the resulting plans of action. It was necessary for adequate resources, research, the provision of credit, etc., to be considered on a regional basis so as to benefit such countries.

64. The participants agreed that the fishing industry could not be seen in isolation and that it was necessary to give consideration to other factors affecting its development. Those factors included, but were not limited to, the supporting industries, social and economic factors, the level of development in a country and its resources. For those reasons, it was considered that the integrated approach to industrial and fisheries development should be adopted, taking into account technology and marine biology, as well as the infrastructural, social and economic aspects.

65. It was also agreed that adequate knowledge of the living resources in the waters available to States was essential for the rational management and development of fisheries. In that respect, some participants stressed the need for further assistance in stock assessment surveys.

66. The working group took note of the establishment by the United Nations Development Programme (UNDP) and FAO of an interregional project on the Co-operative Use of Vessels for Fisheries Research, Development and Training.

67. Noting that some participants expressed the desirability of co-operation and assistance in the development of fisheries, many participants stressed the importance of joint ventures, which could not only result in the enhancement of production but could also enable participating countries to rationally utilize existing facilities that were currently underutilized.

68. It was noted that joint ventures could also be an effective tool for the transfer of adequate technology aimed towards upgrading and improving catching and port handling techniques and resulting in the upgrading of end products. Several participants also expressed the opinion that through setting up joint ventures, the training of personnel could be carried out in an effective manner.

69. A number of participants suggested that more emphasis should be placed on studies of materials used in fishery industries for hardware, taking into account the applicability of alternative materials used in boat building, replacing hard wood wherever possible with soft wood and glass reinforced plastics (GRP), etc. In that regard, local habits and traditions should also be taken into account.

70. Many participants discussed difficulties experienced in applying new technology and introducing new materials and noted that overcoming strong local traditions was often a long-term process. In particular, some participants had found it difficult to replace wood as a construction material for fishing boats and fish boxes. The working group was of the opinion that a study should be carried out with respect to the suitability of other materials.

71. Some participants pointed out that the selection of different materials for fishing boats was only one of the problems facing small-scale fishermen and administrations. The choice of the type of vessel was often more important: they had to be selected to meet widely varying conditions, from beach landing to open anchorages and sheltered landing places. It was suggested that the development of beach landing craft, for example, should be kept under review.

72. With regard to beach landing craft, the participants were informed that a seminar sponsored by the Government of Sweden was currently in session and that the subject had a high priority in the FAO Regular Programme in fisheries.

73. One participant referred to the problems associated with the introduction of new fishing technologies to mature and traditional fishermen. Those problems were not readily overcome and were a constraint to the development of artisanal fisheries. For that reason, the participants considered that new sources of recruitment to the fishing industry should be explored. The FAO representative explained to the working group that in developing advanced artisanal fisheries, FAO had experienced similar difficulties in a number of countries. Measures were being taken to overcome that problem, including the training of young people recruited from other than the traditional fisheries sector.

74. A few participants stressed the importance of the management function in fisheries, in the absence of which effective planning and the use of research-generated information were not possible. Consequently, they called for improving management capabilities within the context of additional development efforts.

75. Some participants felt that repair and maintenance were not given due importance by planners and investors. Yet the lack of those facilities was extremely acute and was felt particularly in remote areas and in the artisanal sector. Greater improvements were possible in commercial and large-scale fisheries, where in some cases maintenance and repair facilities could be

organized on a regional basis, which would reduce costs, avoid over-production and result in improvements in the organization of work and the supply and manufacture of spare parts. As concerns standardization, past efforts had not always produced satisfactory results; for that reason, additional efforts should be made in that area, particularly with regard to the standardization of vessels, equipment and instrumentation.

76. Many participants expressed the opinion that training and technology transfer should go together as far as possible and should be practical and tailored to the needs of recipient countries. It was noted that new equipment and technologies would call for the training of operators, manufacturers and service personnel. Training should be job-related and oriented towards problem solving wherever possible, and emphasis should also be given to sea-going personnel.

77. International and regional organizations made available detailed information about their activities in the field, including the various training programmes in the past or under implementation.

78. Most participants were of the opinion that the lack of funds for investment programmes and credit schemes was one of the major constraints to the development of the fishing industry. It was emphasized that greater efforts should be made to gain easier access to sources of funding.

79. The working group noted with interest and appreciation the information given by UNDP on the fishery donors consultation held in Paris in October 1986 to promote the co-ordination of financial and technical assistance to the fishing industry and on the round-table and consultative group meetings scheduled to be held in Cape Verde and Mauritania, organized by UNDP and the World Bank, respectively.

80. Some participants stressed the need to pay special recognition to the increasingly important role women played in the development of fisheries and, within the integrated approach, the need to pay special attention to ensure that women workers should be considered in any development plans in order to further strengthen the socio-economic structure in the industry.

81. Many participants stressed the need to ensure that fishing crews enjoyed satisfactory working conditions and were adequately remunerated for the tasks they performed. However, it was noted that it would be difficult to apply common standards, since conditions differed from country to country and from one type of fishery to another. Nevertheless, the participants considered that due regard should be given to those questions and that, where applicable, various international standards adopted by the International Labour Organisation (ILO) should be followed.

82. Several participants considered that in some instances fishermen could benefit from being organized in a group such as a co-operative or a fishermen's organization. Benefits accruing from such arrangements could be easier access to credit, better supplies of gear, training schemes and welfare facilities. It was noted, however, that it would be necessary to proceed on a case-by-case basis.

IV. REPORT OF THE WORKING GROUP ON ISSUE 2:  
IMPROVEMENT OF THE FISH PRODUCTION CHAIN  
AND THE INCREASE OF ADDED VALUE

83. Following the introduction of the issue paper on issue 2 (ID/WG.467/2), several participants mentioned that it reflected the main problems encountered in the fish processing industry in developing countries.

84. Several participants expressed the need for a clear political will as a first step for the rational utilization of the fish resources available to each country at the industrial level. It was said that such political will was linked to the following main objectives:

(a) The promotion of fish and fish products for human consumption in order to satisfy the needs of domestic markets;

(b) The promotion of fish and fish products for international markets in order to earn hard currency;

(c) The generation of employment.

In order to achieve such objectives:

(a) Financial support should be identified;

(b) The country should be in a position to select the appropriate technology for the type and level of resources and development desired;

(c) It should be possible to train the necessary manpower.

85. Several participants indicated that although some developing countries were promoting exports for economic reasons, i.e. to earn foreign exchange, the supply of fish to the local population should not be ignored. It was therefore imperative to develop industrial fisheries, since artisanal fisheries could not cope with the growing demand. It was also mentioned that equipment imported from developed countries was not always adapted to the conditions prevailing in developing countries.

86. Regarding the selection of appropriate technology, the need to take into account the experience of the developed countries, as well as local working conditions and maintenance was mentioned. Improvements could be based on better techniques, mechanization, the use of simple, small-scale techniques and better handling conditions and hygiene. The problem of the selection of the most adequate technology also related to the rational utilization of the economic effort and the assimilation of techniques that could be developed locally. It was stated that the participants attending the Consultation came from countries with different levels of technology. Some of those countries had inadequate infrastructure for the expansion and modernization of their processing industries, and there was a question as to how to finance such expansion, whether through loans or subsidies.

87. The need for the creation of a forum for exchanging experiences on new technologies was voiced by several participants. It was also said that there was a need to share knowledge about the possibility of utilizing unconventional resources. The exploitation and consumption of krill was mentioned in that regard.

58. The relationship between the transfer of technology and socio-economic factors was discussed by several participants. It was mentioned that there was a need to keep in mind the traditions and culture of the people involved, to listen to them and to achieve good communication through participation. That was especially important in dealing with artisanal products, since they were the outcome of a complex socio-economic and cultural framework.

89. Several participants emphasized the importance of the economics of operation, recalled the necessity of undertaking pre-investment studies and called particular attention to the problems of the financial management of enterprises, including those in the artisanal sector.

90. Regarding equipment, several participants indicated that equipment should be reliable and selected to suit the requirements of developing countries; proper maintenance of equipment and adequate training in that respect were particularly important.

91. The problem of using ice in developing countries was discussed. The high cost of ice and its use in tropical countries was related to the high cost of energy, the high melting rates, the low efficiency of ice plants, the lack of proper maintenance and other factors. The introduction of insulated containers was mentioned as a possible way to reduce the high cost of using ice, and the positive experiences of some countries with artisanal insulated containers were mentioned. The possibility of using small solar-powered ice machines, which were presently being tested, was also mentioned.

92. In order to make it possible to adopt the most adequate technology and development model, it was necessary to have personnel with adequate technical knowledge who were capable of designing programmes and policies that took into account the situation of the country and the instruments at their disposal. Such personnel had to be adequately trained. Therefore training should cover not only fishermen, workers, technicians and other professionals, but also personnel from the government bodies that were responsible for the fisheries industry activities. An appropriate training strategy would have to take into account all activities in the sector, in particular institutional and socio-professional structures, the appropriate organization of activities, the various support services, etc.

93. The language problem in training was mentioned by several participants. It was agreed that training should be provided in local languages, especially in the case of technicians and middle-level staff. The need for training managerial staff in fish processing industries was also mentioned.

94. The need to utilize new types of audio-visual aids in training was discussed. Several participants mentioned the use of video films; although that technique was found useful in general, it was pointed out that it required professional staff and appropriate equipment to produce a video film of good quality.

95. The need for further efforts to co-ordinate the training activities carried out by organizations and institutions that could be of interest to developing countries was mentioned.

96. Some countries offered their training facilities to developing countries.

97. From the discussions it was clear that countries were not always aware of the technical material and visual aids available from UNIDO and FAO, and there was a need to make such information more effective and more available to users.

98. There was a shortage of middle-level technicians such as mechanics, electricians, refrigeration experts and others to carry out day-to-day operations and maintenance in the fishery industries in many developing countries. It was necessary to train such technicians, taking into account the conditions of the country, and periodically to offer additional training in new techniques.

99. A training programme on fish utilization, quality control and inspection funded by the Danish International Development Agency (DANIDA) was currently executed through FAO. The representative of UNDP mentioned that UNDP was considering support for a special FAO project on training in fish quality control, as well as a project for strengthening the advisory services of FAO on fishing technology and aquaculture.

100. The technology applied to the packaging of fishery products offered wide scope for improving the present situation in many developing countries, especially in canning, since the cost of cans for low-priced products disqualified them as an economically viable solution. In that regard, efforts should be made to develop applications for new materials that were economically viable. At the same time, efforts should be made to improve the presentation of products for sale to the markets of developed countries, thus achieving maximum value added to the products exported from developing countries.

101. While it was necessary to develop appropriate systems for quality assurance, they should not be a barrier to production by introducing unnecessary costs. Adequately trained personnel with a high level of formal training and practical knowledge of products and production methods would be needed.

102. Fish silage was mentioned as one possible method for the treatment of fish waste for animal feed. Although it was well-known, the method was not often used, and it would be advisable to consider it in some developing countries. The method, utilizing lactic or formic acid for fish silage, might not be suitable for application on fishing vessels for by-catch. The biological method of fish silage production might have some advantage for developing countries.

103. The quality of products from developing countries should meet market requirements and correspond to the purchasing power of potential buyers. Developing countries should look into the possibility of using alternative market channels.

104. The relationship between international fish prices and technology was discussed. Despite price variations in the short term, which could be in many cases higher than the reduction in cost achieved by an improved technology, in the medium and long term such prices were influenced by new technologies. That affected particularly developing countries that did not generate their own technologies, and their industrial facilities could become obsolete.



105. The problem of the lack of transportation from the landing places to the consumption centres in developing countries was mentioned by several participants as a bottle-neck in fisheries development. The problem of collecting fish from small producers was also discussed, as well as the problem of distributing ice to such producers. The costs of collecting, transporting and distributing fish should be taken into account during pre-feasibility studies.

106. Several participants emphasized that it was important for products intended for export to be competitive, otherwise countries might face problems in marketing their products. Certain canned fish were cited as an example of that problem because of the high cost of empty tin-plate cans.

107. Several participants were of the view that although financial resources were generally available for good projects, either from multilateral or bilateral institutions, financing remained a problem. Banking procedures often did not correspond to the needs of the fisheries sector, especially in the case of small-scale traditional fishing and fish processing activities. It was therefore recommended that, within the integrated approach to small-scale fishery development, special care should be taken to promote new types of credit systems adapted to local socio-economic realities.

108. Problems of fish product inspection and quality control in developing countries were discussed. The lack or inadequacy of quality assurance programmes at the national and plant level were recognized as one of the main constraints to the further development of exports, particularly of high value products.

109. The need for closer collaboration between inspection agencies from exporting and importing countries, as well as between agencies in a region, was emphasized.

Annex I

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Annex II

LIST OF DOCUMENTS

Issue papers

- Issue 1: Improvement and modernization of boats and fishing gear equipment to increase productivity and efficiency ID/WG.467/1
- Issue 2: Improvement of the fish production chain and the increase of added value ID/WG.467/2

Background documents

- Report on fishery activities in the developing countries of Africa, Asia and Latin America and the Caribbean ID/WG.467/3
- World fisheries situation and outlook ID/WG.467/4

Information documents

- The fisheries sector in the countries of Africa IPCT.2
- Report. Regional Meeting for Africa, in preparation of the First Consultation on the Fisheries Industry  
Dakar, Senegal, 16-19 September 1986 IPCT.3
- Report. Global Preparatory Meeting for the First Consultation on the Fisheries Industry  
Mexico City, Mexico, 26-29 January 1987 IPCT.24
- UNIDO technical assistance activities in the fisheries industry IPCT.25
- The fisheries industry in selected Asian countries IPCT.26(SPEC.)
- Possible issues to be submitted to the First Consultation on the Fisheries Industry IPCT.27(SPEC.) and Corr.1
- Informe Regional sobre la Industria Pesquera en Latinoamerica UNIDO/PC.135
- Report. Regional Meeting for Latin America and the Caribbean, in preparation of the First Consultation on the Fisheries Industry  
Lima, Peru, 27-30 May 1986 UNIDO/PC.148

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A-1400 Vienne, Autriche

Sírvase devolver a :

**ONUDI**  
Subdivisión de Negociaciones  
P.O. Box 300  
A-1400 Viena, Austria

**PLEASE PRINT VEUILLEZ ECRIRE EN LETTRES D'IMPRIMERIE SIRVASE ESCRIBIR EN LETRAS DE IMPRENTA**

(1) Last name - Nom de famille - Apellido

(2) First name (and middle) - Prénom(s) - Nombre(s)

(3) Mr./Ms. - M./Mme - Sr./Sra.

(4) Official position - Fonction officielle - Cargo oficial

(5) Name of organization *in full* - Nom de l'organisation *en toutes lettres* - Nombre completo de la organización

(6) Official address - Adresse officielle - Dirección oficial

(7) City and country - Ville et pays - Ciudad y país

(8) Telephone - Téléphone - Teléfono

(9) Telex

(10) If you wish to receive our documents, please indicate sectors of interest

Si vous souhaitez recevoir nos documents, veuillez indiquer les secteurs d'intérêt

En caso de que desee recibir nuestros documentos, sírvase indicar los sectores de interés para Ud.

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