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Expert Group Meeting on the Establishment  
of a Caribbean Centre for Marine  
Industrial Technology

Caracas, Venezuela, 2-5 December 1991

REPORT\*

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\* This document has not been edited.

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## 1. Introduction

1.1 The Expert Group Meeting on the Establishment of a Caribbean Centre for Marine Industrial Technology was held in Caracas, Venezuela, 2-5 December 1991, at the University of Simon Bolivar under the auspices of UNIDO and UNEP.

1.2 The Meeting was attended by 37 participants from 14 Caribbean countries as well as representatives from the following international and regional organizations, UNIDO, UNEP/CEP, United Nations Office of Law of the Sea, UNDP, UNESCO, ECLAC, IOCARIBE, CARICOM, and the International Ocean Institute (IOI). The list of participants is attached as Annex I.

1.3 The objectives of the Meeting were:

- To assess marine industrial technology needs and capabilities in the Caribbean.
- To assess the views and comments of Caribbean countries on the establishment of a Caribbean Centre for Marine Industrial Technology.
- To advise on a strategy for the establishment of a Centre and development of a Regional Programme to be implemented by it.
- To make recommendations to UNIDO, as well as other cooperating international organizations and interested Caribbean countries on subsequent steps.
- To discuss approaches to foster technological co-operation between States and Territories of the Wider Caribbean Region.

## 2. Opening of the Meeting

2.1 The meeting was opened on Monday, 2 December 1991 at 10:00am at the Simon Bolivar University. Opening statements and addresses of welcome were made by representatives of the Simon Bolivar University and the Ministry of Science and Technology of Venezuela.

2.2 In her statement, Mrs. Emilia Gonzalez, Director of the Office of the Minister of Science and Technology, drew the attention of the Meeting to the background and justification for a Caribbean Regional Centre on Marine Industrial Technology, and that in Venezuela, an ad-hoc group of specialists from various institutes has been looking into the issue of marine industrial

technology and cooperation in the Caribbean region and linked to the initiatives of UNIDO, UNEP and other international and regional organizations. Mrs. Gonzales pointed out that this group has recently received official status through the Minister of Science and Technology. Therefore, the Venezuelan proposal for a regional centre is well-supported and should also be seen as an important contribution to sustainable economic development in the region.

2.3 The representative of UNIDO welcomed the participants to the Meeting. He also thanked Venezuela and UNEP as co-sponsors for their support and cooperation in holding this Meeting. He outlined the work of UNIDO with special emphasis on the promotion and development of technology. The representative of UNIDO also summarized the work of UNIDO to date on marine industrial technology and the promotion of regional centres.

2.4 The representative from UNEP/CEP, Mrs. A. Vanzella Khouri, emphasized the need to develop marine industrial technologies in the Wider Caribbean, where the majority of the countries depend directly on their marine and coastal resources for their livelihood. It was also stressed that appropriate technologies for the regional need to be developed jointly by the countries concerned to ensure that these technologies satisfy the real needs of the region. Additionally, they outlined the main aspects of Caribbean Environment Programme and highlighted that it serves as an effective vehicle of cooperation for the conservation and management of the marine and coastal resources of the Wider Caribbean.

2.5 In his opening statement, Dr. Jean Pierre Levy of the United Nations Office of the Ocean Affairs of the Law of the Sea drew the attention of the Meeting to the fact that the United Nations Convention on the Law of the Sea contains two articles (276 and 277) which mandate the establishment of regional centres for marine science and technology in cooperation with competent international organizations and national marine scientific and technological research institutions in developing countries. He therefore welcomed this initiative for establishing a Caribbean Regional Centre for Marine Industrial Technology.

3. Administrative arrangements

Election of Officers

3.1 The Meeting unanimously elected Mr. Ildefonso Liñero Arana of the Oceanographic Institute of Venezuela as Chairman of the Meeting. Mr. Lennoz Ballah of the Institute of Marine Affairs of Trinidad and Tobago was unanimously elected as Vice-Chairman. The Meeting requested the representatives of UNIDO and UNEP to act as Rapporteurs.

Adoption of the Agenda

3.2 After discussion, the Meeting adopted the following agenda:

- (i) Opening of the Meeting
- (ii) Administrative Arrangements
  - (ii.i) Election of Officers
  - (ii.ii) Adoption of Agenda
- (iii) The Caribbean Regional Centre for Marine Industrial Technology, origin, development and establishment
- (iv) Analysis of the capabilities and needs of the Caribbean region with respect to marine technology
- (v) Proposals related to the functions and activities of the Regional Centre
- (vi) Strategies for the establishment of the Regional Centre
- (vii) Adoption of conclusions and recommendations of the Meeting
- (viii) Closure of the Meeting

4. The Caribbean Regional Centre for Marine Industrial Technology, origin, development and establishment

4.1 The representative of UNIDO introduced the background to the subject of marine industrial technology in general and to the initiative for a Caribbean centre in particular. For UNIDO, with its mandate on industrial development, marine industrial technologies represent a key factor in the exploration and exploitation of marine resources for industrial growth in the developing countries. Marine technologies are also a key instrument for achieving sustainability of the marine and coastal resources in the Caribbean. However in most of the developing countries, marine technology is at an infant stage relating mainly to the traditional using of the sea, such as artisanal fishing and coastal shipping. Therefore, collaborative efforts in research and development on marine technologies at both regional and international level are important factors for increasing developing countries' capabilities in this area.

4.2 Mr. Vicente Santiago, UNEP/CEP Consultant, presented a concept paper for Regional Activity Centres (RAC's) and Regional Activity Networks (RAN's) within the framework of the Caribbean Environment Programme (CEP) of UNEP. The concept of RAC's and RAN's facilitates a co-ordinated implementation of the technical aspects of the CEP. It was pointed out that in order to develop projects and programmes on adequate marine technologies in the Wider Caribbean Region, co-operation between existing institutions and those to be established, is of utmost importance.

4.3 Professor Elizabeth Mann-Borgese gave a brief summary of the origins of regional centres for marine technology in the context of the UN Convention on the Law of the Sea and the work that she had undertaken in conjunction with UNIDO in the proposal for establishing a Mediterranean regional centre. Professor Mann-Borgese emphasized the value and importance of the developing countries being involved in the co-development and application of technology rather than simply having technology transferred to them.

4.4 In the Spring of 1990, UNIDO commissioned a viability study on the establishment of a centre for marine industrial technology for the Wider Caribbean Region, prepared by David Ross, Judith Fenwick, and Frank Gable of

Woods Hole Oceanographic Institute, USA. The study identified three common denominators shared by Caribbean states in the area of marine industrial technology, namely: major economic difficulties; the opportunity available to these states under the new law of the sea regime; and the coastal zone and ocean as vast and prominent sites in their future economic development. The study notes that in such a region ocean and shoreline development opportunities are pivotal to overall economic growth and development, and yet development can not proceed at any substantial rate without strong regional cooperation. The study stressed "appropriate" and "sustainable" as the two key-words for technology development in the Caribbean region.

4.5 From the discussion following these presentations it was clear that there was unanimous support for regional cooperation in the area of marine industrial technology.

4.6 Regarding the proposal for the establishment of a regional marine industrial technology centre, presentations were made by Professor Mann-Borgese on institutional options and by Mr. Perez Nieto on the results of consultations within the Caribbean region. In this connection, Mr. Perez Nieto explained to the Meeting that his visits in preparation of this report were limited to Colombia, Cost Rica, Cuba, Jamaica, Mexico, Panama, Puerto Rico and the Dominican Republic, visits had been planned to other Caribbean island countries, but due to illness this had not been possible.

4.7 It was pointed out during discussion that the institutional structure of the regional centre should come from an analysis of needs and functions. There was agreement that the regional centre should be seen as a system linking national focal points and with a strong coordinating and catalytic role, and not with a big infrastructure.

4.8 During the discussion on the establishment of the regional centre, it was noted that Venezuela had expressed their interest in hosting the regional centre and providing support for its operation.

4.9 Mr. Pegus of the Ministry of External Affairs of Trinidad and Tobago, informed the Meeting that his purpose was to follow up on a diplomatic initiative of his country in supporting a Caribbean regional centre on marine



industrial technology. He noted that the Government of Trinidad and Tobago was ready to use the resources and facilities of the Institute of Marine Affairs (IMA) for the functions of the regional centre, due to the philosophy of its conception and its mandate as explained by Mr. L. Ballah, Director of IMA. Mr. Pegus said that this offer had been formally communicated to UNIDO and to Governments of the Caribbean region, however as they had not been aware of the geographic parameters they had not informed Latin American countries and as a result he suggested that the question of the location of the centre be given further consideration taking into account the offer of Trinidad and Tobago. The UNIDO representative thanked Mr. Pegus for the information he provided but indicated that he had not yet received any information from UNIDO headquarters concerning the offer of Trinidad and Tobago.

4.10 Reference was also made in the discussion to the strong research facilities in Colombia covering a wide range of subjects in oceanography and marine science and technology, and the participant from Colombia indicated that Colombia would be pleased to offer those resources in support of the Caribbean regional centre.

5. Analysis of the capabilities and needs of the Caribbean region with respect to marine industrial technology

5.1 Each of the participants gave a presentation on the capabilities and needs of their particular countries in relation to marine technology. From this, it was evident that marine activities play a crucial role in the economy of many of the Caribbean countries, especially the island countries. The capabilities available in the general area of marine technology vary considerably among countries of the region depending on the size, economic factors and natural resources. All participants agreed that there would be strong mutual benefit from regional cooperation in marine technology and emphasis was placed on the need to bring in the private industrial sector as well as public institutions and government departments.

5.2 The concepts and priority areas of the proposed Bolivar Programme has strong linkages to marine industrial technology. The programme intends to set up mechanisms along the lines of the European EUREKA model to foster closer co-operation and joint ventures between private companies, research centers

and public and private institutions. It focuses on the importance of combining the twin aims of technological innovation and economic integration, thus helping the industry in the Latin America and Caribbean region to improve productivity and competitiveness in international markets. The Bolivar Programme takes a pragmatic approach to planning and decision making, giving industry the initiative in selecting projects that will meet market needs. The core in the operational implementation of the Programme is a network of Liason Offices (Antennas) and National Commissions in each country.

5.3 The Bolivar programme is therefore relevant to the operation of a center for marine industrial technology in the Wider Caribbean, and should be used as one of the means for further promotion of the center.

6. Proposals related to the functions and activities of the Regional Centre

6.1 Based on the discussion of the capability and needs of the Caribbean countries in respect to marine technology, a priority listing was made of the subject areas. It is to be noted that there was a high degree of consensus that areas related to living resources were of highest priority. Pollution control technologies were also seen as vital for the region with its heavy tourist industry.

6.2 As to the functions of the regional centre, it was agreed that a mechanism was needed to integrate the expertise from countries within the region. The Centre should also coordinate and strengthen national focal points which would form a network through which the Centre would function. It was pointed out that information exchange both, within the region and from outside would be a key feature of the centre's early responsibilities. The initiation and promotion of research and development cooperation among public and private enterprises and institutions in the Caribbean was considered by the Meeting to be the pivotal role of the Centre. The financing of joint projects would come from a variety of sources including the Bolivar programme, but would not be considered as part of the operational cost of the regional centre. Similarly, there would be no necessity for all research projects to be undertaken at the regional centre.

7. Strategies for the establishment of the Regional Centre

7.1 It was considered that strategies for the establishment of the regional centre could not be fully considered at this time as it would depend critically on the offers to host the regional centre.

8. Adoption of conclusions and recommendations of the Meeting

8.1 The Meeting adopted the following conclusions and recommendations:

Priority needs

8.2 Following the discussions by the experts of the meeting the proposed programmed activities to be developed as the initial priority areas are:

- Aquaculture/mariculture and fisheries technologies.
- Biotechnology applied to aquaculture, marine based pharmaceuticals and biodegradation.
- Solid waste and sewage pollution control technologies.
- technologies concerned with the land/sea interface, including coastal protection, sea defense and erosion control.
- Measurement and instrumentation development pollution control, remote-sensing and coastal engineering.

8.3 Additionally, the following areas were also considered of great importance to be developed in later stages:

- Alternative energy technologies.
- Production and utilization of by-products and wastes from fish and macroalgae processing.
- Desalination technologies.
- Development and adaptation of traditional native technologies.

Functions of the system

8.4 The Meeting recommended that the proposed system on Marine Industrial Technologies for the Wider Caribbean should have the following functions:

- To assist the countries of the region in the identification of the marine technological needs and areas of development.
- To assist the countries of the region in the formulation, planning and implementation of projects identified as priority needs.
- To develop and service an effective regional network constituted by focal points of the national networks to ensure the appropriate flow and dissemination of relevant information.
- To ensure coordination with all regional and international organizations relevant to the development of marine industrial technologies.
- To serve as a mechanism for the identification of partners for co-development of technology.
- To promote the linkages between research institutions and industrial enterprises.
- To ensure the co-development of technologies among the participating countries and the industries.
- To promote and facilitate training and education in marine industrial technology through workshops and training courses.
- To assist in obtaining the financial resources required for the development and implementation of the projects and activities.
- To carry out any other functions necessary to pursue the objectives and purposes of the system.

#### Structure of the System

8.5 The Meeting recommended the establishment of a System for Marine Industrial Technology.

8.6 The overall objective of the System would be to promote cooperation in the development of marine industrial technology for sustainable development in the Wider Caribbean Region.

8.7 The structure of the system should be simple, efficient, cost effective and dynamic to allow changes and growth. The structure should also be such as to encourage and facilitate interaction with and inputs from centres of excellence in technology, industry, science and public sector institutions.

3.8 It was agreed that each participating country would establish a national focal point for the system. These national focal points will be for expected to ensure the widest possible participation from those involved in the development of projects for marine industrial technology in both the public and private sectors. This would involve the establishment of national networks.

8.9 To service the system it was agreed that a Coordinating Secretariat be established. On an interim basis it was recommended for the Wider Caribbean that this Coordinating Secretariat be constituted initially by INTECMAR (Venezuela) and IMA (Trinidad and Tobago) in cooperation with UNIDO, UNEP and other relevant international and regional organizations such as IOCARIBE. It was understood that the interim Coordinating Secretariat would provide the resources for carrying out their role.

8.10 It was recommended that a mechanism within the system should be developed to ensure appraisal of project proposals as well as evaluation of project implementation.

8.11 The meeting recommended that a ministerial level body should be given overall responsibility for the system. This would reflect the fact that political decisions would have to be taken on the reflection of priority areas and support for financing.

8.12 The Meeting requested that follow-up action stemming from the recommendations be taken up by UNIDO and UNEP-CAR/RCU in conjunction with the interim Co-ordinating Secretariat of the proposed system for Marine Industrial Technology for the Wider Caribbean.

## 9. Closure of the Meeting

9.1 During the closure the representatives from Venezuela put forward the proposal for the structure of the Centre with the General Secretariat in Caracas and two sub-regional coordinating units, one being the Institute of Marine Affairs in Trinidad and Tobago, and another in one of the other countries of the region. It was noted that there was no time to discuss and

agree upon this new proposal and it would therefore not appear under the conclusions and recommendations.

9.2 The representative of UNIDO thanked all the participants for their very useful contributions to the Meeting and expressed UNIDO and UNEP's appreciation on behalf of all the participants to the Government of Venezuela, Simon Bolivar University and INTECMAR for their generous hospitality during the Meeting.

9.3 The Meeting was closed by Mr. Salazar from the Ministry of Environment and Natural Resources of Venezuela on 5 December 1991 at 6:00pm.

ANNEX I

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ANNEX II

List of documents

1. **Agenda**, prepared for the meeting by the UNIDO Secretariat.
2. **Aide-Mémoire**, prepared for the meeting by the UNIDO Secretariate.
3. **Issue Paper**, prepared for the meeting by the UNIDO Secretariat.
4. **Perez Nieto H.: Mision Prospectiva Sobre el Proyecto de Crear un Centro Regional de Investigacion y Desarrollo de Tecnologias Marinas en el Caribe - Informe**, UNIDO report, 1991.
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