



**TOGETHER**  
*for a sustainable future*

## OCCASION

This publication has been made available to the public on the occasion of the 50<sup>th</sup> anniversary of the United Nations Industrial Development Organisation.



**TOGETHER**  
*for a sustainable future*

## DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

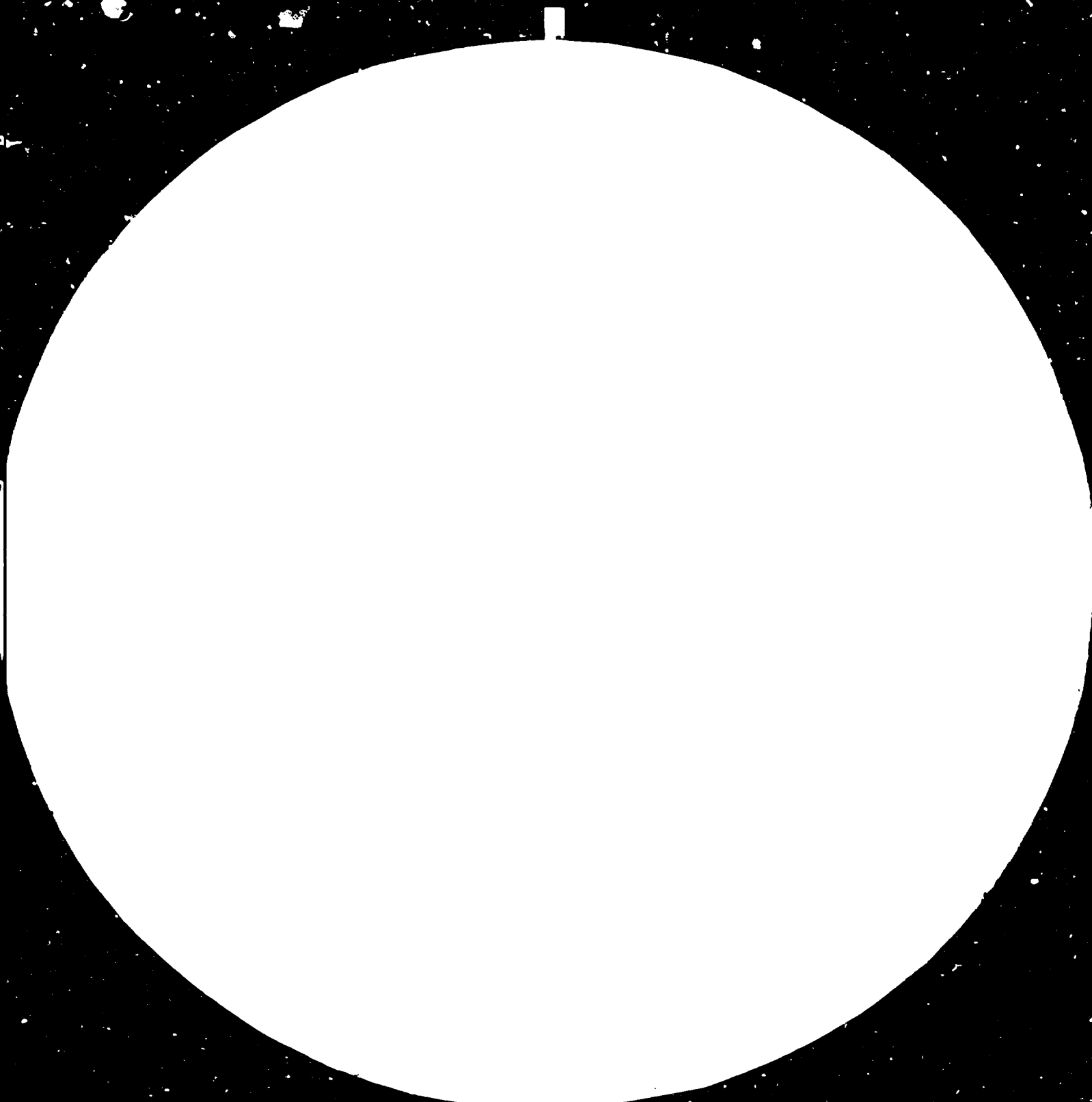
## FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

## CONTACT

Please contact [publications@unido.org](mailto:publications@unido.org) for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at [www.unido.org](http://www.unido.org)





Resolution test patterns are used to measure the resolving power of an optical system. The patterns consist of groups of five vertical and five horizontal lines, with the number of lines per millimeter (lp/mm) indicated by the number next to the pattern.

The resolving power of an optical system is the ability to distinguish between two closely spaced points. The resolving power is measured in lp/mm, and is inversely proportional to the wavelength of light used.



12231-E



Distr.  
LIMITED

United Nations Industrial Development Organization

ID/WG.375/43  
4 February 1983  
ORIGINAL: ENGLISH/  
SPANISH

Expert Group Meeting on Small-Scale  
Shipbuilding and Shiprepair Development  
for Latin American and Caribbean countries

Havana, Cuba, 9-12 November 1982

FINAL REPORT\*

(Meeting on  
shipbuilding in Latin  
America.)

163

\* This document has been reproduced without formal editing.

## FINAL REPORT

### CONTENTS

1. Introduction
2. Meeting Organization
3. Main Subjects and Items Presented and Discussed at the Meeting
4. Conclusions
5. Recommendations

Annexes: List of papers, reports and discussions of the technical session  
List of participants

## INTRODUCTION

The United Nations Industrial Development Organization (UNIDO) commitments to assist the developing countries in shipbuilding and shiprepair are seen in the light of the increasing importance of these engineering activities in developing countries. They have been incorporated within the context of UNIDO's mandate to promote and accelerate the industrialization of the developing countries, and consequently coordinate all activities related to this objective within the United Nations System, since the creation of UNIDO in 1966.

These aspects, together with the fact that the establishment of UNIDO as a specialized Agency brought about the development of special measures in order to promote and strengthen the cooperation among developing countries and to assist island countries, gave place to a proposal on the part of UNIDO to hold an Expert Group Meeting on Small-Scale Shipbuilding and Shiprepair Development for the Latin American and Caribbean countries.

In this spirit an Expert Group Meeting on Small-scale Shipbuilding and Shiprepair for Latin American and Caribbean Countries was held in Havana from 9 to 12 November, 1982.

The objectives of this meeting were the following:

- to collect statistical data and up-to-date information on shipbuilding and shiprepair industry development;
- to discuss major trends in small-vessels shipbuilding and shiprepair industry;
- to review shipbuilding and shiprepair facilities, production technology, equipment and locally available materials;
- to review ship designs, onboard equipment of small fishing ships and boats and the use of wind power;
- to consider new techniques and specific methods for the design and construction of short range fishing ships;
- to discuss problems of maintenance and repair of small ships and boats and the introduction of up-to-date rehabilitation methods;

- to develop recommendations on the training of local staff and skilled labour force aiming at improvements in management, technical supervision and skills;
- to work on a balanced regional approach towards the introduction of new technology, standardization, design, distribution of information concerning production and repairing of small ships and boats;
- to suggest the follow-up actions on regional and country levels in the light of discussed ways and means of cooperation.

The characteristics of the fishing sector itself and the interest shown by the participating countries in the meeting generated, without doubt, a useful exchange of experiences. During the meeting the participation of specialists in different fields of this activity was decisive, not only for the exchange of views, but also for the formulation of actions to be developed in the future.

#### ORGANIZATION OF THE MEETING

The Expert Group Meeting on Small-Scale Shipbuilding and Shiprepair Development for Latin America and the Caribbean countries was held under the auspices of UNIDO, with the support of the Action Committee for Sea and Fresh Water Products of SELA, in cooperation with the Government of the host country, the Republic of Cuba.

The meeting was held with the assistance of two UNIDO experts from Spain and Poland, sixteen experts on shipbuilding and shiprepair from the Latin American countries: Argentina, Cuba, Ecuador, Guyana, Mexico, Nicaragua, Panama, Peru and Trinidad and Tobago. Other experts attended the meeting in the role of observers from the following countries: Argentina, Denmark, Spain, U.S.A., United Kingdom, Poland, Sweden, the Netherlands and the USSR. In addition, officials from the United Nations Development Programme (UNDP), the Action Committee for Sea and Fresh Water Products of the Latin American Economic System, UNIDO, SIDFA, IMO, and experts and representatives of commercial firms accredited in Cuba also participated.

The meeting was opened by Mr. Aldo Margolles, Deputy Minister of the Ministry of the Fishing Industry of Cuba who, after welcoming the participants, called upon the unity of the countries of Latin America and the Caribbean as a way of achieving further development of these countries. In this sense he sincerely hoped that the deliberations would lead to significant results in promoting collaboration for the development of shipbuilding in the participating countries and the region as a whole.

On behalf of the United Nations Development Programme the Resident Representative in Cuba, Mr. Roland Reifenrath, addressed the meeting. After welcoming the participants and pointing out the importance of developing the shipbuilding and shiprepair industry in the Latin American and Caribbean countries, he proposed the election, as Chairman of the meeting, of Mr. Aldo Margolles, the Deputy Minister of the Ministry of the Fishing Industry of the Republic of Cuba. The proposal was fully accepted by the meeting.

In the opening ceremony Mr. Ing. Dmitry Panyushkin, acting on behalf of the United Nations Industrial Development Organization, addressed the meeting. After welcoming all the delegates and guests, he thanked the Government of Cuba for its efforts in organizing the meeting.

He pointed out that one of UNIDO's objectives is to assist the developing countries in shipbuilding and shiprepair as a means of promoting their industrialization. He added that UNIDO's efforts in this field, which took the form of technical assistance, had been in existence since the establishment of the organization in 1966. Having described UNIDO assistance in shipbuilding and shiprepair he emphasized UNIDO's intention of increasing its assistance to the developing countries in the industrial sectors of shipbuilding and shiprepair engineering and of promoting regional cooperation in this field.

Mr. Juan José Cárdenas Ronco, representing the Action Committee for Sea and Fresh Water Products of SELA, took the floor as Secretary of the Committee. He referred to the purposes and activities developed by this



organization, emphasizing the achievements already reached in the fishery regional cooperation brought about mainly by the wide participation of experts from the member countries. He emphasized the importance of the recent meeting of ministers of Fisheries held in Mexico which ended with the establishment of the Latin American Fishery Development Organization (OLDEPESCA).

After the official speeches the Chairman of the meeting presented the propositions concerning the election of Vice Chairman and Secretary of the meeting, as well as the Chairmen of the five technical sessions.

The following participants were elected by the Meeting:

Vice Chairman

Mr. Mario F. Santarelli, Argentina.

Secretary

Mr. Marcel Menéndez de la Torre, Cuba.

Chairman of Technical Session No. 1

Mr. José Isidro García Esparza, Mexico.

Chairman of Technical Session No. 2

Mr. Audberto Marales Cazorla, Peru

Chairman of Technical Session No. 3

Mr. Washington Martínez, Ecuador

Chairman of Technical Session No. 4

Mr. Francis Gillete, Trinidad and Tobago

Chairman of Technical Session No. 5

Mr. Bolívar Patinño, Panama

The meeting was conducted in five technical sessions over four days. It consisted of presentations and discussions on technical reports prepared by the experts from participating countries, as well as observers from the host country and other countries.

The reports and discussions covered the following subjects:

- The situation of shipbuilding and shiprepair facilities in Latin American and Caribbean countries.
- The technology of construction, repair and maintenance of small vessels.
- The new techniques and methods used for the design of ships.
- The equipment and machinery of small-scale ships.
- The ways and means of collaboration among Latin American and Caribbean countries in the field of shipbuilding and shiprepair.

The main subjects and items presented and discussed at the meeting are briefly described in the next point of this final report. It must also be stressed that a very essential contribution to the meeting were the three visits to the "Chullima" shipyard, to the "Victoria de Girón" shipyard and to the Ship Design Center of the Cuban Ministry of the Fishing Industry. The exhibition of vessels and ships' equipment also deserves mention here.

All the reports and discussions carried out, including the above-mentioned visits, have resulted in the preparation of conclusions and recommendations which form an essential part of this report.

#### MAIN SUBJECTS AND ITEMS PRESENTED AND DISCUSSED

From the reports and discussions of the Meeting the following statements were made on the situation of small-scale shipbuilding and shiprepair industry in the developing countries of Latin America and the Caribbean area.

1. The small-scale shipbuilding and shiprepair industry has different development levels influenced in certain ways by the historical, geographical and economical conditions prevailing as the industry developed.
2. For small-scale shipbuilding different materials are used, namely timber, steel, reinforced plastic and ferro-cement. The utilization

of different materials is related to different production technology which is, in many cases, very traditional.

3. Due to the inadequate development of the auxiliary industries in the countries of the region, a major amount of items necessary for equipping small-scale boats must be imported which is, in turn, related to the economical and technological implications.
4. Because of the very short period of development in the shipbuilding and shiprepair industry in the majority of the countries under consideration, the level and number of skilled labourers, technicians, designers etc. is correspondingly very low and insufficient both for the purpose of introducing new technologies, or for a proper development of the small-scale shipbuilding and shiprepairing industry in those countries, and in island countries in particular.
5. The rate of development in the technical equipment and facilities of the majority of the existing small-scale shipyards in the countries under consideration is very low. In addition, the same rate of development in various shipyards also shows considerable differences.
6. The use of computer techniques in the design of ships, in the organization of shipyards and in the building and repair of ships is very restricted. Complex technical calculations, and any economical studies required, are therefore impossible.
7. A basic problem is the lack of organization and planning in the maintenance and repair facilities of the existing shipyards in the countries under consideration. This is due to the fact that the existing shipyards are dealing mainly with shipbuilding, there being no indication of a future, planned policy in the field of shiprepair and ship maintenance.
8. The amount of scientific and technical information available regarding the world's shipbuilding and shiprepair activities is very poor in

the developing countries. This considerably hinders any efforts made towards achieving a satisfactory level of design, construction, repair of ships and organization of the shipyards.

9. Great potential for the development of small-scale ships was created, as shown in the example of Cuba, with the introduction of ferro-cement which requires a much smaller time period for labour training and which is based on the use of raw materials readily available in most countries.
10. To date, there has been a very low level of cooperation and exchange of information amongst the Latin American and Caribbean countries regarding their mutual experiences in the shipbuilding and shiprepair industry, and on the traditional fishing methods and their efficiency. Consequently this has prohibited the preparation and application of common research or development of staff training programmes which could yield achievements in other fields of these particular countries.
11. The lack of typification and standardization in the different types of ships equipment, and in the actual ships constructed in the countries under consideration, does not encourage wider cooperation in the field of recovery of equipment, delivery, storage and management of spare parts. These factors also have a bearing on the use of common production and repair technology, the introduction of new materials, and up-to-date design and calculation methods.
12. To achieve the standard of development of shipbuilding to which all countries aspire it is very important to foster regional cooperation allowing an exchange of experiences and technologies and other projects of common interest.

#### CONCLUSIONS

The conclusions drawn up by the experts i.e. participants of the Expert Group Meeting on Small-Scale Shipbuilding and Shiprepair Development for the Latin American Countries, are as follows:

1. The objectives of the meeting were achieved.
2. The experts state that the present situation in the shipbuilding and shiprepair industries in the developing countries indicates not only major differences in the stage of development reached, but also in the levels achieved.
3. The experts identified the following problems occurring in the development of the shipbuilding and shiprepair industry in the majority of the countries of the region under consideration:
  - the low development of auxiliary industries;
  - the insufficient number of well trained technicians designers and managers and the inadequate utilization of the skills already existing in some countries of the region;
  - the small amount of equipment in the majority of the existing shipyards;
  - the limited use of computer methods for design of ships and management of shipyards;
  - the lack of maintenance programmes of operating ships;
  - the lack of scientific and technical information;
  - the limited use of typification and standardization of equipment, calculation methods, etc.;
4. The need to intensify collaboration between the countries of the region was emphasized.
5. The participants found the Expert Group Meeting a very useful event allowing an exchange of experiences in the field of ship design, production and repair as well as shipyard management.

#### RECOMMENDATIONS

As a result of the meeting's activities (reports, discussions, visits etc) the participants presented several recommendations which

are in line with the conclusions of the meeting. The recommendations are formulated as follows:

1. It is recommended that the Governments of the Latin American and Caribbean countries set up a Latin American Cooperation Programme in the field of small-scale shipbuilding and shiprepairing, particularly for fishing boats, with the support of the regional and international organizations.
2. The proposed cooperation programme should include the following activities:
  - to identify specific mechanisms of collaboration among the countries of the region;
  - to obtain and distribute scientific and technical information on the development of the world's shipbuilding and shiprepair industry;
  - to formulate and develop joint cooperation programmes on small-scale shipbuilding and shiprepair;
  - to prepare and introduce training programmes covering training of high and medium level technical staff and to guarantee the future availability of qualified personnel for the shipbuilding and shiprepair industry, including the introduction of new shipbuilding and shiprepair technologies and the development of auxiliary industries;
  - use of modern computer methods for design of ships and management of shipyards in the countries of the region.
3. The meeting requested CAPMAD-SELA to prepare a specific and detailed proposal for the Cooperation Programme, in liaison with UNIDO and the countries of the region. This request can be presented at the meeting of Ministers of Fisheries of the Latin American Programme of Fishing Development of CAPMAD-SELA which will take place in October 1983.
4. The detailed proposal of the programme should include the identification of alternative sources of support for its

instrumentation at an international level (UNDP and others), a regional level (regional banks and others) and a national level (within and out of the region). The programme will include activities of interest to one or more countries in the area.

5. The meeting recognises the possibilities of using the Cuban Research and Design Maritime Centre for providing a regional service in design and production of small ships, particularly those to be made of ferro-cement, and in analysing the related economics and technical problems within the framework of a regional programme, making the best possible use of expertise from other countries of the region.
6. Taking into account the usefulness of the present meeting the experts recommend the future organization of a meeting whose aims would fall within the framework of the proposed Regional Programme. This would be conducted in close cooperation with SELA and UNIDO.
7. The Meeting requests UNIDO to send the Final Report of the Meeting to the countries of the region and to reproduce and distribute to all participants the papers presented during the Meeting.

#### FINAL REMARKS

Finally, the participants expressed their appreciation to the Organizing Committee for their efficient preparation and organization of the Meeting. In particular, they acknowledged the kind hospitality extended by the Cuban Government, through the Ministry of the Fishing Industry, and expressed their appreciation for the attention paid to the comfort of the participants during the Meeting.

It was also agreed to acknowledge the efficient way in which the Chairman and other members of the Committee conducted the Meeting.

ANNEX:

I. LIST OF PAPERS, REPORTS AND DISCUSSIONS OF THE TECHNICAL SESSION NO. 1

1. Mazurkiewicz, B. - Construction of shipbuilding and shiprepair yards for small-scale ships  
ID/WG.375/1 and 37.
2. Mazurkiewicz, B. - Shipyard structures for building and repairing of small ships  
ID/WG.375/2.
3. Mazurkiewicz, B. - Boat building and repair yard for wooden fishing boats  
ID/WG.375/8.
4. Mazurkiewicz, B. - Application of wind power for ships drive  
ID/WG.375/10.
5. Jettmar, J. and Mazurkiewicz, B. - Materials and production technology for small ships  
ID/WG.375/9.
6. Rodriguez, E. and Menéndez, M. - Ways and forms of co-operation in design and carrying out the project, new shipbuilding production, introduction of new technologies and training (Only in Spanish)  
ID/WG.375/27.
7. Araica Salas, R. - Actual situation and perspectives of Shipbuilding in Nicaragua (Only in Spanish)  
ID/WG.375/13.
8. Rodriguez, S. - Ferrocement shipbuilding perspectives (Only in Spanish)  
ID/WG.375/20.
9. Cazorla, A.M. - Forms and ways of co-operation for the development of shipyards and mixed enterprises that will ensure the amount of ships for the area (Only in Spanish)  
ID/WG.375/35.
10. Doerffer, J. - Polish experiences in developing shipbuilding and shiprepairing industries  
ID/WG.375/36.



11. Doerffer, J. and Madej, J. - Construction and repairs of small fishing vessels: Polish experience  
ID/WG.375/5.

II. LIST OF PAPERS, REPORTS AND DISCUSSIONS OF THE TECHNICAL SESSION NO. 2

1. Martinez-Abarca, E. - New technology and specific methods for building and designing steel ships (Only in Spanish)  
ID/WG.375/18.
2. Martinez-Abarca, E. - The integration of maritime transport in the multimodalism (Only in Spanish)  
ID/WG.375/19.
3. Martinez-Abarca, E. - General remarks on shipbuilding and shiprepair in Latin America (Only in Spanish)  
ID/WG.375/14.
4. Martinez-Abarca, E. - First step in shipbuilding. Standard shipyard for fishing vessels (Only in Spanish)  
ID/WG.375/26.
5. Zamora, O. and González, A. - Interrelation between propulsion, the fishing gear and the form of the hull of small vessels (Only in Spanish)  
ID/WG.375/30.
6. Santarelli, M.F. - Interrelation between propulsion, the fishing gear and the form of the hull of small vessels (Only in Spanish)  
ID/WG.375/21.
7. Podetti, R.R. - South-Western Atlantic fishing vessels: Design, construction and maintenance (Only in Spanish)  
ID/WG.375/7.
8. Martinez, W. - Mathematical models to evaluate investments in fishing boats (Only in Spanish)  
ID/WG.375/41.
9. Falk, B. and Hernandez, N. - Application of the automatization on the naval calculus (Only in Spanish)  
ID/WG.375/25.

10. Martinez, J.C. and Fernandez, J. - Criteria on the present status of shipbuilding and shiprepair of small boats in Latin America (Only in Spanish)  
ID/WG.375/22.
11. Campos, L. - Forms and ways of co-operation for the development of shipyard and mixed enterprises that will ensure the required number of vessels in the area (Only in Spanish)  
ID/WG.375/28.
12. Marin, L. and Hernandez, N. - Analyses of the performance of the stability requirement in small cuban fishing boats (Only in Spanish)  
ID/WG.375/24.
13. Pancorbo, L. - Some suggestions on possible areas of technological collaboration in shipbuilding and auxiliary industry (Only in Spanish)

III. LIST OF PAPERS, REPORTS AND DISCUSSIONS OF THE TECHNICAL SESSION NO. 3

1. Anderson, D.C. - The use of wind power in the shipbuilding  
ID/WG.375/40.
2. Garcia-Esparza, J. - Development of shipyard for small boat construction in Mexico (Only in Spanish)  
ID/WG.375/16.
3. Cruz, J. and Alvarez, F. - Remodeling of fishing boats and their techno-economical consequences (Only in Spanish)  
ID/WG.375/32.
4. Aguila, M. and Casamayor, L. - Present status and perspectives of the development of equipment and mechanism on board of fishing vessels (Only in Spanish)  
ID/WG.375/23.
5. Rojas, M. - Methods to increase power of the naval installations (Only in Spanish)  
ID/WG.375/29.
6. Smith, H.D. - Lubricants for extended engine life  
ID/WG.375/15.

7. Mendiola, J.V. - Shipyard structures for shipbuilding and shiprepair of steel vessels  
ID/WG.375/11.
8. Allen, D.A. - Covering system: C-Flex (Only in Spanish)  
ID/WG.375/12.

IV. LIST OF PAPERS, REPORTS AND DISCUSSIONS OF THE TECHNICAL SESSION NO. 4

1. Ross, N. - Glassfiber reinforced cement used in boatbuilding.  
ID/WG.375/38.
2. Patiño, B. - Present status in the selection and determination of the means of repair for small-scale vessels (Only in Spanish)  
ID/WG.375/42.
3. Carmona, R. - Development of new materials and application to shipbuilding (Only in Spanish)  
ID/WG.375/31.
4. Barrow, K.L. - New techniques of design and construction of small vessels.

V. LIST OF PAPERS, REPORTS AND DISCUSSIONS OF THE TECHNICAL SESSION NO. 5

1. Migala, J. - Trends of naval techniques development: Construction and effective exploitation of fishing boats (Only in Spanish)
2. Canovas, A. - Analysis of the criteria of small-scale fishing vessels stability (Only in Spanish)  
ID/WG.375/34.
3. Sánchez, E. and Muñoz, A. - Shipment in the ferrocement boats according to their specific structures (Only in Spanish)  
ID/WG.375/17.
4. Lescaille, W. and Villa, S. - Methods and techniques in wood vessels construction (Only in Spanish)  
ID/WG.375/39.

ANNEX:

- 15 -

DELEGATES

ALLEN, Dennis A.

General Manager  
Recursos Marinos y Fabricaciones  
Marinas S.A.  
Panamá, Veracruz  
Aptdo. 1030 Zona 9 A  
Panamá

ARAICA SALAS, Roger

Director, Centro  
Investigaciones y Desarrollo  
Pesquero CIDEF  
Instituto Nicaragüense de la Pesca (INPESCA)  
Km 4, Carretera Sur  
Aptdo. 2020 Managua  
Nicaragua

BARROW, Kennard

Manager - Shipbuilding  
Engineering. Guyana National  
Engineering Corp. Ltd  
2-9 Lombard Street  
Charlestown, Georgetown  
Guyana

BAXTER JARAMILLO, Rodrigo

Inspector. Dirección General  
Consular y Navas  
Ave. J. Arosemena y Calle 23  
Panamá.

Telex 3367 SECNAVES

GARCIA ESPARZA, José I.

Director General  
Astilleros Unidos de Mazatlán, S.A.  
de G.U.  
Aptdo. Postal 80  
Mazatlán, Sin. México

Telex 066831

GARCIA SUTY, Leonel

Subdirector  
Centro Proyectos Navales  
Ministerio Industria Pesquera  
Oficios No. 452 esquina a Acosta  
Havana, Cuba

GILLETTE, Francis

Supt. Marine Engineer  
Port Authority of Trinidad Tobago  
Wrightson Road, Port-de-Spain  
Trinidad Tobago

Telex 3477 Patt WG

GONZALEZ SURI, Félix  
Director, Naval Construction  
Ministry of Fishery  
Oficios No. 452 esquina a Acosta  
Havana, Cuba

ISIDRON HERNANDEZ, Hilbert  
Chief of Production  
Naval Construction Division  
Ministry of Fishery  
Oficios No. 452 esquina a Acosta  
Havana, Cuba

MARTINEZ-ABARCA, Eduardo  
UNIDO Consultant  
Subdirector General. Senermar  
R. Fernández Villarreal 65  
Madrid, Spain  
Telex 27350

MARTINEZ, Juan Carlos  
Subdirector of Projects  
CEPRONA  
Ministry of Fishery  
Oficios No. 452 esquina a Acosta  
Havana, Cuba

MARTINEZ GARCIA, Washington  
Professor,  
Escuela Superior Politécnica del Litoral  
ESPOL  
Malecón y loja  
Ecuador  
Telex 4-3509 ESPOL G-ED

MAZURKIEWICZ, Boleslaw  
UNIDO Consultant  
Profesor Gdańsk Technical University  
80-952 Gdańsk  
UL. Majakowshiego 11  
Poland  
Telex 512302 PG PL

MENDIOLA REYES, Juan V.  
Supervisor & Inspector General  
Fishing Boats Construction  
Ministry of Fishery  
Avenida Javier Prado - Este  
No. 2465. San Luis  
Perú  
Telex 21058 PE

MORALES CASORLA, Audberto  
Director of Pesca Maritima  
Ministry of Fishery  
Avenida Javier Prado - Este  
No. 2466. San Luis  
Lima, Perú  
Telex 21058 PE-MIPESCA

PATIÑO BOLIVAR, A.

Inspector  
Dirección Consular y Naval  
Ministerio de Hacienda y Tesoro  
Panamá

Telex 3563

PODETTI, Raúl R.

Director SANYM, S.A.  
Avenida Alem No. 424  
Buenos Aires, Argentina

Telex 17407 SANYPAR

SANTARELLI, Mario F.C.

Director General  
Santarelli Neotécnica SRL  
Florida No. 686, Piso 10  
Buenos Aires,  
Argentina

OBSERVERS

|                              |  |
|------------------------------|--|
| ALDECOA, Miguel              | President, SATENA-S.A.<br>Naval Technology<br>Padilla 17 - Madrid<br>Spain<br>Telex 47056  |
| ANDERSON III, Douglas C.     | Sail Freight International Inc.<br>Park Lane, White Plains,<br>N.Y. 10604<br>United States of America  |
| BRETON DESCHAPELLES, Mario   | Chief of Experts<br>Bureau Veritas<br>Calle D No. 4 e/lra. y 3ra.<br>Havana, Cuba  |
| VAN DE CALSEYDE, Pierre J.R. | Manager, Damen Shipyard<br>P.O. Box 400<br>4200 AK. Gorinchem<br>Holland   |
| DOERFFER, Jerry              | Rector, Professor.<br>Technical University, Gdańsk<br>UL. Majakowsuigo 11<br>Poland<br>Telex 051302  |
| GARCIA DEL VALLE, Fernando   | President & General Manager<br>Tecnaco, S.A.<br>Velázquez Moreno No. 9<br>Vigo.<br>Spain<br>Telex 83065 TACSA-E  |
| GORCZYNSKI, Wieslaw          | Deputy Director CENTROMOR<br>Gdańsk. Okopowa Str. 7<br>Poland<br>Telex 051 2376  |
| GUTIERREZ ASCUNCE, José M.   | Director General GUASCOR S.A.<br>Diesel Engines<br>Edificio Guascor - Apartado<br>Corres No. 30 - Zumaya<br>Spain<br>(GUIPUZC 00) Telex 32064 - Gu<br>Telex 32064 - Guaco E<br>36310 - Guazu E |

HOMMA, Hiroyuki  
Company Representative  
Sumitomo Corp.  
Havana Office.  
Calle Línea No. 810 e/ 2 y 4  
Havana Vedado, Cuba  
Telex 511479  
Japan

KOTECKI, Mieczyslaw  
Deputy Director. Shipbuilding Technology  
Center PROMOR  
80-952 Gdansk-Wrzeszcz  
UL. Matejki 6  
Poland  
Telex 0512771 - 0425104  
Poland

KRAINOV, Nicolai N.  
Senior Industrial Development Field  
Adviser of UNIDO in Angöla  
Caixa Postal 910, Luanda, Angola

LOBS, Arie  
Manager Marine Dept. CASTROL  
Netherlands  
Dosteinde 137, Voorburg  
Telex 34460 CAMAR BL  
Holland

MADEY, Jerzy  
Technical University. Ship Research  
Institute  
80-952 Gdansk-Wrzeszcz  
U.I. Majakowskiego 11/12  
Telex 051-302  
Poland

NAROVSKY, Leonid  
Registrar of the USSR,  
the USSR Naval Registry in Havana  
Lamparilla No. 2 apto. 514  
Havana, Cuba

ROSS, Niels  
Ministry of Foreign Affairs  
Badstredø 9  
3390 Hundested  
Denmark

PANCORBO ORDIALES, Luis  
Deputy Director General  
Ministry of Industry and Energy  
Paseo de la Castellana 160  
Madrid  
Spain

PORR'IA PONS, Ernesto  
Company Representative  
Internacional Marítima S.A.  
5ta. Ave. No. 3604, Miramar  
Havana, Cuba  
Telex 51-1428



REGNICOLI, Jorge

Director General  
Regnicoli Shipyard  
B. de la Rivera 67  
1646 San Fernando  
Buenos Aires, Argentina

ROSANDER MATHS, Gerhard

Company Representative of VOLVO  
Barlovento, Havana  
Cuba

SMITH, Caroline Ann

Secretary CASTROL  
Burmah House,  
Pipers Way  
Swindon, Wiltshire  
England  
Telex 449221

SMITH, Hugh Durno

Technical Coordinator CASTROL  
Burmah House  
Pipers Way  
Swindon, Wiltshire  
England  
Telex 449221

SWIECZKOUSKI, K.

NAVIMOR.  
Gdańsk Hevelivra 11  
Poland

CAPTAIN P.S., Vanchiswar

Maritime Expert  
International Maritime Organization (IMO)  
Unshipro 40, Ministry of Communications,  
Works and Transports  
St. Lucia, West Indies

VENZANT, Rafael

Det Norske Veritas Surveyor for Cuba  
Calle D No. 4, Vedado,  
Havana, Cuba  
Telex 514128 ACEMEX  
Cuba

VAN VUUREN, Robert

Service Engineer  
CASTROL  
Gosteinde 137  
Voorburg - Holland  
Telex 34460  
Holand

|                          |   |
|--------------------------|---|
| AGUILA, Manuel           | Naval Expert of CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba  |
| ALFONSO, Benito          | Expert of CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba  |
| ALVAREZ, McKITTY, Fidel  | Expert of CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba  |
| BECK, Svetlana           | Naval Eng. CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba   |
| BERIOSKIN, Boris         | Adviser. CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba   |
| CAMPOS ONIS, Lorenzo     | Expert in Naval Economy and<br>Fishery of CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba                  |
| CANAAN-HADEN, Antonio    | Project Manager<br>IMEXPAL - CECE<br>Calle 22 No. 313 entre 5ta. y 3ra.<br>Havana - Miramar<br>Telex 051 1404<br>Cuba |
| CANOVAS, Arnaldo         | Naval Engineer<br>CEPRONA. MIP<br>Oficios no. 452 esq. a Acosta<br>Havana<br>Cuba                                     |
| CARBALLO PEREZ, Benjamin | Head of Branch<br>Empresa Marpesca. MINCEX<br>Calle Conill esq. a 26<br>Nuevo Vedado<br>Havana, Cuba                  |

|                             |   |
|-----------------------------|---|
| CARMONA CABALLERO, Ruth     | Chemical Engineer of CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba                               |
| CARRILLO, Elvira            | Adviser to the Ministry of Fishery<br>Puerto Pesquero.<br>Havana, Cuba  |
| CASAMAYOR BALON, Leonardo   | Construction Engineer<br>CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba                           |
| CRUZ INCLAN, Jorge          | Naval Eng. CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba   |
| DAUVAL SUERO, Mariano       | Departement Head of the Enterprise<br>Astilleros Cienfuegos<br>Ave. 46 y calle 21<br>Havana, Cuba             |
| DELGADO ENRIQUE, Miguel     | Transport Research Institute<br>Carretera del Asilo<br>Casablanca<br>Havana, Cuba                             |
| FALK, Brigitte              | Head of Automatization of<br>the Naval Projects<br>CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba |
| FERNANDEZ BELL, Félix       | Naval Engineer of CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba                                  |
| FERNANDEZ LLERENA, Jesús    | Head of Proj. CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba                                      |
| FERNANDEZ SANCHEZ, Julio    | Technologist Astilleros Victoria<br>de Girón, Cárdenas<br>Calle Héctor (Final)<br>Cárdenas, Matanzas<br>Cuba  |
| FRESQUET BELTRAN, Francisco | Chief of Departement of Flota Atunera<br>Oficios No. 110<br>Havana<br>Cuba                                    |

|                            |  |
|----------------------------|--|
| GARRIDO USERN, Emilio      | Technical Chief of<br>Astilleros Gibara<br>R. de la Marina No. 75<br>Gibara, Holguin<br>Cuba   |
| GONZALEZ MORLANS, Arturo   | Naval Expert - CEPRONA.<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba   |
| GONZALEZ SELLES, Julio C.  | Senior Chief of Naval Inspector<br>Maritime Security Division<br>Ministry of Transport<br>Rancho Boyeros y Tulipán<br>Plaza de la Revolución<br>Havana, Cuba |
| GONZALEZ DEL VALLE, Davel  | Naval Expert of Empresa Astilleros<br>Chullima<br>Calle 30 entre 15 y 17<br>Havana<br>Cuba   |
| HERNANDEZ DRAGO, Carlos    | Project Manager<br>IMEXPAL<br>Calle 22 No. 313 entre 5ta. y 3ra.<br>Havana, Miramar<br>Telex 051 404<br>Cuba   |
| HERNANDEZ GALLO, Nelson    | System Analyst<br>Automatization of the Project, CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba  |
| IZQUIERDO RIVERA, Pedro P. | Expert in Naval Construction and Repair<br>of the Empresa Combinado Pesquero Industrial<br>Ave. del Puerto No. 21<br>La Coloma. Pinar del Río<br>Cuba        |
| LESCAILLES, Walfrido       | Naval Expert - CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba  |
| LESCAY MERENCIO, Juan R.   | Naval Expert - CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba  |

|                          |  |
|--------------------------|--|
| MACIAS DIEGUEZ, Orlando  | Head of Section<br>Ministry of Transport<br>Lamperilla No. 2<br>Havana<br>Cuba                                 |
| MARIN ALFONSO, L         | Technical Adviser<br>CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba                                |
| MARTINEZ BORGES, Antonio | Expert in Naval Construction<br>and Shiprepair of the - Empresa Obras<br>Marítimas. MICONS<br>Cuba             |
| MAS ZABALA, José Julio   | Naval Expert - Obras Marítimas<br>Calixto García No. 1<br>Regla<br>Cuba  |
| MENDEZ PELLA, Esther     | Deputy Director of - IMEXPAL<br>Calle 22 No. 313<br>Havana Miramar<br>Telex 51404<br>Cuba                      |
| MIGALA, Jan              | Adviser to CEPRONA<br>Oficios No. 452 esq. a Acosta<br>Havana<br>Cuba  |
| MILLAN, Francisco        | Head of the Departement<br>Empresa Astilleros Cabainena<br>Coloma No. 249, Casablanca<br>Regla,<br>Cuba        |
| MOLINA GONZALEZ, José E. | Head of the Departement of Ships Registry<br>5ta. y 112, Playa<br>Havana<br>Cuba                               |
| MORENO, Ramiro           | Naval Expert, MITRANS<br>Havana, Cuba  |
| MOYA CAMPOS, Roberto A.  | Naval Expert<br>CEPRONA<br>Science and Technology Development<br>Oficios No. 452 esq. Acosta<br>Havana<br>Cuba |

|                            |   |
|----------------------------|---|
| PEÑA HERNANDEZ, Pedro      | Project Manager<br>IMEXPAL - CECE<br>Calle 22 No. 313 e/ 3ra.<br>5ta., Miramar<br>Telex 051 1404<br>Cuba      |
| PIEDRA GUTIERREZ, Pedro    | Head of Shiprepair Division<br>Flota del Golfo<br>Regla,<br>Havana, Cuba                                      |
| PONIKAROVSKI, Victor       | Adviser to CEPRONA<br>Oficios No. 452 esq. Acosta<br>Havana<br>Cuba   |
| QUINTANA, Ada              | Chemical Expert of CEPRONA<br>Oficios No. 452 esq. Acosta<br>Havana<br>Cuba                                   |
| RABELL PARDO, Urbano       | Head of Technical Departement<br>of the Shipyard<br>CEPRONA<br>Oficios No. 452, esq. Acosta<br>Havana<br>Cuba |
| REY ALVAREZ, Jesús         | Head of Technical Departement<br>Calle 21 y O, Vedado<br>Havana, Cuba   |
| REYES, Martha Rosa         | Project manager<br>IMEXPAL<br>Calle 22 No. 313, Miramar<br>Havana<br>Cuba<br>Telex 051 1404                   |
| RODRIGUEZ RODRIGUEZ, Sixto | Naval Expert - CEPRONA<br>Oficios No. 452 esq. Acosta<br>Havana<br>Cuba                                       |
| ROJAS, Manuel              | Head of Development Section - CEPRONA<br>Oficios No. 452 esq. Acosta<br>Havana<br>Cuba                        |
| SANCHEZ YANES, Evelio      | Naval Designer<br>CEPRONA<br>Oficios No. 452 esq. Acosta<br>Havana, Cuba                                      |

|                            |   |
|----------------------------|---|
| SILVA WALKER, Juan A.      | Naval Inspector - CEPRONA<br>Oficios No. 452 esq. Acosta<br>Havana<br>Cuba  |
| VAZQUEZ ORTIZ, Miguel      | Deputy Technical Dir. Instituto<br>Técnico Naval. Aracelio Iglesias<br>Casa Blanca, Municipio Regla.<br>Cuba  |
| VELAZQUEZ MARTINEZ, Andrés | Technologist, Empresa de Astillero Mariel.<br>Cayo Lenin s/n, Mariel<br>Havana<br>Cuba  |
| VIACAVA, Reinaldo          | Naval Expert - CEPRONA<br>Oficios No. 452 esq. Acosta<br>Havana<br>Cuba   |
| VICTORES DELGADO, Manuel   | Professor<br>Academia Naval. Municipio Playa<br>Havana<br>Cuba  |
| VILLA DIAZ, Sergio M.      | Head of Design Div. CEPRONA<br>Oficios No. 452 esq. Acosta<br>Havana<br>Cuba  |
| WAINSH TOK, Hugo           | Instituto Superior Politécnico<br>"José Antonio Echeverría"<br>Carretera Central "Manuel Martínez<br>Prieto" Marianao. Ciudad de la<br>Havana, Cuba |
| ZAMORA PEREZ, Omar         | Naval Designer CEPRONA<br>Oficios No. 452 esq. Acosta<br>Havana<br>Cuba   |

ORGANIZATION COMMITTEE

|                              |   |
|------------------------------|---|
| MARGOLLES DUENAS, Aldo       | Vice Minister<br>Ministry of Fishery<br>Ensenada de Potes y Atarés<br>Havana, Cuba<br><br>Telex 511189 Caribex, Cuba                                      |
| REIFENRATH, Roland           | Resident Representative<br>United Nations Development Programmes<br>Calle 18 entre 1ra. y 3ra.<br>Miramar<br>Havana, Cuba                                 |
| PANYUSHKIN, Dmitry I.        | UNIDO Staff member<br>P.O. Box 400<br>VIC UNIDO<br>1400 Vienna<br>Austria   |
| CARDENAS RONCO, Juan J.      | Secretary General of the Committee<br>of Action for Sea and River Products<br>of SELA<br>Avenida Aviación 2555-A<br>Urbanización, San Luis,<br>Lima, Peru |
| FAJNZYLBER, Fernando         | Senior Industrial Field Adviser<br>UNIDO<br>Masaryk 29/14<br>Mexico City  |
| PRIJAPRATAMA, Petrus         | UNIDO Staff member<br>P.O. Box 400<br>VIC UNIDO<br>1400 Vienna<br>Austria   |
| MENENDEZ DE LA TORRE, Marcel | Director, Centro Proyectos Navales.<br>Ministerio Industria Pesquera<br>Oficios No. 452 esquina a Acosta<br>Havana<br>Cuba                                |
| CARCEDO FERRER, Antonio      | Director, International Relation<br>Ministry of Fishery<br>Ensenada Potes y Atarés<br>Havana<br>Cuba<br><br>Telex 511189 Caribex, Cuba                    |



DELGADO, Fabián

Director of Information  
Ministry of Fishery  
Ensenada Potes y Atarés  
Havana  
Cuba  
Telex 511189 Caribex, Cuba

VAREA, Juan A.

Head of International Relation  
Departement  
Ministry of Fishery  
Ensenada Potes y Atarés  
Havana  
Cuba  
Telex 511189 Caribex, Cuba

ODIO BARDINI, Guido

Chief of Section  
International Relation Departement  
Ministry of Fishery  
Ensenada Potes y Atarés  
Havana, Cuba  
Telex 511189 Caribex, Cuba

PINO, Rinaldo

Head of Department, CEPRONA  
Oficios no. 452 esquina a Acosta  
Havana  
Cuba

MARRERO, Dolores

Expert  
State Committee for Economic  
Co-operation  
Ira. esquina a B  
Vedado  
Havana  
Cuba



