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and Mutual Assistance in the marine sciences (TEMA)

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REGIONAL ASPECTS OF TEMA

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REGIONAL ASPECTS OF TEMAI. Introduction

1. Already at TEMA I-Meeting it was pointed out that TEMA should assist developing countries within certain regions, in building up their own infrastructures in the field of marine sciences.

This idea was then discussed in detail at the VIII G.A. of IOC (1973) leading to Resol. IOC -VIII/26, based upon No. 8.1 of the Report (SC/MD/39 p. 22-23) of the VIII G.A. which reads (as part of "Programme of Work, 1975 - 1976"):

".....During the biennium the Commission will sponsor at least four meetings of groups of experts on a regional basis or within the framework of international scientific programmes to identify specific regional training needs amongst developing countries".

2. Various reasons spoke for the organization of such regional TEMA meetings:
 - 2.1 The 'region' should be considered in a geographical meaning and less in a political one; i.e. a certain number of countries who cooperate within a geographically defined area, such as the Caribbean, form a 'Region';
 - 2.2 therefore, it is natural, that first of all, mutual assistance to build up a national infrastructure in the marine sciences is looked for in neighbouring countries of the 'region'; all the more because this assistance will be facilitated by common language and culture and by a similar status of the technical development;
 - 2.3 the essential goal of the regionalization of TEMA activities is the assistance to build up a infrastructure within the 'region', which could provide common regional services such as a larger research vessel, a common Data Centre, Reference Centre for marine organisms, Repair and Intercalibration Centre, etc. Also common training courses and joint oceanographic cruises, could be more easily organized;
 - 2.4 in it's favour, such a regional structure is also appropriate to enhance the development and improvement of the national marine infrastructures;
 - 2.5 only when this bilateral or multilateral mutual assistance, provided by a regional organization can no longer meet the needs, additional help by international organizations should be looked for. However, requests for international assistance, for instance, in the framework of IOC, UNDP or other UN Agencies, which will be forwarded by a 'region' may be more

quickly acted upon than those by individual countries;

- 2.6 it was the intention that regional TEMA meetings should show ways and means to form functioning regional structures in marine sciences. Therefore, TEMA has formulated a questionnaire. In its first part, the countries should describe their status quo regarding their marine activities in all disciplines and in the second part they should describe their future needs - preferably in the form of a five-year-developing plan - for a substantial improvement of their infrastructure in the fundamental and applied marine sciences. The completed questionnaires should be discussed at regional TEMA meetings, especially with regard to: bilateral and multilateral assistance within the region itself, common regional services and facilities, additional international help, and cooperative scientific projects;
- 2.7 furthermore, these regional TEMA meetings should discuss present IOC programmes and services, with view to possible participation as well as the preparation of own regional scientific programmes;
- 2.8 finally, it seemed desirable that the regional TEMA meetings contribute to better acquainting the participants from various countries with each other; according to IOC experience, the representation from developing countries in committees or task teams has mostly been rather poor because of different reasons. This especially applies to the National Training Contacts. It was hoped that a meeting within the region by its shorter travel distances would probably attract more scientists to take part in such a meeting.
- 2.9 Also the wish of the IOC itself to promote its aims throughout the world and, thus, to canvass new interested scientists, played a rôle in organizing these ad hoc regional TEMA meetings.

II. Evaluation of Regional TEMA Meetings held until now

On the basis of six regional meetings carried out until now (see tables of Attachment I) the following questions shall be discussed:

- (1) Have the regions, and within them, the places of meetings been selected adequately? Shortcomings?
- (2) Which may be the reasons for the differing attendance by the countries of the region and for the variable number of participants?
- (3) To which extent have problems of regional infrastructure, common services and projects been discussed? Problems of the 'questionnaires'.
- (4) Which problems of Training and Education in Marine Sciences have been considered:
 - 4.1 At all of the six meetings?
 - 4.2 At some of the six meetings?
 - 4.3 At only one of the six meetings?and what was the 'common denominator' of the relevant recommendations?
- (5) What is known about the implementation of the recommendations? Have they had any effect on the TEMA activities?

1. At the time of the first ad hoc regional TEMA meeting in the Caribbean, the IOC programme CICAR (Co-operative Investigations of the Caribbean and Adjacent Regions) was under way, with Mexico as 'leading country' within this programme. Therefore, it seemed most appropriate to hold the first ad hoc regional TEMA meeting in Mexico. In addition, in 1974 in the Red Sea/Arab Gulf area, the "Arab League, Educational, Cultural and Scientific Organization" (ALECSO) organized its first Jeddah Conference with its forthcoming programme for 'Environmental Studies, Red Sea and Gulf of Aden'. In both cases, existing organizational structures provided an excellent background for the purposes of the TEMA ad hoc meetings.

Compared with the above, the four other selected places for regional meetings which did not enjoy those advantages, were more or less random choices.

As a first prerequisite for a successful meeting it must be established well in advance whether the neighbouring countries have any interest in a closer cooperation in the field of oceanography. Such a common interest may apply to a certain phenomenon like an ocean current along their coasts, or to fisheries problems or simply to a given marine area influencing the adjacent coasts and their economic development. If such a 'region' is identified, the 'key-country' in terms of its political, cultural and of course scientific

properties and aspects should be carefully selected to host an IOC/TEMA ad hoc meeting. Also the traffic conditions must not been neglected. Taking into account these fundamental preconditions, the four other places selected did not seem optimal choices.

2. Reasons for the differing attendance of countries

According to attachment I, an almost optimal attendance was achieved at the first meeting for the Caribbean area: 15 delegates from nine countries of the Caribbean region participated together with 10 representatives from 6 industrialized countries in this first regional ad hoc TEMA meeting in Mexico. Only the absence of representatives of RAO and OAS may be considered as a flaw in this almost perfect attendance.

Also the fourth meeting, held in the ALECSO organizational framework, shows the great interest of the countries concerned. Twenty-seven representatives from 9 developing countries of the region and 7 scientists from Western Europe, the USA and the USSR contributed to the discussion from their point of view, providing informations about training courses, fellowships and facilities in their countries. The high number of 10 representatives from UN-agencies and other organizations was also very satisfying.

Referring to the above mentioned selection of an adequate meeting place, it is obvious that the relatively high number of participating countries seems to be closely connected with an already existing organizational infrastructure of the region.

Unlike those encouraging results, the other four meetings obviously suffered from a too poor attendance. To the Casablanca, Manila, and Montivedo-Meetings only four countries of the 'region' had sent delegates, in the Karachi Meeting Pakistan was even left alone. The participation of the industrialized countries decreased likewise to the representation of two or three member states, whereas the UN agencies and international organizations attached more importance to these regional meetings.

The inadequate choice of the meeting places cannot by itself account for this rather poor success of the concept of regional ad hoc TEMA meetings. The inadequate choice of the meeting places cannot by itself account for this rather poor success of the concept of regional ad hoc TEMA meetings.

A careful and effective preparation of those ad hoc meetings within a 'region' is a pre-requisite. In a preparatory phase, the IOC TEMA officers must personally contact the governmental representatives as well as the scientists of, if ever possible, all the countries within the 'region'. These personal contacts should be preceded by sending all relevant documents such as questionnaires etc. in advance. In this preparatory phase the representatives of the UN agencies, of local scientific organizations etc. can provide much support to the IOC/TEMA assistants. It is clear that even the most effective preparation may fail due to a lack of money, particularly in convertible currency, to cover the travel costs. If IOC assistance is applied for, for instance by means of the Trust Fund, IOC should treat such requests favourably.

Last but not least, it might be taken into consideration to combine an ad hoc regional TEMA meeting with a one or two day lecture on specific scientific oceanographic aspects of the region or of the coastal waters of the host country; this could induce more representatives of industrialized countries to participate in the meeting.

3. To which extent had problems of regional infrastructure, common services and projects been discussed at regional TEMA meetings?

The organizers of the ad hoc regional TEMA Meetings intended to emphasize the necessity of cooperation between as many as possible countries within the region.

In order to have a good basis of facts for discussions, all participating countries were asked to fill out a questionnaire. This seemed originally to be a fruitful idea; the IOC-secretariat, however, had to meet a lot of obstacles:

- in most cases, only few of the countries from the region were represented and not even these had filled the questionnaires in time to make them available at the meeting. "It was agreed", therefore, "that non participating countries should be encouraged to complete IOC questionnaires and return them to the IOC-Secretariat, where they would be evaluated. The evaluation would be presented to TEMA II. It was suggested that completed questionnaires be accompanied by a summary of marine science activities in each country. These summaries could be prepared by the National Training

Contacts (IOC/TEMA-AFRI-I/3, page 4)";

- though the above quoted suggestion was adopted, countries did as a rule not complete the questionnaires and send them to the IOC-secretariat;
- the completed questionnaires were not only differing in quality but were also of different authenticity, because the contents of only some of them had been officially checked by the respective authorities; others, however, reflected nothing but the opinion of the responsible scientists or the institute charged with completing the forms;
- some countries considered their answers in the questionnaire as confidential and did not admit to have it copied and distributed;
- the insufficient number of personnel responsible for TEMA activities in the IOC-secretariat did not allow a more detailed evaluation even of those questionnaires completed and sent to I.O.C.

Notwithstanding the void questionnaires at hand, the scheme of questions provided a good guideline for relevant discussions, which were scheduled as the first items of each agenda for the six meetings. For example, at the Mexico Regional (CICAR) Meeting, two specific recommendations concerning the strengthening of the region itself were made, and regional collaboration was proposed in almost all other recommendations with regard to research vessels, data-, informations- and instrumentation centres. The second ad hoc meeting in Casablanca, Morocco, recommended TEMA-AFRI-I (1) and (2) a series of ways and tools to improve mutual joint efforts and organize a continuing regional cooperation. The first recommendation said:

"... that a committee be organized to continue the work initiated at the Second Regional ad hoc TEMA Meeting, with the following functions:

(i) The committee should collect information from the West African countries on their TEMA activities and, at regular intervals with the assistance of the IOC-Secretariat, disseminate this information among the Member States of the region, thus creating an awareness of the opportunities existing for co-operate activities; and (ii) the purpose of this committee will be to keep alive the enthusiasm and interest generated among the participants of the Second Regional ad hoc TEMA Meeting for the development of marine science in the region, in a spirit of mutual co-operation and mutual assistance."

The third Regional TEMA Meeting in Manila also devoted a good deal of the discussions to problems of an improved regional infrastructure. In Recommendation TEMA-ASIA-I-2 for example it was stated, "....that the universities of South-East Asia seek ways of establishing cooperative ties with one another over the short and the long term in order to develop a network of marine science institutions that would be utilized nationally and regionally."

Because of the missing questionnaires, the representatives gave mostly oral surveys on the existing marine institutions and activities at the beginning of the meeting. This was also the case at the fourth regional meeting for the Red Sea/Arab Gulf Region. The discussions in this respect resulted in a rather strong recommendation for strengthening regional cooperation (TEMA-ARAB I. 11) going even into many details.

It reads:

"Taking into account the strong interest demonstrated by the countries present at the meeting for regional co-operation as a means of furthering the development of marine science and technology;

Noting the need to facilitate the exchange of scientific personnel and students within the region:

Noting further the need to facilitate the flow of scientific information amongst the countries of the region;

Recommends to the ICSPRO agencies and other international organizations that those scientific meetings that are directly relevant to the area be held in the laboratories and institutions of the region;

Recommends further that IOC and/or Unesco convene regional or sub-regional workshops to discuss the possibility of establishing a regional data centre, marine reference collections, a regional sorting centre, a regional marine science journal, and collections of reprints of work carried out in the region but published outside the region."

At the fifth Montevideo Regional TEMA Meeting, the necessary improvement of bilateral or multilateral ('regional') cooperation as to joint scientific projects, common instrumentation maintenance and repair was stressed; however, the regional aspects seemed to somewhat recede into the background of the discussion.

The sixth Regional ad hoc TEMA Meeting in Karachi, Pakistan, stated that "an agreement on specific TEMA projects to be carried out through the cooperation of the countries of the region was not possible in view of the absence of a sufficient number of delegates" (TEMA-NINDI-I/3, p. 4); nevertheless recommendation 1 says: "Recognizing the need to develop on a permanent basis mutual cooperation links in the marine sciences among the countries of the regions, recommends that the countries bordering the North Indian Ocean region which were not presented at the meeting provide information which would enable the IOC to prepare a regional review on the TEMA needs and resources of the region."

As an overall result, one must draw the conclusion that in all of the six meetings the represented countries wanted to strengthen the collaboration within the region and the adjacent areas for various purposes and within various scopes. At the same time, they asked that the establishment of a strong marine science and technical infrastructure in the region be supported to cope with the newly emerging problems, and to provide the scientific basis for an effective management of existing resources (TEMA-NINDI I.2).

4. Special Problems of Training and Education in a regional view

It is clear that the very comprehensive agenda for the first regional meeting in Mexico City became a model for the five other meetings; nevertheless, there is an obvious difference in the way the items have been dealt with in each meeting. This manifests itself in the comparison of those items whose discussion resulted in recommendations and others which only were summarized in the report, without being accompanied by any reference on how to make use of the result in the future.

In regard to the more general problems, the 'significance of marine science and the necessary strengthening of the marine institutions of the region', i.e. the 'regional infrastructure', were subject-matters of all meetings, leading to respective recommendations. Either included or as separate recommendations the closely related items on regional programmes were also part of the adopted recommendations; the same applies to the 'National Training Contacts'.

'Training', of course, gave rise to a great series of recommendations. So we find a specific recommendation on the establishment of training courses for technicians in all reports of the six regional meetings. It seems, that there must be an urgent need in most of the developing countries to build up an adequate infrastructure. On the other hand, the closely related problems of training courses for scientists in various branches of oceanography, be it within the country by visiting lecturers or by fellowships abroad, though having been discussed, at all of the six meetings, have only been expressed as recommendations in some of the meeting reports. In this context, the problem of 'Absentee Thesis Advisors' was solely brought up at the Mexico meeting, and there was also only one recommendation on Unesco fellowships. It is interesting that the problem of Marine Science Administrators was raised five times (with the exception of Karachi), leading to three recommendations! One could also add to the training aspects the item of 'Marine Research Assistants (Associates)', the training in 'Coastal Zone Development and Management', as well as the participation in oceanic cruises. In Mexico, Casablanca, and Manila, the topic of Marine Research Assistants was discussed on the basis of IOC Circular Letter No. 460 and led to strong recommendations to support this concept by the IOC-Fund-in-Trust or by bilateral arrangements. Also in Cairo and Montevideo this item of the agenda was comprehensively discussed, however, without leading to recommendations. Although the complex problems of the 'Coastal Zone Development and Management' were raised as items for a broader discussion and following recommendations at only four regional meetings (except Casablanca and Karachi), the subjects are of highest importance and, regarding the individual infrastructure as well as the regional one, coastal zone development will certainly become a focal point of marine activities in the developing countries. Also participation in oceanic cruises, though not being on the Mexico list of agenda items, found great interest in four of the regional TEMA meetings which endorsed respective recommendations. The same undoubtedly applies to pollution monitoring. The promotion of this field was strongly recommended by almost all participants in four regional TEMA meetings. The second complex which was tackled at the Regional Meetings indicated already within the model agenda of the Mexico meeting, referred to marine research facilities: Establishment of Instrumentation -, Calibration - and Repair - Facilities on a regional basis, regional Data-Information Centres and Reference- and Sorting Centres as well as an

increase in number and an improvement in instrumentation of the fleet of research vessels.

Though for most of the above mentioned facilities only one or two recommendations respectively had been endorsed, the items themselves were subject to discussions with a series of detailed proposals, the contents of which were included in the reports of each regional meeting. It was noticed, however, that for the realization of such jointly used facilities, a certain basis of a regional cooperation seems indispensable.

Finally, a third complex deals with Education. Recommendations in this field were scarce at all the regional meetings: One was produced in Manila on the Use of Training Aids, - the same subject has also been discussed at the Cairo meeting, - another recommendation resulted from the discussions on publications in the Cairo meeting (this item was also tackled in Manila). Some more interest, and as its consequence two recommendations by the Manila and Montevideo meeting, was shown for the 'Introduction of Marine Science in the Secondary School System'. The analysis of adopted recommendations and reported discussions proves a sometimes varying but altogether rather high engagement of the participating scientists at all the regional TEMA meetings in those subjects, which need to be improved in order to set up a sound and effective infrastructure for marine research.

5. Implementation of recommendations

It is true that at no time it was tried to answer the question if and to which extent the recommendation of the six regional meetings have been implemented. Being aware of the progress regional infrastructure, for example, those of the CICAR or ALECSO regions, have made, there is no doubt that it would not be very difficult to describe where the TEMA recommendations have resulted in certain actions. However, such an evaluation would have needed detailed inquiries on the basis of the prior completed questionnaires, supported by correspondence and even personal discussions in the respective institutions.

The first (Mexico-) Meeting had as one of its recommendations (IOC/TEMA-CARIB-I/3, Annex II, p. 3) 'Implementations of Recommendations'. Most of the recommendations and requests - either to the Division of Marine Sciences of UNESCO or to the Secretary IOC - referred to the already existing CICAR National Coordinators

or National Training Contacts as mediators between the above mentioned UNESCO/IOC institutions and the member-countries. While the Mexico meeting tried to take into consideration the ways and means by which the TEMA recommendations could best be carried out, including the finding of potential funding sources, the other meetings only marginally discussed the practical aspects, i.e. the feasibility of their proposals.

III. Conclusions

1. Mutual Assistance in Training and Education in order to build up an effective infrastructure for marine research can be achieved on three levels:
 - a) on the national level, b) on the regional level, c) by international assistance.
2. As these three levels show a good deal of interdependence, the encouragement of regional cooperation by TEMA/IOC seems to be a logic step within the overall scheme of strengthening the marine sciences in developing countries.
3. Out of various reasons, in most cases mutual assistance is provided only on a bilateral and not on a multilateral basis. However, a prerequisite for setting up a regional infrastructure, from which all countries of a certain region can benefit, is the organization of multilateral help and the availability of common research facilities.
4. In the course of building up oceanography as a new field of research, much can be done by the country itself on the national level. For an expansion to more sophisticated research projects or to a geographically wider range of research, the intellectual or material assistance of the neighbouring countries is needed, and sometimes, aspects of economy give also rise to establishment and use of common facilities. Therefore, the regional cooperative infrastructure often becomes the most effective source of mutual assistance.
5. Additional international assistance is needed on the national level as well as on the regional one. But help should be asked for only in those cases where national or regional resources are not sufficient to reach the aims.

6. Points (1) to (5) prove the importance of setting up regional structures of mutual cooperation in the marine sciences. Regional activity will have better chances to carry out long-term and difficult investigations and participate in international programmes. The regional infrastructure will have a positive effect on the development of its 'member' countries.
It, therefore, seems indispensable that TEMA/IOC continue its efforts in organizing regional TEMA-meetings.
However, a new concept should be taken into consideration.
7. This new concept would first include the identification of the so called 'regions' from several points of view; scientific, geographic, political. Before organizing a regional TEMA meeting, it must be ascertained if all countries belonging to the region are interested in such a meeting and its aims. These preliminary questions could best be cleared by the Session Committee meetings at the General Assemblies.
8. Preparatory to the invitations, which should be distributed at least four months in advance, the TEMA officers of IOC should personally contact 'key people' of the involved countries, scientists (National Training Contacts of IOC!) and governmental officers, in order to make sure that
 - the best meeting place will be selected
 - the questionnaires will be filled in time
 - the agenda will be drafted in accordance with the participating member-states
 - the necessary funds for the meeting services will be available
 - funding sources will be found to cover the travel costs for those participants who otherwise could not come.
9. It should be taken into consideration whether it is desirable and efficient to organize a scientific symposium or workshop together with the regional TEMA meeting. This, of course, would cause additional preparations.
10. Great importance should be attached to the discussion of the questionnaires. All requests could be classified as those being implemented on the national level or under regional aspects respectively; it should be clarified with additional international help is required and, succinctly, applications to the IOC-VAP or other funding sources should be prepared.

11. Recommendations are to be connected with proposals for their implementation, foremost, to which institution they address themselves and which estimated amount of money will be needed.
12. The close cooperation with the ICSPRO agencies is of great importance to the above mentioned aspects of funding and assistance; this does not only apply to finances, courses, etc, but also to the help they can provide through their local or regional representatives.
13. If the wish for TEMA/IOC assistance in building up a regional institutionalized structure results from the discussions, support including organizational help should be considered by TEMA/IOC.
14. Last but not least, such a new concept must allow for the periodical repetition of a regional TEMA meeting to evaluate what has been achieved in the meantime.

Number, Place, Date of Meeting	Participating Countries (a) from the Region (b) Outside	Number of Partici- pants	Partici- pating UN-Agencies and other Organizations		Re c o m m e n d a t i o n s TEMA-CARIB-I
				Nr.	
(1) <u>First</u> Regional ad hoc TEMA Meeting for the Caribbean MEXICO CITY 10-12 April 1975	(a)		UNESCO IOC		1) Significance of marine science as a national Effort 2) Strengthening the Institutions of the Region 3) Implementation of Recommendations A) Means of Implementation B) Potential Funding Sources C) Co-ordination of Activities of National Training Contacts and National Co-ordinators of CICAR D) Catalogue of Graduate Education Opportunities E) Unesco Fellowships F) Training Programme Information G) Short Courses in Marine Geology H) Visiting Professors and Researchers I) Marine Science Administrators J) Absentee Thesis Advisor K) Coastal Zone Management L) Recruitment of Marine Science Associates 4) Marine Science Teaching at University Level 5) Training Courses 6) Training of Technicians 7) National Training Contacts (NTCs) 8) Instrumentation, Calibration and Repair Facilities 9) Data-Centers and Digital Information 10) Information Centres, Scientific Literature and other Information 11) Sorting Centres 12) Research Vessels 13) Pollution Monitoring 14) Marine Science Programmes
	Columbia	1		4	
	Costa Rica	2		1	
	Cuba	1		5	
	Dominican Republic	1			
	Jamaica	1			
	Mexico	6			
	Puerto Rico	1			
	Trinidad & Tobago	1			
	Venezuela	1			
		15			
	(b)				
	Canada	1			
	Netherlands	1			
	Spain	1			
	UK	1			
	USA	3			
	USSR	3			
		10			
		25			
		====			

Number, Place, Date of Meeting	Participating Countries (a) from the Region (b) Outside	Number of Partici- pants	Participa- ting UN Agencies and other Organi- zations	R e c o m m e n d a t i o n s	
					TEMA-AFRI-I
(2) <u>Second</u> Regional ad hoc TEMA Meeting Casa- Blanca, Morocco 3-5 June 1975	(a) Marocco Gabon Nigeria Sierra Leone	9 1 1 1 <hr/> 12	UNESCO FAO	2 2 <hr/> 4	1) Development of TEMA Activi- ties in West Africa 2) Regional Operation of Oceano- graphic Research Vessels 3) Strengthening the Institu- tions of the Region 4) International Co-operative Investigation 5) Participation in Oceanogra- phic Cruises 6) Collection, Sorting and Analysis of Biological Sample 7) Training in Fisheries Science 8) Pollution Monitoring 9) Selection of National Trainin Contacts 10) Marine Research Assistants
	(b) USA France Germany, F.R.	1 1 2 <hr/> 4 <hr/> 16 =====			
(3) <u>Third</u> Regional ad hoc TEMA Meeting Manila, Philip- pines 15-19 Sept. 1975	(a) Philippines Indonesia Malaysia Japan	7 1 1 1 <hr/> 10	UNESCO UN FAO CCOP IOC	1 1 1 1 2 <hr/> 6	TEMA-ASIA-I 1) National Priorities and Commitments in Marine Science 2) Strengthening the Universi- ties of the Region 3) Regional Post-graduate Pro- gramme for Marine Sciences in South-East Asia 4) Training of Technicians 5) Marine Science Administrators 6) Coastal Zone Management Training 7) Participation in oceanogra- phic Cruises 8) Training Courses 9) Marine Science Assistants 10) Visiting Professors and Senior Lecturers 11) Introduction of Marine Science in the Secondary School System 12) Use of Video Tapes, Films and other Teaching Aids 13) National Training Contacts 14) Upgrading the Reference Collections in South-East Asia 15) Training Requirements in Marine Pollution in South- East Asia 16) WESTPAC and its Priorities in Research Programmes 17) Regional Participation in Marine Field Studies 18) Marine Science Activities of the Nations
	(b) France Germany, F.R. USA	1 1 1 <hr/> 3 <hr/> 13 =====			
		Observers from Host country 15			

Number, Place, Date of Meeting	Participating Countries (a) from the Region (b) Outside	Number of Partici- pants	Participa- ting UN Agencies and other Organi- zations	Nr.	Recommendations
					TEMA-ARAB-I
(4) Fourth Regional ad hoc Meeting TEMA Cairo, Arab Republic of Egypt 4-8 January 1976	(a) Arab Republic of Egypt Iran Iraq Kuwait Lybia Saudi Arabia Sudan Tunisia P.D.R. Yemen (b) France Germany, F.R. Sweden UK USA USSR	8 7 4 1 1 2 1 2 1 <hr/> 27 1 2 1 1 1 <hr/> 7 <hr/> 34 <hr/> =====	UNESCO ALECSO FAO IOC SCOR	4 3 1 2 (2) <hr/> 10	1) Inventory of Needs and Resources 2) Co-operation in post-graduate training and education within the Region 3) Training in Coastal Zone Management Practices 4) Publication of a Magazine 5) Marine Technicians 6) Visiting Professors and Marine Science Assistants 7) Participation in Oceanographic Cruises 8) National Training Contacts 9) Pollution Monitoring 10) National Marine Programmes 11) Proposal for Strengthening Regional Co-operation 12) Scheduling of the Second Session of the Working Committee for TEMA
(5) Fifth Regional ad hoc TEMA Meeting Montevi- deo, Uruguay 15-19 Nov. 1976	(a) Uruguay Argentina Brazil Ecuador (b) France Germany, F.R. USA	6 7 1 1 <hr/> 15 1 1 2 <hr/> 4 <hr/> 19 <hr/> =====	UNESCO FAO WMO OAS IOC	2 2 1 1 1 <hr/> 7	TEMA-AMSU-I 1) Education and Training of Marine Scientists in the Region 2) Marine Science Administrator 3) Training of Technicians 4) Participation in Oceanographic Cruises 5) Oceanographic Instrumentation 6) Scientific Programmes of the Commission
(6) Sixth Regional ad hoc TEMA Meeting Karachi, Pakistan 11-16 March 1978	(a) Pakistan (b) France USA ----- 9) Establishment of National Institutes of Oceanography 10) Regional Instrumentation Centre 11) Marine Science Libraries 12) Reference Centres for Marine Organisms	14 1 1 <hr/> 16 <hr/> =====	UNESCO IOC	1 1 <hr/> 2	TEMA-NINDI-I 1) Development of TEMA Activities in the North Indian Ocean Region 2) Collaboration in Marine Research among the Countries of the North Indian Ocean and Adjacent Areas 3) Assistance in Training Marine Scientists and Technicians 4) Marine Science Teaching 5) Regional Training Centre 6) Voluntary Assistance Programme (IOC-VAP) 7) Open University Course in Marine Science 8) Participation in International Programs