

# Intergovernmental Oceanographic Commission

## Workshop Report No. 128



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OFFICE NATIONAL DE L'ENVIRONNEMENT

# IOC-World Bank-Sida/SAREC-ONE Workshop on Integrated Coastal Areas Management

Nosy Be, Madagascar  
14-18 October 1996

**UNESCO**

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## 1. OPENING

### 1.1 WELCOMING OF PARTICIPANTS

The IOC-World Bank-Sida/SAREC-ONE workshop on the Integrated Coastal Areas Management (ICAM) took place at the Villa Blanche Hotel in Nosy Be, Madagascar. In his opening address, ONE's Director General, Mr. Andriamampianina, opened the workshop and welcomed the participants. He pointed out that the overall degradation of the environment and the involvement of the Government of Madagascar in sustainable development are the rationale of the Workshop. He informed the participants that they have been selected as being the most able to achieve the Workshop's objectives: assessment of the impacts of human activities on coastal areas, development of solutions, and formulation of recommendations. He congratulated the Minister of the Environment for his recent nomination, the sponsors and the participants for having accepted the invitation, and the Nosy Be authorities. The address appears in Annex II-A.

The Representative of the Intergovernmental Oceanographic Commission (IOC), Mr. Barbière, thanked the Government of Madagascar and the local authorities for having made this Workshop possible. He informed the participants that the representative of Sida/SAREC could not attend the Workshop because of his obligations as the co-organizer of the Second Policy Conference on ICAM, scheduled in the Seychelles from October 23-26, 1996. Consequently on this occasion, the IOC members will represent Sida/SAREC. He referred to the ICAM approach as being the key tool identified for implementing the CNUED, the Convention on Biological Diversity, and the Convention on Climatic Changes. Madagascar signed the Arusha Declaration on ICAM (1993), thus demonstrating its political involvement. This Workshop is considered as a full part of the technical assistance provided by IOC to those countries wishing to develop an ICAM plan. It is also one of the co-operative activities between IOC, the World Bank, and Sida/SAREC. On behalf of Mr. Kullenberg, Executive Secretary IOC, and on behalf of Sida/SAREC, he wished the participants a successful meeting. The address appears in Annex II-B.

The World Bank's Representative, Mrs. Hatzios, informed the participants that this Workshop is the fourth one organized on this topic at national level within the region with the Bank's support. She thanked the Malagasy authorities for their interest in the Workshop. The interest of the ICAM approach is quite obvious, and the EP-II programme is one of the steps, at national level, towards the formulation of an ICAM plan, which should include community participation, as well as economic development components. The address appears in Annex II-C.

The Mayor of Nosy Be, Mr. Jaovita, stated the tremendous importance of this Workshop for the island of Nosy Be as regards to the necessity of implementing protective, preventive and mitigative actions against environmental degradation.

The Minister of the Environment, Mr. Ratsimbazafy, referred to the ICAM as one of the most important issues for both environmentalists and politicians. The fact that 70 percent of the world population live near the coast causes a series of risks with which Madagascar, with its 5000 km of coast, is also concerned. Among those risks, to name but a few, there are pollution, overfishing, erosion, the risks associated with aquaculture, and over-exploitation of mangroves. It is crucial to understand and be aware of the problems affecting the coastal areas, with a view at formulating recommendations, and to bear in mind that not only are local communities the true actors, but that no result will be possible without their participation. The Minister stated that his Department will follow on the ICAM issue with a keen interest, *vis-à-vis* the development of a national ICAM policy and the regional coordination. He declared the Workshop officially open. His address appears in Annex II-D.

## **2. ADMINISTRATIVE ARRANGEMENTS**

### **2.1 ADOPTION OF THE AGENDA**

Mr. Rakotoary, from ONE, submitted the agenda to the participants. The Workshop adopted it without any modification. The Agenda appears in Annex I.

### **2.2 ELECTION OF THE CHAIRMAN AND DESIGNATION OF ONE RAPPORTEUR**

The Workshop proposed Mr. Andriamampianina, ONE's Director General, as the Workshop Chairman. Two rapporteurs were proposed: Mr. Maharavo, CNRO Director, and Mr. Galet-Lalande, EDF Regional Environmental Project/Indian Ocean Commission.

The participants elected Mr. Andriamampianina, Mr. Maharavo and Mr. Galet-Lalande as Chairman and Rapporteurs of the Workshop, respectively.

### **2.3 DOCUMENTATION**

Mr. Aricò, from IOC, presented to the participants the documentation available. He informed the participants that the integral texts will be presented as a Supplement to this report.

### **2.4 ORGANIZATION**

It was proposed to the participants that one and a half days would be devoted to formal presentations and related discussions. In the afternoon of the second day and on the morning of the fourth day, the participants, divided into working groups, were requested to develop the sections identified under item 6 of the agenda, meant to formulate concrete recommendations (particularly, from an institutional point of view) towards the management of Madagascar's coastal area, and to identify the required actions. For each working group, one leader and one rapporteur were elected. In the afternoon of the fourth day, the rapporteurs from each group were requested to present a summary of the preliminary conclusions and recommendations which have been formulated. The third day was devoted to a field tour. The fifth and last day was devoted to the assessment and incorporation of the various reports and recommendations of the working groups, which led the meeting to a final discussion -- item 8 of the agenda -- and to the recommendations which could stem from that, as well as their adoption by the Workshop.

## **3. THEORETICAL AND CONCEPTUAL ASPECTS**

### **3.1 PRESENTATION OF THE CONCEPT OF INTEGRATED COASTAL AREA MANAGEMENT, INCLUDING GUIDELINES, PROCEDURES AND METHODOLOGIES**

Mr. Aricò informed the participants that, for personal reasons, it has been impossible for Professor Knecht and Professor Cicin-Sain, Center for the Study of Marine Policy, University of Delaware, United States, to participate in the Workshop.

He presented the conceptual aspects and the factors to be considered in establishing an ICAM programme.

A discussion followed on the following items:

- (i) an additional definition of ICAM given by the World Bank representative as follows: "ICAM's role is to improve the quality of the life of the populations who depend on coastal resources while maintaining the biological diversity and the productivity of coastal ecosystems";

- (ii) the necessity of comparing Madagascar's experience in the area of ICAM with other countries of the region, which will also be addressed under the presentations by the participants from Kenya, Seychelles, and Tanzania;
- (iii) the funding of ICAM programmes by internal and external financial sources for the launching and implementation of the successive phases of the programmes, as well as their self-financing;
- (iv) the difficulty for donors to assess the national programmes components which pertain to ICAM and the institutional arrangements, and the more so since such arrangements vary from one country to the next, depending on current circumstances;
- (v) the fact that assistance from international organizations and bilateral agencies is not only a financial one since it brings also technical assistance, competency and training components;
- (vi) the difference between loans and donations for the development of ICAM programmes;
- (vii) the application of the basic principles of the ICAM approach, and, more particularly, that of polluter-payee, has no legal framework. It is more difficult for Madagascar to apply the polluter-payee principle, in particular on small polluters, because of the difficulties in identifying them.

### 3.2 PRESENTATION OF SELECTED ICAM CASE STUDIES

Three case studies were presented, successively by Mr. Yobe (KMFRI, Kenya), Mr. Makoloweka (Tangacoast, Tanzania), and Mr. Payet (Ministry of Industry, Seychelles).

The following ideas emerged from the ensuing discussion:

#### **For Kenya:**

- (i) The entrance fees to marine parks are used for their development, for the socio-economic reinforcement of the adjacent areas, and for the benefit of local communities;
- (ii) The activities in the ICAM area in Kenya are still at the planning level and the associated strategies have yet to be set in place, which makes it difficult for the ones in charge of ICAM to evaluate its overall outcome;
- (iii) As for the question: How were traditional customs/habits considered in the process? Mr. Yobe stated that current cultural differences are insignificant. Various cultures have been coexisting for a long time, and Kiswahili is the language which developed as the official language for the last 30 years.

#### **For Tanzania:**

- (i) The presentation emphasized the importance of community participation in ICAM programme activities in the Tanga region, "Tangacoast", particularly in the restoration of mangroves;
- (ii) The presentation also mentioned the reflection on the impact of such a programme on the political community as regards to ICAM development, given that, in the case of "Tangacoast", the initiative came from the region itself, and that Tanzania has a decentralized administration;
- (iii) The lack of information at regional and local levels, despite the awareness at national political level *vis-à-vis* ICAM (Arusha declaration).

**For Seychelles:**

- (i) The presentation explained the application of the carrying capacity concept within the context of eco-tourism development;
- (ii) The presentation also explained the methods to maintain under control the number of tourists who frequent the site in question, and the experience of Seychelles on this point through the limitation of the number of beds available in hotels, and by the large publication of tourism-related statistics developed by the relevant authorities;
- (iii) Lastly, the presentation described the evolution in the tourism policy from mass tourism to a more selective tourism, also including eco-tourism components (information, education, valorization).

**4. EXISTING AND UNDER DEVELOPMENT NATIONAL PROGRAMMES AND ACTIVITIES RELEVANT TO ICAM, AND RELATED INSTITUTIONAL MECHANISMS**

**4.1 PRESENTATION OF THE STATUS OF THE COASTAL ENVIRONMENT IN MADAGASCAR**

Mrs. Ranaivoson, CNRE, made two presentations: the first one was on the status of the coastal environment in Madagascar, and the second one on mangroves in Madagascar. She was followed by Professor Rabesandratana, IRSM, and Mr. Maharavo, CNRO, who presented the locations of coral reefs in Madagascar, their status, their use, and the threats on them.

An overall discussion followed the above presentations, which pointed out the following items:

- (i) The legal instruments are not thoroughly adapted as regards live marine resources, and the lack of control mechanism for the enforcement of such laws;
- (ii) The identification of "sensible areas", including those where activities take place far from the coastline but have a direct impact on coastal and marine ecosystems (e.g. deforestation). In this regard, the study by ONE of the identification of sensible areas, under the environmental impact reviews, was mentioned.

**4.2 MADAGASCAR'S ENVIRONMENTAL ACTION PLAN (EAP) AND THE MARINE AND COASTAL COMPONENT OF ITS ENVIRONMENTAL PROGRAMME - PHASE II**

Mrs. Gabri e and Mr. Randriamiarana presented the "Marine and Coastal Component" of Madagascar's Environmental Action Plan (EAP) - Phase II.

Then, the Chairman of the Workshop and Mr. Rakotoary, ONE, presented the roles of the institutions set in place and those scheduled under the implementation of the EAP.

The ensuing discussing emphasized the following points:

- (i) It is necessary to associate economic development with the conservation requirement to cover inherent costs through the development of self-sufficient programmes;
- (ii) It is possible to use the marine and coastal component of EP-II to develop ICAM in Madagascar;
- (iii) Partnership among the national research institutions, ONE and executing agencies is necessary; it is also necessary to give an executing role to research institutions.

#### 4.3 THE MALAGASY COMPONENT OF THE REGIONAL ENVIRONMENTAL PROGRAMME (REP) OF EDF/INDIAN OCEAN COMMISSION: CURRENT STATUS

Mr. Refeno, National Coordinator for the Regional Environmental Programme of EDF/Indian Ocean Commission, and Mr. Galet-Lalande, Technical Advisor, presented the programme and the progress of the Malagasy component of REP. They emphasized the regional nature of the programme and its role as a support to environmental projects.

#### 4.4 THE WORLD BANK'S ACTIONS IN FAVOR OF ICAM

The World Bank's representative, Mrs. Hatzios, presented the World Bank's actions in favor of ICAM, and more particularly the cases of the Western Indian Ocean. The following points were discussed:

- (i) It is necessary, under ICAM programmes, to incorporate problems related to climatic changes and their impact on coastal areas into international programmes such as the World Environmental Fund (WEF); the existence of operational programmes such as the Global Observation System of Sea Level (GLOSS) was also mentioned;
- (ii) It is important to include the technological aspects as the driving force of the tri-dimensional model: economic, social, and ecological aspects;
- (iii) It is important to have concerted actions among the various donors participating in the programmes (e.g. the World Bank - FEM - UNDP - WWF in the case of EP-II's marine component).

### 5. ACTIVITIES, INTERESTS AND CONSTRAINTS AMONG THE VARIOUS ECONOMIC SECTORS AND THE ROLE OF ENVIRONMENTAL RESEARCH. ASSOCIATED INSTITUTIONAL MECHANISMS

Six working groups were set up with the following topics:

Fishery and Aquaculture  
 Land Use and Space Management  
 Tourism (including Eco-tourism)  
 Industrial pollution and impacts, port zones, and maritime transport  
 Status and Priorities in Environmental Research in Madagascar  
 Protected Areas and Conservation

For each working group a chairman and a rapporteur were elected. The terms of reference of these working groups are presented in Annex III-A. The composition and proceedings of the various working groups are listed in Annex III-B.

The rapporteur of each working group presented the proceedings and recommendations developed by the group. These appear in the Annex III-C of the report. A discussion followed the work group sessions:

#### 5.1 FISHERY AND AQUACULTURE

Presentations on the following topics were made: the status of fishery and aquaculture in Madagascar (Mr. Randriamiarana, DRH); the problems relating to the enforcement of the legislation on fishery (Mr. Tselany, DRH/Tulear); one example of integrated community management of traditional fishery (Mr. Dasylyva, UNDP/FAO).

The questions and discussions emphasized the following points:

- (i) the necessity of looking for a link with other sectors and, for that purpose, looking for a better integration of fishery activities with other activity sectors, so as to evolve towards a situation other than that which reduces the intersectorial link of fishery to conflicts;
- (ii) the need to better know the impacts of fishery, as an upstream activity, on other sectors, such as trade, industry, or as a resource consumer (forest products for traditional tools and crafts).

## 5.2 LAND USE AND SPACE MANAGEMENT

The debate which took place in this commission centered on the need to design management plans for the coastal areas and to develop a GIS on the coastal area by associating the projects which have such an objective, and by referring to available experiences (Masoala protected area).

## 5.3 TOURISM (INCLUDING ECO-TOURISM)

Presentations on this topic were also made: Tourism in general (Mr. Galet-Lalande, EDF/Indian Ocean Commission Programme); Whaling Tourism in Madagascar (Mr. Vély); Eco-tourism in Masoala (Mr. Bodard, CARE International).

## 5.4 INDUSTRIAL POLLUTION AND IMPACTS, PORT ZONES, AND MARITIME TRANSPORT

The following presentations on this topic were made: Maritime Transport (Mrs. Rajaonson, Ministry of Transport and Meteorology); Ecologically Sustainable Industrial Development Project (Mrs. Ratovoarivelo, Ministry of Industry and Cottage Industry).

During the discussion the following points were developed:

- (i) the priority to be given the ratification and enforcement of the Nairobi Convention relating to interventions on the risks of pollution and navigation, and of the MARPOL Convention relating to the normal use of ships of any tonnage;
- (ii) the impossibility for Madagascar to take into consideration the MARPOL Convention in its entirety because its ratification raises the problem of means, and the possibility to take its specific recommendations as a basis for the local enforcement of some of them, depending on the country's capacity;
- (iii) information on the existence of means to monitor ships' routes (satellite monitoring, etc.), and on the existence of navigational information management to follow up the status of the fleet which frequent Madagascar waters;
- (iv) the interest of a regional co-operation on pesticides, toxic products, and navigation to address the risks of pollution.

## 5.5 ENVIRONMENTAL RESEARCH IN MADAGASCAR: STATUS AND PRIORITIES

A presentation on the status of environmental research in Madagascar was made by Mrs. Rakotovoao, CNRE.

During the discussion the following points were further elaborated:

- (i) the necessity for research to take into consideration the existing problems and to refocus on development problems;

- (ii) the important role of research in public-awareness and education;
- (iii) the need for an inventory of national expertise in ICAM and the involvement of national human resources in the implementation of the ICAM process;
- (iv) the necessity of exploiting research findings through a marketing approach for the purpose of participating in the sustainability of its funding;
- (v) the existence of a research budget under EP-II to address certain needs;
- (vi) the need to start a research process in the ICAM area through the installation of a station on a location which is likely to attract scientists and funding;
- (vii) the possibility of creating, as in Costa Rica, research and training centers in certain areas which feature scientific interests, which could attract researchers as well as funding.

## 5.6 PROTECTED AREAS AND CONSERVATION

Presentations on the following topics were made: ANGAP's Strategy in the Area of Conservation and Eco-tourism in Protected Areas (Mrs. Faramalala, ANGAP); Conservation Activities in Masoala (Mr. Bodard, CARE International); WWF Actions Within the Context of Marine Conservation (Mr. Vély, WWF); The Concept of Biosphere Reserve Through the Example of the Biosphere Reserve of Mananara (Mrs. Raondry, UNESCO).

A discussion ensued, which raised the following questions:

- (i) Madagascar's lack of experience in marine conservation, an experience reduced to the participation of a very limited number of actors;
- (ii) the lack of a national concept on marine protected areas, and, consequently, the necessity of defining the status of protected areas as a tool to achieve the country's objectives, which can be, for instance, a better knowledge of the stocks, biodiversity protection, maintenance of cultural integrity, protection of an ecosystem against pressures, tourism upgrading;
- (iii) the possibility of establishing private protected areas, if tenure status is favorable or through government lease;
- (iv) the risks of fiscal privileges for tourism operators, which could translate into an increased pressure on conservation areas and would contradict the fact that conservation is a source of income for such operators;
- (v) on the other hand, it is necessary to study the possibility of making financial levying on the direct users of the resources and allocating such levying to conservation;
- (vi) the necessity to consider the donors as partners in the conservation process.

## 6. DECENTRALIZATION

Mr. Rajaohnson, Ministry of Interior, made a presentation on the decentralization process in Madagascar. A discussion ensued:

- (i) To the question relating to administrative delimitation and the lack of clear territorial criteria, Mr. Rajaohnson answered that the delimitation of the Decentralized Territorial Communities (CTD) depends

on the common interest of all inhabitants of the same community; it is up to them to choose their uniting CTD according to overall and cultural interests. There are no natural boundaries. Regarding marine delimitation, the maritime territory is inalienable and is the Government's property. Its responsibility falls under the government and not under the CTD. Industrial fishery does not fall under local business; authorizations are issued by Government authorities. One of the exceptional cases is the Nosy Be municipal community which enjoys a particular status. the Mayor manages the whole island (the municipal area coincides with the department area). In this case, a town planning for the whole island is necessary. This demonstrates the CTD's responsibility on the boundaries of its territory;

- (ii) There was another question, relating to ICAM: can there be inter- regional or inter-municipal regulations? Who is the Government representative who has authority in such cases? The answer was that CTD representatives may take initiatives to create inter-municipal or inter- regional entities and have the responsibility of managing them. Government representatives do not intervene in such a process.

As for the question pertaining to the status of "Fokontany", it was specified that such basic communities and the administrative entity immediately above them, headed by a district administrative delegate, are not CTDs. Only the city of Antananarivo has a district delegate with a strong delegation (of authority). The district administrative delegate is not a Government representative, but an assistant of the sub-prefect (department) and the prefect (Region).

- (iii) To the question relating to the CTD's executive power, the answer was that the CTDs have the authority to issue regulatory texts, however, these must be submitted to Government representatives for control of their legality; the Government representative must advise the CTD in an appropriate manner. The Administrative Court rules in case of litigation.

## **7. CAPACITY BUILDING: IDENTIFICATION OF GAPS IN THE AREA OF EXPERTISE AND SCIENTIFIC AND TECHNICAL KNOWLEDGE**

### **7.1 THE IOC-SIDA/SAREC PROGRAMME IN MARINE SCIENCE IN EASTERN AFRICA**

Mr. Barbière, IOC, presented the IOC-SAREC Programme in Marine Science for eastern Africa. He emphasized that scientific knowledge is a *sine qua non* condition to address the problems affecting marine and coastal environments.

The following points of discussion were raised:

- (i) The communications problems affecting the participation of national scientists on the occasion of training organized by IOC-SAREC and other organizations, as well as the access to available scholarships;
- (ii) The IOC-SAREC approach reflects the recommendations developed by the Commission on research;
- (iii) The importance of the role of science and the importance of WIOMSA to reinforce and promote this role;
- (iv) The problems of maintenance for the equipment necessary for research, and the question of the approval by the IOC-SAREC approach to the inclusion in the proposed projects to be submitted to donors of a 'maintenance' component, which should exceed the concerned project/programme duration;
- (v) The proposal made by IOC-SAREC to both address directly scientists and go through the Malagasy National Commission for UNESCO would facilitate the transfer of information and reduce delays;
- (vi) The possibility of using the EIS (Environmental Information System) network established under EP-I for scientific institutions;

- (vii) The possibility of creating an IOC-SAREC or WIOMSA local chapter to allow a better flow of information among national scientists. This chapter could be based in one institution already operational and having an adequate communications network; this would allow a more active exchange among researchers in Madagascar and in neighboring countries;
- (viii) Mrs. Rakotoariseheno availed herself of this opportunity to inform the participants that, during an informal meeting, the research institutions represented at the Workshop decided to set up a coordination office whose purpose is to formulate an inventory of human resources and competencies available in the area of marine science, which will group all associations already existing.

The Workshop acclaimed the setting up of this association, which is of great importance for the integration of the role of science in ICAM activities already existing or to be developed.

## **8. IDENTIFICATION OF THE INSTITUTIONAL MECHANISMS FOR THE COORDINATION AND IMPLEMENTATION OF ICAM- RELATED ACTIVITIES; FORMULATION OF RECOMMENDATIONS**

Mrs. Hatziolos, World Bank, presented the preliminary comparative proceedings of the various Commissions. A Table of results showing the sectorial recommendations is presented in Annex III-C.

The proceedings of each Commission enabled us to develop an in-depth vision of the situation. Now, the challenge is to transfer to the inter-sectorial level the recommendations formulated for each sector.

The inter-sectorial approach was not fully perceived by the commissions, and there are gaps at the institutional level.

However, this exercise enabled the participants to bring to the fore the points which are common to various sectors: need of coordination among institutions, training, GELOSE, regulations enforcement, necessity of developing tools for self-funding.

There was then the formulation of specific recommendations to the two environmental programmes which provide a framework for ICAM, the EP-II and the EDF/Indian Ocean Commission Programme. In this respect, the Workshop checked if the ICAM evaluation principles and criteria have truly been applied to these programmes. The outline emerging from the analysis of the proceedings of the commissions is proposed for future recommendations:

- Institutional aspects
- Capacity building, including the role of science
- Participation of the private sector
- Formalization of the institutional, competencies, and human capacity network represented at the Workshop.

Mr. Rakotoary, ONE, explained that, during the last two days, tracks and orientations were explored, and now is the time for the participants to ask themselves the following question: "to which extent do the existing programmes answer the ICAM approach?"

He emphasized that the matrix of recommendation indicates the main orientations to be followed in developing the final recommendations, which, given the nature of the Workshop, should be oriented towards institutional aspects in particular.

A discussion followed, ending up with the formulation of the final recommendations:

**The orientations:**

**Orientation 1:** Respect for the ICAM principles in their institutional aspects

**RECOMMENDATION No. 1**

The Workshop recommends the adoption of the EAP's institutional mechanism, submitted by ONE to the Workshop, for the implementation of ICAM. The institutional mechanism at the national level provides for a specialized commission linked with the National Council for the Environment (CNE), made up of representatives of the stakeholders whose role is to enhance dialogue and participation; an Inter-Ministerial Committee for the Environment (CIME), responsible for the coordination and integration of policies, an executive committee, linked with COS, whose role is to coordinate implementing operations. These entities will be supported by the technical competencies and groups necessary to achieve the mission. This mechanism, meant to facilitate the launching of ICAM programmes, is transitional and subject to revisions according to the ICAM policy which will be formulated during the implementation of EP-II.

**Orientation 2:** Integration of research institutions and technical expertise into the programmes

**RECOMMENDATION No. 2**

The Workshop takes note with satisfaction of the decision of the Research representatives to set up a Coordination Office for the research institutes and the technical expertise existing in Madagascar for the purpose of federating competencies, coordinating their efforts and pooling their resources. The Coordination Office will develop efforts in the area of research by bringing to the fore the national capacities, the formulation of proposals for decision-makers, the implementation of public-awareness and communications programme, the improvement in the coordination and methods of all organizations active in research.

The Workshop recommends that the Coordination Office be a focus point in the ICAM programmes.

**Orientation 3:** Consider and develop the role of the private sector

**RECOMMENDATION No. 3**

The Workshop recommends the participation of the private sector in the development of the norms and standards for investment, as well as the regulations relating to ICAM, and this, through the institutional mechanisms proposed for ICAM in Madagascar. This participation of the private sector must also be considered in ICAM's funding mechanisms to be set in place.

**Orientation 4:** Formation of a network of interests

**RECOMMENDATION No. 4**

The Workshop recommends that the institutions represented at the Workshop start up the constitution of a network inherent in the setting up of ICAM. The participants in this Workshop will be the focus points of the ICAM network, by expanding it to the participation of some institutions which are not represented in this Workshop, as well as professional groups.

The network will be facilitated by the Ministry in charge of the Environment.

**Other proposed recommendations**

**RECOMMENDATION No. 5**

The Workshop recommends that Madagascar be in a position to benefit, through the constituted ICAM network, from the coordinated support towards building its capacity in the area of ICAM. This network will be connected with the Intergovernmental Oceanographic Commission (IOC).

**RECOMMENDATION No. 6**

The Workshop recommends the reinforcement of the support at all levels and in all areas of the ICAM process within the region be taken into consideration by the IOCINCWIO sub-commission as one of the priorities of their workplan for the 1997-1999 period.

**RECOMMENDATION No. 7**

The Workshop recommends that the sustainability factors for the ICAM process be guaranteed in Madagascar.

**RECOMMENDATION No. 8**

The Workshop recommends that an internal communications system between the various ICAM actors be set in place, on the basis of the national and regional EIS developed under the EAP, by reinforcing its objectives aimed at regions. Funding for EP-II will be sought accordingly.

**9. ADOPTION OF THE REPORT**

Mr. Aricò, IOC, submitted the report for adoption.

The report has been adopted by the Workshop.

**10. CLOSING OF THE WORKSHOP**

Mr. Aricò thanked the participants for their active and enthusiastic contribution to the smooth running of the Workshop and for the formulation of concrete recommendations in the area of ICAM. He invited all the institutions represented to make use of these recommendations as a reference for current and future activities in the areas of marine and coastal environment and ICAM.

He thanked the secretariat, the interpreters and the whole administrative support staff for their excellent assistance.

ANNEX I

**AGENDA**

**1. OPENING**

1.1 WELCOMING THE PARTICIPANTS

**2. ADMINISTRATIVE ARRANGEMENTS**

2.1 ADOPTION OF THE AGENDA

2.2 ELECTION OF THE CHAIRMAN AND DESIGNATION OF ONE RAPPORTEUR

2.3 DOCUMENTATION

2.4 ORGANIZATION

**3. THEORETICAL AND CONCEPTUAL ASPECTS**

3.1 PRESENTATION OF THE ICAM CONCEPT, INCLUDING GUIDELINES, PROCEDURES AND THE METHODOLOGIES BEING IMPLEMENTED

3.2 PRESENTATION OF CASE STUDIES IN RELATION WITH ICAM

**4. NATIONAL PROGRAMMES AND ACTIVITIES RELATED TO ICAM, BOTH NASCENT OR EXISTING, AND ASSOCIATED INSTITUTIONAL MECHANISMS**

4.1 PRESENTATION THE STATUS OF THE COASTAL ENVIRONMENT IN MADAGASCAR

4.2 MADAGASCAR'S ENVIRONMENTAL ACTION PLAN (EAP) AND THE MARINE AND COASTAL COMPONENT OF ITS ENVIRONMENTAL PROGRAMME- PHASE II

4.3 THE MALAGASY COMPONENT OF THE REGIONAL ENVIRONMENTAL PROGRAMME (REP) OF EDF/INDIAN OCEAN COMMISSION: CURRENT STATUS

4.4 THE WORLD BANK'S ACTIONS IN FAVOR OF ICAM

**5. ACTIVITIES, INTERESTS AND CONSTRAINTS AMONG THE VARIOUS ECONOMIC SECTORS AND THE ROLE OF ENVIRONMENTAL RESEARCH. ASSOCIATED INSTITUTIONAL MECHANISMS**

5.1 FISHERY AND AQUACULTURE

5.2 LAND USE AND SPACE MANAGEMENT

5.3 TOURISM (INCLUDING ECO-TOURISM)

5.4 INDUSTRIAL POLLUTION AND IMPACTS, PORT ZONES, AND MARITIME TRANSPORT

5.5 ENVIRONMENTAL RESEARCH IN MADAGASCAR: STATUS AND PRIORITIES

5.6 PROTECTED AREAS AND CONSERVATION

**6. DECENTRALIZATION**

**7. CAPACITY BUILDING: IDENTIFICATION OF GAPS IN THE AREA OF EXPERTISE AND SCIENTIFIC AND TECHNICAL KNOWLEDGE**

**8. IDENTIFICATION OF THE INSTITUTIONAL MECHANISMS FOR THE COORDINATION AND IMPLEMENTATION OF ICAM-RELATED ACTIVITIES; FORMULATION OF RECOMMENDATIONS**

**9. ADOPTION OF THE REPORT**

**10. CLOSING OF THE WORKSHOP**

ANNEX II

**SPEECHES**

**A. THE DIRECTOR GENERAL OF THE NATIONAL OFFICE  
FOR THE ENVIRONMENT (ONE)**

Mr. Minister for the Environment  
Mr. Mayor of the Urban Municipality of the City of Nosy Be  
Ladies and Gentlemen, Representatives of various International Institutions and Organizations  
Ladies and Gentlemen, Directors General and Directors  
Honorable Guests  
Ladies and Gentlemen

I am happy to have this opportunity to express our joy in seeing this workshop on the Integrated Coastal Areas Management translated into concrete action, jointly organized by the Intergovernmental Oceanographic Commission, the World Bank, the Sida/SAREC or Swedish Agency for Research Co-operation with developing countries, supported by the National Office for the Environment.

This Workshop is warranted for several reasons. First, it is warranted by the emergence, at the end of this century, of an awareness at international level for the seriousness of degradation in coastal areas, both in rich countries and in developing countries.

Secondly, it is warranted by the determination of the Government of Madagascar to manage from now on the marine and coastal environment in a sustainable manner, and this, through the introduction of a related component in the second phase of its Environmental Action Plan.

Lastly, it justifies the necessity of an exchange of experience among countries on the management policy for marine and coastal resources. Indeed, knowing what the others are doing can be a useful incentive for planning.

Since this workshop was decided, one can state that it created a considerable stir if one refers to the number of organizations and institutions which requested to be represented; however, given the numerous problems of organization and logistics, the organizers had to limit the number of the participants, and, if you are present here today, it is because you have been deemed the most capable of bringing the best contributions, so that our workshop may reach the objectives assigned to it, especially those which, to me, are the most important, namely:

- (i) identify the impacts of human activities on coastal areas, as well as of the policies and mechanisms which can mitigate such impacts,
- (ii) review all problems and constraints linked with these zones and look for solutions to address such problems,
- (iii) formulate recommendations for concrete section plans.

We are indeed delighted to see in this room internationally renown leaders/experts, personalities of high level from both the public and the private sectors of the country, all outstanding either for their knowledge of the socio-cultural context in the exploitation of coastal areas, or for their knowledge of integrated technical solutions for a rational management of such zones.

I am confident that, through the presentations which will be made and the group work which will be organized, results of the highest importance will come from our workshop.

To conclude, allow me to express my heartfelt thanks to the Minister of the Environment, who accepted to sponsor the opening ceremony of this workshop.

Mr. Minister, the fact that, the first workshop you attend since your nomination in the Government is ours, is a great honor for us and we are really grateful for that.

I also wish to express my thanks to the donors of this workshop: the Intergovernmental Oceanographic Commission of UNESCO, the World Bank, and Sida/SAREC.

My thanks also go to both national and foreign experts and to all participants who responded favorably to our invitation.

It is far from me to forget mentioning the administrative authorities of Nosy Be to whom I express our deep gratitude for their warm welcome and hospitality.

My last words are to wish you a nice stay in Nosy Be and an excellent work.

Thank you for listening.

## **B. THE REPRESENTATIVE OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION OF UNESCO**

Honorable Minister of the Environment,  
Distinguished Guests and Colleagues,  
Ladies and Gentlemen,

On this auspicious occasion of the opening of the workshop on the Integrated Coastal Areas Management, I would like first of all to thank, on behalf of the Executive Secretary of the Intergovernmental Oceanographic Commission (IOC), the Government of Madagascar for hosting this important meeting in such amazing scenery. I take advantage of this opportunity to inform you that for reasons pertaining to the organization of the Second Political Conference on ICAM due in Seychelles from October 23 to 26 1996, the Swedish International Development Agency and its Research Department (Sida / SAREC) cannot be present at this workshop. Consequently, Sida / SAREC will be represented by IOC on this occasion. I would also like to express my gratitude towards the Honorable Minister of Environment, who today has made us the honor of his gracious presence, thus showing his interest in this workshop. Last, I would like to thank Mr. Jean-Chrysostome RAKOTOARY, Director of Programmes and Operations at the National Office for Environment for having organized this event.

The workshop, which gathers us here around the theme of Integrated Coastal Areas Management, starts from a statement of realities: the littoral zones, narrow geographical territories with varied and very fragile ecosystems, economically coveted, need a policy of overall management adapted to their specificities.

The relevance also lies in that it is in keeping with the follow-up of the United Nations Conference on Environment and Development (UNCED), and in the implementation of the Convention on Biological Diversity, and the Framework Convention on Climatic Changes. Indeed, the utilization of an Integrated Coastal Areas Management has been identified as the most appropriate process to address the problems of natural resources utilization and of current and long-term management. At the regional level, the Government of Madagascar has already shown its commitment by signing in 1993 the Arusha Declaration, born from the Policy Conference on Integrated Coastal Areas Management. The follow-up of this conference in the next days in Seychelles is an evidence to this new political willingness.

The Intergovernmental Oceanographic Commission has as its central objective the promotion of the scientific marine research and the related oceanographic services for a better understanding of nature and of the oceans resources through the concerted actions of its members. It is in the framework of its co-operative programme with the Sida/SAREC in the field of marine sciences in East Africa and of this joint effort of co-operation between IOC and the World Bank that the Workshop takes place.

Last, I would like to greet the presence, at this workshop, of the eminent figures of the scientific world representing a multitude of economic sectors and activities, and wish them a successful work at the Workshop on the Integrated Coastal Areas Management held in Madagascar.

On behalf of the IOC Executive Secretary, Dr. Kullenberg, I am keen on wishing a smooth running of the workshop and a fruitful work to all the participants.

Thank you for your attention.

### **C. THE REPRESENTATIVE OF THE WORLD BANK**

Mr. Minister of the Environment,  
Mr. Mayor of the Urban Municipality of Nosy Be,  
Ladies and Gentlemen, Representatives of the International Organizations,  
Dear Colleagues,

I am very glad to be here among you for the opening of this workshop, so important and so expected in Madagascar. This is the fourth workshop on Integrated Coastal Areas Management at the national level that the World Bank has supported in the field of regional activities. This workshop has been jointly organized with well-known partners like Sida/SAREC and the Intergovernmental Oceanographic Commission (IOC).

This process reflects the fact that the World Bank and some countries in the region are progressively recognizing the importance of the Integrated Coastal Areas Management as the basis of a sustainable development.

I wish that the workshop will allow us to carry on a dialogue which has started to take place among the sectors of the coastal area, and be the opportunity to formalize the links which are called to strengthen every day a little more and, I hope, to last.

Through the EP2 project (Environmental Programme 2) the World Bank will continue to bring its support to this form of management of the coastal and marine resources because it is convinced of the fundamental link between good management and the prosperous well-being of the local communities, which depends on these marine resources, and the economic development of the Nation.

### **D. THE MINISTER OF THE ENVIRONMENT OF MADAGASCAR**

Ladies and Gentlemen, Representatives of the various International Organizations,  
Honorable Guests,  
Ladies and Gentlemen,

It is for me a real pleasure and a great honor to be among you today to proceed to the opening of this workshop on the Integrated Coastal Areas Management.

It is a pleasure because this workshop is the first one in the field of environment that I am attending since my nomination as the Minister of the Environment.

It is equally an honor, as I have in front of me an audience made up of representatives of different countries and of international and foreign organizations, of administration representatives and of Malagasy institutions, and of administrative and political figures from this charming and so famous island of Nosy-Be.

Please - you all present here, coming from remote countries or different regions of Madagascar - do accept the welcome greetings I express to you.

Your work relates to the Integrated Coastal Areas Management. This issue has been one of the major concerns of environmentalists of the whole world for the last few years. As a matter of fact, according to studies made, 60% of the population of our planet nowadays occupy the coastal fringes on a width of 60 km; and if no management or protection of the natural resources of these environments are undertaken, unavoidable degradations will prevail in the near future. Madagascar, with its 5000 kms of coasts, does not escape from these threats, especially in the densely populated parts where serious problems have arisen for the last few years. Equally in the 1960s, humanity started to understand that our "home", the Earth, is a small spatial vessel in which are seated millions and millions of people. I think we then understood that, for better or for worse, we lived in interdependence.

Our scope of analysis will thus have to be extended and should not restrict itself only to particular geographical zones.

Without anticipating on the programme of this workshop, I think that we must examine some important factors which have to be taken into account in the Integrated Coastal Areas Management. I wish to speak about the chemical and biological pollution due to the absence of treatment of urban and industrial waste, of the localized increase in the fishery pressure, of the excess of land sedimentation resulting from erosion phenomena in the bared watersheds, of the risks of disorderly development of aquaculture, of the overexploitation of wood resources of mangroves, etc.

It seems to me that up to now the mitigation of these factors has not yet been subject to a concerted action. It is therefore opportune in the national context of decentralization to define and to implement an integrated approach to the management of our coastal areas - an approach which is even more necessary as there are multiple actors intervening in these environments; indeed, fishery, agriculture, farming, town, industry, tourism, forest, navigation are all concerned. Therefore, this workshop arrives just at the right time and I warmly congratulate its organizers. Its proceedings will allow, I am sure, to give relevant orientations regarding the coastal and marine environmental components whose integration has been decided in the framework of the next EP II.

Ladies and Gentlemen,

As you know, Madagascar has economic and marine ecosystems; that is why your resolutions on their integrated management, which I hope will be successful, will be followed by my Department with keen interest, to make sure that your recommendations are taken into account for the development and implementation of a national strategy, as well as for the design and co-ordination of the policies at the multilocal and regional levels.

Before concluding, allow me, once again, to congratulate and to thank the organizers for the initiative of this workshop. We also owe thanks to the experts - both national and international - as well as to all the participants who have accepted to leave their occupations to come and share their ideas on the objectives of this meeting.

Now I have to declare open the workshop on the Integrated Coastal Areas Management.

Thank you for your kind attention.

## ANNEX III

### WORKING GROUPS

#### A. TERMS OF REFERENCE

The commissions will have to identify the following points in a brief and concise way (total time available for all the points = 1h 30 mn) In the first place, a chairperson will have to be elected. He will nominate a rapporteur of the commission. The chairpersons and the rapporteurs will be in charge of:

- (i) the management of the discussion and debates;
- (ii) the drafting of a summary of the discussions, which will be inserted in the final report of the workshop (about 3 pages);
- (iii) the presentation in plenary session of a succinct summary (5 mn) for the cross-sectorial discussion

In their discussions the participants will have to take into account the following points for the drafting of the report:

- 1. Identification of the main problems;
- 2. Status of the knowledge regarding the problems;
- 3. Identification of the causes;
- 4. The links with the other sectors of activities;
- 5. The actors concerned;
- 6. The institutional status;
- 7. Solutions and recommendations (technical, institutional, financial, regulatory and economic tools) to address these problems under the Integrated Coastal Areas Management.

#### B. REPORT ON THE PROCEEDINGS

##### COMMISSION 1: FISHERY AND AQUACULTURE

M. Heritiana RANDRIAMIARANA (Chairman)  
M. Germain DASYLVA (Vice-Chairman)  
Mrs. Irène DASO (Rapporteur)

##### 1. Identification of the main problems

- (i) Legislation problems: is it adapted to present local conditions ?
- (ii) Poor knowledge of the stocks
- (iii) Unreliability of the statistical components
- (iv) Insufficient training/necessity for an information, education, and training system (SIET) at all levels
- (v) Non-respect for the legislation in force and lack of control
- (vi) Problems of supply in fishery equipment
- (vii) Poor exploitation of the lagoons:
  - (a) Over exploitation within the lagoons
  - (b) Insufficient exploitation within the lagoons
- (viii) Environmental problems relating to by-catch
- (ix) Illegitimate fishing
- (x) Destructive fishing techniques
- (xi) Lack of coordination among the projects

- (xii) Socio-economic problem
- (xiii) Problem of quality/public health/hygiene
- (xiv) Impacts on the peripheral zone (canoe building)
- (xv) Maritime security
- (xvi) Undefined management plan
- (xvii) Lack of self-control
- (xviii) Pollution by other sectors.

## **2. Status of the knowledge regarding the problems**

- (i) Knowledge of the problem to be analyzed more in depth
- (ii) Often empirical knowledge
- (iii) Poorly defined problems and lack of figures
- (iv) Waste of time on immaterial problems
- (v) No impact study

## **3. Identification of the causes**

- (i) Poverty/economic pressure
- (ii) Lack of SIEFT structures
- (iii) Socio-cultural aspects
- (iv) Lack of sanitation
- (v) Lack of means
- (vi) Lack of communications
- (vii) Lack of organization
- (viii) Lack of alternatives
- (ix) Lack of fairly clear and extended planning/management plan
- (x) Poorly organized development plan

## **4. Links with the other sectors of activities**

- (i) Diversification of the activities
- (ii) Integration of the activities
- (iii) Conflicts of interest with other sectors of activities
- (iv) Impacts of the other sectors
- (v) Impacts on the other sectors

## **5. The actors concerned**

- (i) Fishermen, operators and other intervening actors from the fishery sector
- (ii) Ministry of Fishery and Halieutic Resources (MPRH), Ministry of the Environment, Ministry of Transports, Ministry of Tourism, Ministry of Energy and Mines, Ministry of Land Management, Ministry of Interior, Ministry of Health, Ministry of Population, Ministry of Youth, Ministry of Agriculture, Ministry of Education, Vocational Training
- (iii) Executing Agencies: ONE, ANGAP, ANAE, FTM
- (iv) CNRO, CNRE, IHSM, CNRIT
- (v) NGO in charge of fishery
- (vi) Professional Grouping/Association

## **6. Institutional Status**

- (i) Scattered and limited sectorial activities
- (ii) Vague responsibilities for each intervening entity
- (iii) No hierarchical coordinating levels
- (iv) Ministries with very limited means
- (v) Actions subordinated to funds availability

**7. Solutions and recommendations (technical, institutional, financial, regulatory and economic instruments) to address these problems under the Integrated Coastal Areas Management**

- (i) Concrete enforcement of the previous recommendations
- (ii) Improved information management
- (iii) Improved education and training
- (iv) GELOSE (Local Community Halieutic Resources Management) enforcement
- (v) Structuring of the professionals
- (vi) Rational fishery planning management
- (vii) Use of fishery technologies
- (viii) Integrated approach to the development of traditional fishery
- (ix) Legislation updating and adaptation
- (x) Improvement in the sector/after-catch quality
- (xi) Involvement of the actors in decision-making
- (xii) Knowledge of the stocks status
- (xiii) Setting-up of an assessment system
- (xiv) Operators' participation in control and surveillance

**COMMISSION 2: LAND USE PLAN**

M. Henri RAHARISON (Chairman)  
Mme Fleurette ANDRIANTSILAVO (Rapporteur)

**1. Problems identified**

- (i) Conflicts in space utilization
- (ii) Integration of the important investment projects within a region
- (iii) Land problem: no security of tenure
- (iv) Institutional problem:
  - (a) poorly defined responsibilities
  - (b) overlapping activities
  - (c) space allotment
  - (d) role of the decentralized territorial communities (CTD)?
- (v) Lack of management plans (land occupation plan, zoning)
- (vi) Unadapted infrastructures and equipment
- (vii) Destructive agricultural practices, especially upstream
- (viii) Non-effective decentralization; CTD responsibility not yet clearly defined.

**2. Status of the knowledge**

- (i) Limited studies
  - (a) in the West: knowledge on space utilization, on evolution of production structures
  - (b) in the South: the same
  - (c) in the South-East: findings of the studies by ODASE and FOFIFA
  - (d) in the North, nothing apart from CAVAGI with a very striking fact: the uncontrolled practice of slash-and-burn (tavy)
- (ii) Geographic information systems, such as the GIS on Protected Areas (PA) of ANGAP;
- (iii) the project of National Forest Ecological Inventory (IEFN), of the Directorate of Waters and Forests (DEF); zoning and land occupation throughout Madagascar;
- (iv) In the land tenure area, cadastre is not yet generalized:
  - (a) on the coastal areas, there is no cadastre except for the North (Montagne d'Ambre)
  - (b) existence of a legislation on the management of the littoral bands
- (v) There is no overall, synthetic and operational knowledge

### 3. Identification of the causes

- (i) Lack of cadastre;
- (ii) No maps for land specialization and potential
- (iii) Inappropriate urbanism code
- (iv) Conflicts between customary law and modern law
- (v) Competition and evolution of the production systems
- (vi) No land management policy
- (vii) Lack of viable alternatives
- (viii) Excessive centralization
- (ix) No population settlement policy, lack of population growth control
- (x) Imbalance among zone potential

### 4. Links with the other sectors

Space management is a link across the board for most actors:

Strong link:     - agriculture  
                  - population  
                  - energy  
                  - urbanism

Fair link:       - mines  
                  - industrial investment  
                  - tourism  
                  - aquaculture

Weak link:      - transport

### 5. The actors

- (i) the executives and the legislators
- (ii) the population
  - (a) migrants
  - (b) settled population having no security of tenure, practicing or adopting unsustainable techniques
- (iii) investors
- (iv) illegitimate users
- (v) the technical services

### 6. Institutional Status

- (i) unstable (political instability)
- (ii) institutional compartmentalization, hence no communication, fragmentation and duplication of efforts
- (iii) poorly defined responsibilities, hence overlaps
- (iv) insufficient specialized capacities within institutions
- (v) lack of basic data for informed decision-making
- (vi) excessive centralization
- (vii) law on decentralization ratified but not yet effective
- (viii) no (national, local) policy coordination/harmonization

### 7. Solutions and recommendations

#### Technical solutions:

- (i) Setting-up of management tools (zoning: management plans and schemes)
- (ii) Environmental impact review
- (iii) Environmental assessment
- (iv) Impact review of programme and strategy (by sector)
- (v) GIS

- (vi) Training, education, awareness-raising, extension work
- (vii) Land management

Institutional solutions:

- (i) Setting-up of the Interministerial Committee for the Environment (CIME) and the CRPs
- (ii) Training to increase capacity at all levels
- (iii) Harmonize and coherently organize the various policies
- (iv) Set up the capacity of decentralized territorial communities (CTD) in local management of the CRPs (tools and competencies)
- (v) Clearly define the institutions' mandates and responsibilities
- (vi) Enforce Law on Secured Local Management of renewable resources (GELOSE)

Regulatory solutions:

- (i) Updating of the Urbanism and Habitat Code
- (ii) Setting-up of a land tenure code
- (iii) Standards and qualities
- (iv) Enforcement of the provisions of the decree on the Compatibility Requirement between Investment and Environment (MECIE)
- (v) Control of regulations enforcement:
  - (a) Reinforcement of the control system
  - (b) Addressing self-funding in control
  - (c) Legal framework for a secured use of marine space

Financial and economic solutions:

- (i) Enforcement of the regulation concerning duties, taxes and fees
- (ii) Incentives, including tax-system, to attract "sustainable investments"

**COMMISSION 3: TOURISM (INCLUDING ECO-TOURISM)**

Mr. Rondolph PAYET (Chairman)  
Mr. Dominique BODARD (Vice-Chairman)

**1. Identification of the main problems**

- (i) Weak involvement impact of tourism on local population
- (ii) Lack of terms of reference for eco-tourism; the objectives are not clear enough
- (iii) No valorization of resources (guides, brochures, etc.)
- (iv) Insufficient knowledge of the milieus, as well as the possible impacts (lack of environment impact review on tourism and eco-tourism projects)
- (v) Lack of transports infrastructure: road, plane, train
- (vi) Cultural erosion (e.g.: mendicity, etc.)
- (vii) Lack of management and professionalism
- (viii) Problem of telecommunications
- (ix) Lack of policy in the area of cultural valorization
- (x) No building standards on the littoral
- (xi) Lack of marketing abroad
- (xii) Costly destination
- (xiii) Lack of sanitation standards (pollution by the tourism industries), pollution acting as a break to tourism development

**2. Status of the knowledge regarding the problems**

- (i) Local Orientation Plan in Tuléar
- (ii) Existing but not valorized/extended knowledge

### **3. Identification of the causes**

- (i) Lack of environmental impacts assessment
- (ii) We do not worry about the indirect consequences (whales)
- (iii) The operators are not prepared/trained on natural resources management
- (iv) No awareness-raising/information for the local populations (interpretation centers, "green" classes)
- (v) Poor planning
- (vi) No licensing for the operators
- (vii) Lack of investment security
- (viii) Some operators do not pay local taxes (isolation among the nautical milieu/tax system/culture)
- (ix) No formal contracts between local communities and operators
- (x) No coordination among actors (populations, institutions, operators)

### **4. The links with the other sectors of activities**

#### Direct links:

- (i) Conservation (protected areas)
- (ii) Urbanism
- (iii) Transport
- (iv) Land management
- (v) Research
- (vi) Education
- (vii) Health
- (viii) Infrastructure and telecommunications
- (ix) Culture

#### Directly concerned links:

- (i) Agriculture
- (ii) Cottage industry
- (iii) Forests
- (iv) Coastal industries

#### Indirectly concerned links: other

### **5. The actors concerned**

- (i) Communities
- (ii) Hotel unions
- (iii) Operators
- (iv) Local communities
- (v) Educators
- (vi) Researchers
- (vii) Tourists
- (viii) Investors
- (ix) Various Government administrations
- (x) Traditional leaders
- (xi) Traditional authorities
- (xii) Modern authorities (elected)
- (xiii) Milieu
- (xiv) Industrialists
- (xv) NGOs

### **6. Institutional Status**

- (i) Ministry of Tourism
- (ii) National tourism development communities
- (iii) Office of Tourism

- (iv) 18 local professional organizations
- (v) 14 regional delegations of the Ministry of Tourism
- (vi) ANGAP
- (vii) Ministry of the Environment: coordination/monitoring of tourism impacts
- (viii) Future environmental units of the ministries concerned (Interministerial Committee for the Environment, etc.)
- (ix) Associations; NGOs (national and international) [legislation under review]
- (x) International networks related to tourism development (too much promotion regarding capacity)
- (xi) IOC: Regional Programme for Tourism (Headquarters: Seychelles - design under way)

**7. Solutions and recommendations (technical, institutional, financial, regulatory and economic tools) to solve these problems under the integrated coastal areas management.**

Technical solutions:

- (i) Planning
- (ii) Coordination (collaboration; integration of the national policy at all levels)
- (iii) Monitoring system to measure the effects/impacts and develop the level of use
- (iv) Training/education/supervision
- (v) Research

Institutional solutions:

- (i) Clarification on/reinforcement of, the procedures to develop the tourism projects; one-step ("guichet unique") procedure for investors
- (ii) Develop norms/standards and enforce them through the Ministry of Tourism (?) or others
- (iii) Environmental label (charter of the hotel and tourism operators) [to ensure good conduct]: green and blue label granted to signatory operators

Finance:

- (i) Redistribution tools in communication
- (ii) Tourism micro-realization tools available to local communities/associations/NGOs

Regulatory solutions:

- (i) Break the air-transport monopoly/in favor of liberalization - risks for non- cost-effective local transports)
- (ii) Local urbanism orientation plan
- (iii) Contract between operators/State/local communities (GELOSE), with adaptation to similar cases of "marine GELOSE"
- (iv) Hotel classification

Economic Instruments:

- (i) State-of-the-art-tourism: very high entrance fees to have access to areas of exceptional interest (which strict limitation on the annual number of visitors)
- (ii) Intellectual investments: education, training
- (iii) Parks/reserves managed by the private sector (a private entity cannot manage a State-owned patrimony: possibility of lease?)

**COMMISSION 4: POLLUTION AND INDUSTRIAL IMPACTS, PORT ZONES AND MARINE TRANSPORTS**

Mr. Man Waï RABENEVANANA (Chairman)  
Ms. Claudine RAMIARISON (Vice-Chairman)

**1. Identified Problems**

- (i) Maritime Transport

- (a) lack of port facilities for the reception of ship refuse, hydrocarbon residue, and ballast waters
  - (b) lack of facilities of treatment of refuse waters
  - (c) lack of coordination in case of navigation accidents
  - (d) obsolescence of nautical information
  - (e) uncontrollable coast, hence difficult surveillance, hence resource smuggling
  - (f) gap between policy and implementation means
- (ii) Urban and industrial problems
- (a) see "Land use"
  - (b) too broad regulatory provisions
  - (c) insufficient institutional capacities
  - (d) insufficient means of pollution control
  - (e) insufficient realization capacities and impact review assessment
  - (f) no incentives for proper technologies
  - (g) unplanned industrial setting-up
  - (h) no basic data on industrial pollution
  - (i) inadequate infrastructures of management networks
  - (j) insufficient urban culture
  - (k) imbalance between supply and demand in housing

## **2. Status of the knowledge**

- (i) Several studies have been undertaken
- (ii) Non-updated information for most of these studies

## **3. Identification of the causes**

- (i) Problem of means
- (ii) Lack of updated management and urbanism plans
- (iii) No industrial sector development
- (iv) Case by case problem management
- (v) Lack of good-citizenship and information

## **4. Links with the other sectors**

Stronger pressures on the following sectors:

- (i) fishery
- (ii) forest
- (iii) health and social component
- (iv) tourism
- (v) agriculture

## **5. The actors concerned**

- (i) urban population
- (ii) political leaders
- (iii) operators

## **6. Institutional Status**

- (i) Institutional overlap

## **7. Solutions and recommendations**

Technical solutions:

- (i) Management plans
- (ii) Enforcement of the policy on ecologically sustainable industrial development (DIED)
- (iii) Training

- (iv) Enforcement of all the previous recommendations
- (v) Professionalization of the administrations
- (vi) Insertion of the national priorities into the urban programme
- (vii) updating the existing nautical information and establishment in priority areas where this information does not exist (repatriation to Madagascar of the basic marine map plates)
- (viii) Setting-up of a prevention and intervention plan respectively for the cases of risks and the cases of accident

Institutional solutions:

- (i) Setting-up of a mixed coordination structure for ICAM
- (ii) Development of association in urban environment/urban management

Regulatory solutions:

- (i) Recasting of the maritime and urban codes
- (ii) Ratification and enforcement of international conventions
- (iii) Regulation on pollution issues

Financial and economic solutions:

- (i) Incentives for the setting-up:
  - (a) of a concessional regime in fiscal matter
  - (b) of the "polluter-payer" principle
  - (c) creation of the compensation funds as stipulated by the international conventions.

**COMMISSION 5: STATUS AND PRIORITIES OF ENVIRONMENTAL RESEARCH IN MADAGASCAR**

Mr. O. SCHAAN (Chairman)  
Mr. Man Wai RABENEVANANA (Rapporteur)

**1. Identified problems**

- (i) Overall inadequacy of funding and infrastructure
- (ii) Duplication of the works and isolation of research centers
- (iii) Under-utilization of human resources
- (iv) Lack of solicitation of the national researchers
- (v) Inadequacy of the scientific language for the ordinary public's usage
- (vi) Lack of accuracy in research bases
- (vii) Obsolete data
- (viii) Too localized or fragmentary new data
- (ix) Poor use of social sciences

**2. Status of the knowledge**

- (i) Publication of 3 reports
  - (a) TROADEC report (UNDP/FAO) on the coordination of research, the priorities and the institutional organizations
  - (b) KEPERM report on the activities in coastal areas
  - (c) Ranaivoson report (IOC Regional Tuna Project) on the Assessment of Halieutic Research in the Indian Ocean Countries

**3. Identification of the causes**

- (i) Research is no Government priority
- (ii) Non-understanding of research role
- (iii) Lack of co-ordination among
  - (a) researchers
  - (b) institutions

- (iv) Non-consideration of existing competencies
- (v) Lack of a researcher assessment system
- (vi) Lack of research valorization structures at the level of institutions
- (vii) Lack of a medium/long-term research policy
- (viii) Research is dependent on national and external funding systems
- (ix) Isolation of researchers and research institution regarding the development world
- (x) Sector-compartmentalization in research

#### 4. Links with the other sectors

- (i) Little contact with the development world. The existence of the fishery professional groupings (shrimps, sea-cucumbers) announced an effort to bring closer professionals and research.
- (ii) Research is not multi-disciplinary enough

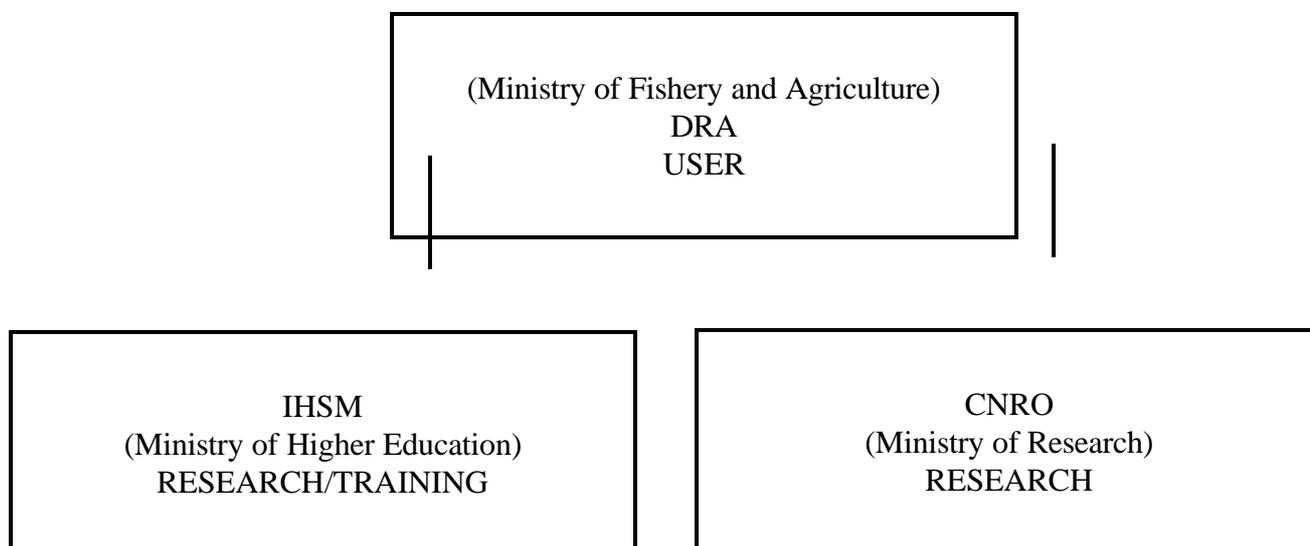
#### 5. The actors

[No contribution]

#### 6. Institutional status

Research institutions working in the marine and coastal field under the supervision of different ministries (Ministry of Scientific Research, Ministry of Higher Education) and of the main users of the research proceedings equally belong to different Ministries (Ministry of Fishery and Agriculture, Ministry of Environment, Ministry of Tourism, etc.)

Currently, at the level of the Ministry of Fishery and Agriculture, it is envisaged the creation of a service Research/halieutic training to establish the relation:



#### 7. Solutions and recommendations

##### Technical solutions:

- (i) Awareness-raising for decision-makers on the role of research
- (ii) Setting-up of a communication and information system
  - (a) among researchers
  - (b) among national and international institutions
  - (c) creation of a knowledge network, of experience exchange, of human resources at the national and regional level. The network will be provided with equipment and running budget.
  - (d) adaptation of research to the new needs of the sectors of activities

- (e) Updating of ecosystem knowledge, of social resources and structures
- (g) Capacity building, reinforcement of equipment and infrastructure in existing institutions

Institutional solutions:

- (i) Setting-up of a light coordination structure
- (ii) Setting-up of an external audit system of research institutions
- (iii) Development and enforcement of a research policy

**COMMISSION 6: PROTECTED AREAS AND PRESERVATION**

Ms. Noëline RAONDRY (Chairman)  
Ms. Claudine RAMIARISON (Rapporteur)

**1. Identified problems**

- (i) poor basic knowledge (imbalanced knowledge)
- (ii) poor information on the traditional exploitation systems
- (iii) poor national reviewing capacities
- (iv) lack of classification criteria (typology, technical and scientific criteria)
- (v) lack of regulation on tenure security
- (vi) actions are far too limited to exceptional cases
- (vii) lack of intervention coordination

**2. Status of the knowledge**

- (i) limited or location-related knowledge on the milieus
- (ii) concentration of information on some zones
- (iii) obsolete information
- (iv) little knowledge on tenure security

**3. Identification of the causes**

- (i) little marine tradition and culture
- (ii) priority given to land preservation
- (iii) lack of relevant well-defined strategy
- (iv) vague definition of responsibility in the area of marine conservation and management
- (v) under-estimation of the economic potential
- (vi) perception of unlimited resources
- (vii) poor education and awareness-raising among neighboring inhabitants

**4. Links with the other sectors**

Strong link:

- traditional fishery
- industrial fishery
- tourism
- agriculture
- hunting
- commercial collection
- maritime transport

Fair link:

- cottage industry
- forest exploitation

Weak link:

- public works
- construction

**5. The actors**

- (i) neighboring populations
- (ii) administrations
- (iii) operators (fishery, transport, tourism, etc.)
- (iv) tourists
- (v) seasonal migrants

**6. Institutional Status**

- (i) Ministry of Fishery and Halieutic Resources (MPRH): decision of classification
- (ii) National Association for the Management of Protected Areas (ANGAP): responsibility of coordination/management of protected areas network (PA)
- (iii) Directorate of the Waters and Forests (DEF): management of the mangroves
- (iv) Ministry of Tourism
- (v) PA operators
- (vi) Professional organizations of the private operators (fishery, tourism)
- (vii) Ministry of Energy and Mines (marine and terrestrial substratum)
- (viii) Decentralized territorial communities
  - (a) compartmentalization among institutions
  - (b) centralization of fishery licensing award
  - (c) non-ratification and non-enforcement implementation of the international conventions (Nairobi, MARPOL)

**7. Solutions and recommendations**

Technical solutions:

- (i) Research
- (ii) Training and information
- (iii) Adequate management techniques
- (iv) Alternative solutions to unsustainable exploitation
- (v) PA grading/Status criteria
- (vi) Exchanges and partnerships with other countries

Institutional solutions:

- (i) implement the secured local management (GELOSE)
- (ii) reinforce the institution in charge of marine PA management
- (iii) ratify/implement the international conventions

Financial and economic solutions:

- (i) create self-funding instruments
- (ii) set-up a local control and sanction (dina) system
- (iii) make use of the fishing fees
- (iv) develop local funding
- (v) develop a trust fund

Regulatory solutions:

- (i) establish and enforce the marine PA regulation
- (ii) take customary law into account
- (iii) respect the regulation and the international conventions

**C. TABLE OF RESULTS**

The following ICAM table shows the compared results of sectorial problems analysis and therefore provides a first intersectorial framework.

	FISHERY	TOURISM	LAND USE PLAN	URBANIZATION /INDUSTRY/ TRANSPORT	RESEARCH	PROTECTED AREAS (P.A.)
<b>TECHNIQUES</b> Policies : Elaboration Implementation Harmonization Land use plan Action plan Management plan Valorized resources Alternative solutions Integrated approach (social) Awareness Communication : national international Training Research Adaptation research Information system Updating information Impact assessment Evaluation						
<b>INSTITUTIONAL</b> Definition of mandates Co-ordination Capacity building Decentralization Local Community Management of Fisheries Structuring of professionals						
<b>REGULATORY</b> Customary laws Setting up of reglementation Actualization/adaptability Enforcement: national international Setting up of norms Environmental labelling Liberalisation of transports						
<b>FINANCE/ECONOMY</b> Incentive measures Auto-financing tools Redistribution/Equity						
<b>IMPLICATION OF PRIVATE SECTOR</b>						

| : To be set up

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