
Frontier Madagascar Environmental Research

REPORT 4

Outcomes of biodiversity training initiatives

Madagascar Marine Biodiversity Training Project



Frontier-Madagascar
2003

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Webster, C.L., Fanning, E., Hémary, G., & Woods-Ballard, A. J. (eds)

Frontier-Madagascar

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Frontier-Madagascar

The Society for Environmental Exploration and The Institute Halieutique et des Sciences Marines (IHSM), part of the University of Toliara have been conducting collaborative research into environmental issues since 2000 under the title of Frontier Madagascar. Frontier Madagascar conducts research into biological diversity and resource utilisation of both marine and coastal terrestrial environments, of which one component is the Frontier Madagascar/Darwin Initiative: Madagascar Marine Biodiversity Training Programme.

Madagascar, the fourth largest Island on the planet is renowned for its high biological and ecological diversity, characterised by its high abundance of endemic species. Madagascar is one of the poorest nations in the world and very dependent on the resources the natural environment provides. As a result conservation and development work is of paramount importance as efforts are made to preserve an environment under pressure from non-sustainable exploitation.

Institute of Marine Sciences (IH.SM)

The Institute Halieutique et des Sciences Marines (IHSM) is part of the University of Toliara, in Madagascar. IHSM is a university centre of learning in the field of marine sciences and runs courses for both undergraduate and postgraduate students. IHSM also provides consultations to government institutions, NGOs and individuals.

The Society for Environmental Exploration (SEE)

The Society is a non-profit making company limited by guarantee and was formed in 1989. The Society's objectives are to advance field research into environmental issues and implement practical projects contributing to the conservation of natural resources. Projects organised by The Society are joint initiatives developed in collaboration with national research agencies in co-operating countries.

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LIST OF ACRONYMS

AGERAS	Appui à la Gestion Régionalisée et à l'Approche Spatiale (Support to Regionalised Management and Spatial Approach)
ANGAP	Association Nationale pour la Gestion des Aires Protégées (National Association for the Management of Protected Areas)
BTEC	Business Training and Enterprise Council
CBD	Convention on Biological Diversity
CI	Conservation International
CITES	Convention on International Trade in Endangered Species
CNRE	Centre National de Recherches sur l'Environnement (National Centre for Environmental Research)
CNRO	Centre National de Recherches Océanographiques (National Centre for Oceanographic Research)
COI	Commission de l'Océan Indien (Indian Ocean Commission)
DI	Darwin Initiative for the Survival of Species
EMC	Environnement Marin et Côtier (ONE) (Marine and Coastal Environment)
FAO	Food and Agriculture Organisation of the United Nations
FL.MI.MA.NO	Fikambanana Miaro sy Mampandroso an'I Nosy Ve
FM	Frontier-Madagascar
GELOSE	Gestion Locale Sécurisée (Local Fastened Management)
GIZC	Gestion Intégrée des Zones Côtières (Integrated Coastal Zone Management)
IH.SM	Institut Halieutique et des Sciences Marines (Institute of Marine Sciences)
IWCO	Independent World Commission on the Oceans
MaB	Man and Biosphere reserves (UNESCO)
MCPA	Marine and Coastal Protected Areas (Aires Protégées Marines et Côtières)
MEF	Ministère des Eaux et Forêts (Ministry of Water and Forests)
MPRH	Ministère de la Pêche et des Ressources Halieutiques (Ministry of Fisheries and Marine Resources)
MINAGRI	Ministère de l'Agriculture (Ministry of Agriculture)
MINENV	Ministère de l'Environnement (Ministry of the Environment)
MINTOUR	Ministère du Tourisme (Ministry of Tourism)
MRS	Ministère de la Recherche Scientifique (Ministry of Scientific Research)
OCDE	Organisation de Coopération pour le Développement Economique (Organisation for Economic Co-operation and Development)
ONE	Office National pour l'Environnement (National Office for the Environment)
ONG	Organisation Non Gouvernementale (Non Governmental Organisation)
PIB	Produit Interieur Brut (Gross National Product)
PNAE	Plan National d'Actions Environnementales (National Environment Action Plan)
PNUD	Plan des Nations Unies pour le Développement (United Nations Development Programme)
PNUE	Plan des Nations Unies pour l'Environnement (United Nations Environment Programme)
PRE-COI	Plan Régional Environnement – Commission d'Océan Indienne (Regional Environment Plan Indian Ocean Commission)
PE	Plan pour l'Environnement I, II, III (Environment Plan)
SAGE	Service d'Appui à la Gestion Environnementale (Support to Environmental Management)
SCUBA	Self Contained Underwater Breathing Apparatus
SEE	Society for Environmental Exploration
SIE	Système d'Information Environnement (Environmental Information Systems)
UNCLOS	United Nations Convention on the Law of the Sea
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature

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1. INTRODUCTION

1.1 Darwin Initiative Madagascar Marine Biodiversity Training Project

This document aims to contribute to the fields of sustainable development, marine and coastal conservation and environmental education, by reporting on a one year long training programme, the Darwin Initiative Madagascar Marine Biodiversity Training Project (MMBTP). This report provides information on the programme of events conducted during the project and is presented as a blue print for future use and adaptation.

The training project was conducted in the region of Toliara, southwest Madagascar, where the marine and coastal ecosystems are under increasing pressure. The aim of the project was to *Aid marine resource security by providing skills to monitor and manage marine biodiversity through the provision of training*. The project aimed to contribute to reaching the objectives of the Convention on Biodiversity of the UN (Jakarta Mandate), signed by Madagascar in 1992 and ratified in 1995.

As a result, the project focussed on the following domains:

- Raising knowledge of marine and coastal ecology (ecosystems and species)
- Providing training in marine biodiversity survey and monitoring methods
- Bringing a sustainable resource use and management approach
- Assisting with the establishment of a specific habitat monitoring plan

The trainees belonged to three groups identified as key actors for the development of management plans concerning the sustainable use of resources in the area. These were:

- Local Coastal Community Representatives (Anakao region, Toliara Province)
- Fisheries Officers (Ministry of Fisheries, Toliara Province)
- Students from the Institute of Marine Sciences (IH.SM, Toliara Province)

The Darwin Initiative, a component of the Department for the Environment, Food and Rural Affairs (DEFRA) of the UK Government, provided the funds to run the project. Activities were co-ordinated by the Society for Environmental Exploration (SEE), implemented through Frontier-Madagascar, a collaboration between The Society for Environmental Exploration (SEE) and the Institute of Marine Sciences (IH.SM), University of Toliara.

1.2 Toliara Province

The Toliara Province, located in southwest Madagascar, is one of the least developed regions of the country despite its major port, Toliara. The three largest economic sectors are fisheries (including aquaculture), tourism and farming. Fisheries and tourism alone generate around US\$117 million per year (ONE, 2000).

In the Toliara province, 65% of people inhabit coastal communes and as with most developing countries, the demographic rate is high, 2.8% nationally on average. The latter has also grown a lot faster than the GNP, which means that the population has become poorer by 50% between 1972 and 1992. The level of poverty is of 80% of the population and Madagascar is regularly classed among the 30 poorest countries in the United Nations sustainable human development index (ONE, 2000), a much renowned result of the lack of access to education.

The economic potential of the region is deemed extremely interesting, particularly with regards to ocean products. The longest coral reef assemblage of the Indian Ocean stretches along the West Coast of Madagascar (Wells et. al., 1988). The lagoons and mangroves provide a nursery ground for a huge number of species, many of which are exploited at traditional, artisanal and commercial fisheries levels. 50% of the national economy depends on the coastal zone and should a fictional value be placed on reefs and mangroves together, this would be equivalent to 7.6% of the GDP or US\$100 million and US\$204 million respectively in 2000 (ONE, 2000). Marine products originating from the area are consumed locally and exported nationally, regionally and internationally (MPRH, 2001).

Recent years have witnessed an interesting dynamic between the three sectors mentioned above. Consecutive extremely dry seasons have resulted in a migration of inland human populations to the coast (MINAGRI, 2001. pers.comm.). Many migrants now rely on marine resources for their basic needs while others supplement their traditional agricultural activities with more lucrative ocean related ones, including the exploitation of target resources and the transport of tourists by sea (*Vezo and Tanalana* fishermen, 2000. Personal communication).

Due to a severe lack of infrastructure, tourism has been on a low increase with only 130,000 visitors in 1998 and 160,000 in 2000 based on aerial arrivals (MINTOUR, 2000). However, it is worth noting that only 46% of arrivals have tourism only motivation. 25% of tourists interviewed on departure go to the Toliara region (Madio, in Lévy-Perraut 2001). In 2002, the industry plummeted due to the political situation resulting in many Malagasy people turning back to marine and coastal resources for their livelihood.

1.3 Identification of threats to marine resources

Since the 1960s, many signs showing the depletion of certain marine species in the region were gradually unveiled by research (Vasseur, 1997) with for example, 33% species loss between 1972 and 1987 on the Grand Récif of Toliara (Vasseur et. al. 1988a & 1988b). At the same time, local fishers have been pointing out the deteriorating situation. The local coastal community is the main user of the coastal zone, legally set at a 12 miles band by the adhered UNCLOS (IWCO, 1998). Incidentally, this zone is where around 80% of the ocean's biodiversity is concentrated and also the most prone to habitat degradation and depletion of resources. Hence, as the area becomes increasingly affected, it is the local people who will suffer the most.

IH.SM and WWF, among other organisations, have recently confirmed the threatened status of some species and the expansion of habitat degradation in the Region of Toliara, particularly on the Grand Récif but also on some of Anakao reefs. Factors such as over-exploitation, trampling of the reef flats and the lagoon, hyper-sedimentation originating from the Onilahy river and global warming have all contributed to these results. Frontier-Madagascar having carried out SCUBA surveys on various local sites has made observations on all health stages for different areas (extremely degraded, degraded, recovering and healthy). Yet the area remains of exceptional biological value with the most worrying aspect being the lack of integrated sustainable management strategies in application.

Key problems to be addressed are numerous. For example, some areas and species remain virtually under-exploited while others are over-utilised (FAO, 2002). Local people lack environmental awareness and general education. People are poor. Few viable solutions are put forward as alternatives to over-exploitation. Funds allocated for integrated sustainable development are dismal (Kofi Annan, 2002). There is poor public representation of interested

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parties at discussion forums. Information access is restricted. There has been much corruption.

Yet in recent years, a few very positive initiatives have been developed. To begin with, the second stage of the PNAE recognised the importance of the marine environment and included it as a priority in the national strategy. The Malagasy Government also put forward a proposal to UNESCO for four coastal sites to become MaB Reserves (Commission Nationale Malgache pour l'UNESCO, 1998). Furthermore, several feasibility studies have been funded to investigate the potential establishment of additional MCPAs. The Toliara region is part of each of these initiatives with considerable support from EMC/SAGE. For example, the latter have taken the small island of Nosy Ve, which is locally managed by FI.MI.MA.NO, as a national pilot GIZC zone. The status of a larger legally protected and sustainably managed marine zone is yet to come to fruition.

However, there is a distinct lack of local experience in implementing marine sustainable management strategies in the Toliara region and various key players do not possess access to the tools necessary to put plans into place effectively, whether these be applied technical skills, specific knowledge or access to information.

In considering key actors ultimately involved in the present and future sustainable development of the marine and coastal environment of the Toliara Region for the DI training course, SEE concluded that students, local community representatives and fisheries officers were suitable target trainees.

2. TRAINING PROGRAMME

Prior to the commencement of the training programme, a training centre was purposely built in Anakao, at the Frontier Madagascar Research Station. This was to ensure that trainees would benefit from on-site accommodation, a classroom and access to a library.

Due to the tight work-schedules of Fisheries Officers and the unpredictable timetables of IH.SM students, part of the training programme was run in Toliara, at the IH.SM teaching premises. Some workshops also occurred in Toliara in order to attract greater audiences.

The training programme was designed while taking into account all relevant objectives of the Convention on Biological Diversity thus aiming to aid marine resource security for future generations.

2.1 Local Community Representatives

2.1.1 Introduction

Anakao is located approximately 40 km South of Toliara, in the commune of Soalara. There are two adjacent parts to this coastal village: Anakao-bas which harbours a population of around 3,000 *Vezo* (fishermen), on the sea front, and Anakao-haut constituted mainly of around 500 *Tanalana* (farmers), located just inland from Anakao-bas. The main activities of Anakao-bas are net and line fishing as well as gleaning. The level of education is relatively poor in Anakao-bas, with only 23% of the children who go to school reaching secondary school and only 3% obtaining their baccalauréat (equivalent to A Level). Children will begin helping out their family with traditional fishing activities from the age of eight and the majority will drop out of school by 13-15 years old to do so.

There are several hotels in the village and some people have begun to direct their attention towards tourism for an income. The close-by islands of Nosy Ve and Nosy Satranana are particularly attractive and many sites possess great appeal for snorkelling and SCUBA diving.

Traditional beliefs have a great influence on day to day activities in Madagascar with each of the 18 tribes having their own sets of *Fady(s)* (forbidden practices and places). These may vary according to sub-tribes and from one location to another. At the international level, both the Biodiversity Convention and Agenda 21 (UNCED) recognise that the traditional beliefs of indigenous and local communities play a key role in the protection and sustainable use of marine resources and biological diversity. These have contributed to marine conservation long before the need to preserve nature was even recognised by industrialised countries.

In Anakao, a recent good example of this 'ecological wisdom' has taken place in the form of a *Dina* (Social Convention), adding a collection of 'dos and don'ts' to the existing *fady(s)*. The association responsible for this initiative is FL.MI.MA.NO (Fikambanana Miaro sy Mampandroso an'I Nosy Ve) which was created in 1998 with the aim of protecting the island of Nosy Ve and its annular reef as well as the spirit of ancestors buried there. It includes a no-take zone. The *Dina* has now been endorsed by the government and is legally enforceable. Members of the association include fishermen from six villages (including Anakao-bas) that use these waters regularly. The *Tanalana* people are also represented due to them turning to marine activities.

Since the decentralisation of the Government in 2001, Autonomous Communes have had a little more influence in deciding what measures should be put into place to protect and

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manage chosen areas. This has mainly been possible praise to the work of the EMC and GELOSE components of the ONE.

With regards to Nosy Ve, much technical and financial support was given by EMC (SAGE) to set up and run this marine reserve, particularly as a pilot study within the ICZM plans of the PEII. The marine zone concerned, 'The Aquarium', is however extremely small (4ha) and does not encompass the main land's fringing coastal reef and lagoon where intensive gleaning takes place. Furthermore, the expertise of F.I.M.I.M.A.NO is limited with respect to sustainable management, which means that the *Dina* is not always respected. The publicising of the protection measures is poorly communicated to member villages and many other close-by villages. Finally, the non-application of the social convention and other local *fady(s)* also arises from cultural differences. At the same time, fishermen continue to note a consistent decrease in the quantity and size of the local marine resources, particularly since the 1980s.

Biologically, the area is of particular interest to scientists who have conducted research projects there since the 1960s. Its reasonably close proximity to Toliara has also enabled I.H.S.M to send researchers and students to the locality. Despite its high level of biodiversity, these scientists have increasingly pointed out various environmental problems (Vasseur, 1997).

The Frontier-Madagascar marine research programme activities have focussed on the region of Anakao since January 2000, with its research station based in between Anakao and Soalara, 40km South of Toliara. The reputation of Frontier-Madagascar is good among the villagers and the objectives are understood and respected. Regular presentations have been conducted to explain research activities and pay tribute to the involvement of the local community in project activities. Good working relationships have arisen from these regular interactions.

It is in this context that the SEE and Frontier-Madagascar opted for the Darwin Initiative Marine Biodiversity Training Programme to target representatives of the Community of the Anakao region.

2.1.2 Objectives

Several considerations had to be taken into account when planning the training programme for it to best fit the needs of people and that of the environment.

From living so close to the sea and depending on its products, the local population does have a good knowledge of certain aspects of the marine environment, particularly with respect to the species exploited. However, these people's understanding of the life ecology of these and other species, species interactions, ecosystems that these species depend on and interactions between different ecosystems is poorly developed. Although the community have received prior exposure to certain environmental and conservation concepts, it was clear that there had been a lack of reinforcement. For example, despite several visits from turtle experts, the majority of traditional turtle fishermen believed that turtles no longer nest on beaches because they have become cunning and avoid egg collectors by laying their progenies in the coral, hiding the den with sea-grass. Or, despite several public awareness official visits, the majority of the local community still did not grasp the concept of the marine food chain.

Furthermore, two very important concepts govern the mentality of the *Vezo*, as with many Malagasy people. The first one is that 'today' is important, and as a result, planning ahead is not intrinsic to mentalities. The second one is that people believe that if the ocean is bountiful today, it may not be tomorrow and that fish stocks being 'presents from God', these should be harvested to their full potential when it is offered to them. Refusing them could offend God and spirits.

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Considering the level of academic education received by local communities, underlying physical, biological, chemical and mathematical principles would need to be delivered at the appropriate pitch. This also meant that there was little interest from the fishermen to take part in scientific surveys and monitoring processes unless orientated towards socio-economic subjects or involving the use of SCUBA gear to ‘breath under water’. For survey or monitoring work however, it was clear that initiatives would require close supervision and would not be initiated, by the local community thoroughly on a consistent and long-term basis.

Consequently, the training programme was designed so that it would reinforce and build on existing knowledge of marine ecology (ecosystems and species) and raise awareness of environmental issues while introducing principles of sustainable resource use and management strategies.

The objectives were as follows:

- to provide simple but comprehensive knowledge of the different marine and coastal ecosystems and their interactions
- to raise awareness of threats to ecosystems and the socio-economic and ecological consequences of habitat degradation
- to demonstrate the importance of community roles in environmental protection plans and of the sustainable use of coastal resources for development
- to lead to a certain level of understanding of the need to conduct scientific research through practicals
- to stimulate constructive debates with other key actors in the domain of marine and coastal sustainable management and development

Discussions and constructive debates also took place in order to identify levels of traditional knowledge and if there were any biased ideas on certain subjects that needed to be clarified for an accurate understanding of environmental problems and management solutions.

Finally, trainees participated in research activities conducted by Frontier-Madagascar. Input from the trainees was integrated into aspects of the research activities in particular, the local shark fisheries and the turtle trade. This reinforced community understanding of the need for this type of scientific research.

2.1.3 Trainee selection

Frontier-Madagascar has been working closely with FI.MI.MA.NO since 2000, mainly for organising village presentations, helping with the cleaning of buoys marking the no-take zone (the ‘Aquarium’) and offering advice on the environment on occasions. Considering the role of this association in the management of the area, the president’s advice was sought with regards to the choice of trainees, particularly in making sure candidates were literate. Thus, participants included key representatives of FI.MI.MA.NO: the president, the treasurer, the secretary and the vice-president. Other participants included the president of Anakao-bas and fishermen well respected within their community.

This selection aimed at making sure the messages would be passed on to at least a fair section of the village inhabitants. Indeed, a traditional Malagasy way to communicate information is through informal discussions once the fishing day is over, whilst sitting under a tamarind tree with other villagers or gossiping in family quarters, around the well or at the local bar. Choosing these respected people was a means to insure that knowledge would be past on to a maximum number of beneficiaries as word of truth.

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The participants were as follows:

M. MEDOR Patrick Alexis	President Anakao-bas
M. JEAN	Treasurer Anakao-bas
M. GUIFFANT Jean Filison	President FI.MI.MA.NO
M. DEZA Bernard	1 ^{er} Vice Président FI.MI.MA.NO
M. DEGORGE Honoré	Treasurer FI.MI.MA.NO
M. FLARISENE	Secretary FI.MI.MA.NO
M. RAOLAKE Félix	Fisherman

2.1.4 Schedule and content

The Malagasy counterpart trainer, who had extensive experience of working with local communities, recommended that the training period stay short in order to retain the attention of participants. The latter are indeed not used to being in a 'classroom' environment. Moreover, a concise but targeted training session is more efficient, in the long run, for the information and messages to be remembered and thus passed on to the rest of the community.

Since most trainees were not fluent in French, the majority of the lectures were taught in *Vezo* Malagasy under supervision from the training co-ordinator. Introductions, a minimum number of lectures taught in French, debates and discussions were synchronically interpreted in *Vezo*. The field application part of the training programme was conducted by all other trainers and, on occasions, with the assistance of additional Frontier-Madagascar research staff when concerning particular specialised subjects.

Lectures (**Annexe B**) were interactive in order to give participants the chance to express themselves, ask questions, and share experiences. In addition, it enabled the lecturer to repeat and further explain some points as necessary.

2.2 Fisheries Officers

2.2.1 Introduction

The Ministry of Fisheries and Marine Resources, based in the capital Antananarivo, has the central power concerning the formulation of legal tools. Each Malagasy Province has a *Service Inter-Régional de la Pêches et des Ressources Halieutiques* (Inter-Regional Fisheries and Marine Resources Branch) whose functional role it is to apply and enforce the legislation as well as to monitor and control activities relating to fisheries and marine resources, thereafter reporting back to Antananarivo.

In Toliara, the Inter-Regional Fisheries and Marine Resources Branch is composed of six main units that are the responsibility of six fisheries officers. The Director of these units, also a fisheries officer, contributes to Coastal surveillance and oversees the enforcement of regulations in all domains. Half a dozen non-technical administrative staff assist with the operations. The departments are:

- Coastal surveillance and enforcement of regulations
- Industrial Fisheries
- Traditional Fisheries
- Artisanal Fisheries
- Aquaculture
- Company Control

The management system of the Ministry of Fisheries is very much a top down one, despite the new Autonomous Communes Governmental system, and very little background information

is communicated to the regional branches apart from executive orders. International and National legal resolutions, decision process explanations, scientific papers and fisheries management documents are all kept in the capital. Furthermore, despite the PNAE calling for improved integration there is little communication between ministries in the capital and between representative branches at the provincial level. This contributes to furthering the existing occlusion of information, the latter being prevented from circulating adequately among interested parties.

There is substantial assistance from the Food and Agriculture Organisation and the Development Programme of the United Nations (FAO and UNDP) on specific fisheries development projects. This alleviates the poor financial situation. Indeed, the Fisheries and Marine Resources Branch seriously lacks government allocated funds to undertake the role they have been set up to carry out. It can also be argued that they lack enough given freedom of authority to do so. However, internationally funded projects rarely focus on the need for patrolling and enforcing.

With regards to their background, the majority of the Toliara fisheries officers have been working for the Fisheries and Marine Resources Branch for over ten years. Some undertook their training up to 20 years ago with the Russians, and apart from further educational programmes accessibly through IH.SM, which mainly targets recent post-graduates, there is little opportunity for further training in the domain of fisheries and those relevant to it.

The above factors and other reasons such as problems of access to modern communication's systems, lack of knowledge on existing potentially useful structures and internal politics tend to discourage the workers' personal initiative to seek out information.

Yet, to be able to control or implement the regulation in a sensible way and contribute constructively to initiatives of coastal management, not only do the problems above need to be addressed, but complementary knowledge on marine and coastal ecosystem ecology, threats and management strategies are indispensable.

It is in this context that Frontier-Madagascar approached the Fisheries and Marine Resources Branch to scope for the level of interest in following the training programme. To best pitch the programme, Frontier-Madagascar also sought advice from the FAO.

2.2.2 Objectives

The majority of Toliara fisheries officers are not likely to make a career move in the future. As a result, the training programme aimed at complementing existing knowledge, providing information that could contribute to their job objectives and engage in practicals aiming at improving work results, particularly with regards to integration and environmental protection.

The specific objectives were as follows:

- to teach an understanding of marine and coastal ecosystems ecology and their interactions
- to raise awareness of environmental issues and of direct and indirect threats to ecosystems and fisheries (via degradation of ecosystems)
- to explain an integrated approach to fisheries management in the wider context (regional, national, and international)
- to stimulate rational arguments for consultation purposes in sustainable management planning

The emphasis was put on fisheries issues and environmental management aspects treating subjects that were unlikely to have been undertaken previously but that are crucial to the understanding of coastal zone issues. Compared with community representatives, the level of technicality could be heightened.

Much time was allocated to questions and constructive debates in order to stimulate interactive discussions whereby the level of experience, understanding and capacities of solution orientated analysis could be gauged and then adequately addressed later, within the practical part of the training programme.

2.2.3 Trainee selection

The Director of the Fisheries and Marine Resources Branch selected the trainees based on whom the training would most benefit in order to improve the team's work objectives and results for the Branch. Although he would have liked to participate himself, he was ultimately unable to attend. However, representatives of all units took part. These were:

Mr. MANOELY, Control of regulations application/Coastal surveillance
M^{me} RAZAFINDAMANANA Julienne, Head of the traditional fisheries unit
Mr. NOELY, Head of the industrial fisheries unit/Coastal surveillance
Mr. RAFARAMAMDIMBY Salvador Calvin, Head of the artisanal fisheries unit
M^{me} LIVINY Etsiavitra Augustine, Head of companies Control
M^{me} RASOAMAMAHIRANA R. Céline, Head of the aquaculture unit

2.2.4 Training activities

Practical exercises were mainly encompassed in the workshop (please refer to section 3.3). In addition, Fisheries Officers were given tasks to complete at a latter stage as part of a general group motivation strategy to improve access to information. This consisted in visiting existing libraries to find reports of particular relevance to the post-holder and in contacting a number of external organisations to obtain others.

2.3 IH.SM Students

2.3.1 Introduction

IH.SM is a research institute located in Toliara. Previously a marine station run by the French, it was handed over about 25 years ago. Although attached to the Université de Toliara (Toliara), it maintains a certain level of independence from the Government. IH.SM works in partnership with various research establishments, nationally and internationally, such as the CNRO, the CNRE, Belgian and French Universities, and the Society for Environmental Exploration since 1999.

IH.SM is allocated limited funds by the Government for its academic teachings and as a result, students have a restricted number of opportunities to learn from field based activities until they receive a grant for their DEA project, if they do. Consequently, knowledge is often very theoretical and the context and application of undertaking a research project poorly understood. This also means that there is a lack of practical experience upon reaching the employment market, unless students have chosen the Quality Control path whereupon they will have benefited from a placement in a commercial company.

Yet, these students are the future researchers that will be required to undertake the scientific work underlying environmental legislation, locally, nationally and even regionally or internationally.

2.3.2 Objectives

The aim was to create a core group of expertise in survey and monitoring techniques of tropical marine and coastal ecosystems, particularly through a specific Habitat Monitoring

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Plan. A sustainable management approach to theoretical scientific background and an understanding of other key players of the coastal zone were emphasised. Therefore the specific objectives of the training programme were:

- to reinforce existing theoretical knowledge and review the relevant subjects
- to provide theoretical knowledge and practical experience in management techniques for the marine and coastal environment
- to train participants in project set up and logistics
- to provide training in survey and monitoring techniques for tropical coastal ecosystems
- to demonstrate the connection between scientific surveys and management planning
- to set up a Habitat Monitoring Plan (as a contribution to the National Coral Reef Monitoring Initiative, part of the COI plans)
- to produce Monitoring recommendations in various areas of coastal ecosystem (as a contribution to the PNAE)

Question and discussion slots were given a lot of time to ensure the students understood all aspects taught and to stimulate debates that would contribute to a logical train of thoughts on sustainable management issues. Furthermore, the students had many opportunities to either grasp basic conversational English or to improve their existing linguistic knowledge with FM Research Assistants and Staff on camp.

2.3.3 Trainee selection

Three groups of IH.SM students took part in the training programme. The IH.SM Director selected the first group of trainees. Thereafter the Darwin Initiative Training Programme became famous amongst students and selecting the candidates occurred through an interview process. The interviews were conducted in order to perceive the level of motivation of potential trainees and if the proposed programme could be useful for their career plans.

The Questionnaire lasted around 15 minutes and included the following questions:

Which course are you on? What year?

Are there still some lectures that you need to be taught at University for your course this term?

Which part of the course is your favourite?

What do you aim to do in the short term? The long term? (career wise)

Why do you want to take part in the Darwin Initiative Training programme?

Can you swim?

MARTIAL Didi, *DEA* in Applied Oceanography

TATANGIRAFENO Sebastien, *DEA* in Applied Oceanography (6th year)

RABERINARY Daniel, *DEA* in Applied Oceanography (6th year)

VAOARIMANANA Célestine, *Maîtrise* in Applied Oceanography (5th year)

RASOAMANENDRIKA Faravavy Marie Agrippine, *Maîtrise* in Applied Oceanography (5th year)

ABOUD Amina, *Maîtrise* in Applied Oceanography (5th year)

RAKOTONDRA SOA Ananias, *DEA* in Applied Oceanography (6th year)

RAFAELIARISOA Claudine, *DEA* in Applied Oceanography (6th year)

ZAFIHITA Gaspariel, *DEA* in Applied Oceanography (6th year)

RALISAONA Bartali Léandro, Formation Technicien Supérieur

ROGER, *DEA* in Applied Oceanography (5th year)

RAKOTOJAONA Vahatra Zo Nomenjanahany, *DEA* in Applied Oceanography (5th year)

2.3.4 Training activities

Practical exercise

The objectives of this exercise were to:

- put into practice the survey and monitoring techniques taught
- develop a sense of initiative by making trainees choose their own techniques considering different factors (time and material available, aim of the survey, local environmental conditions etc.)
- work with a limited time frame
- work efficiently in the field
- write a survey plan
- analyse data quickly
- produce a concise report

The subject of the practical exercise differed slightly from one group to the next.

The first two groups of trainees were given the following task:

- Aim: map a portion of the lagoon in order to create a database prior to a fictional hotel development on the beach (impact assessment perspective).

The third group of trainees was given the following task:

- Aim: produce an assessment of the habitat cover of a portion of the lagoon for the data to be fictionally integrated in the Frontier-Madagascar gleaning activity study (increased pressures from over-exploitation perspective).

The techniques used were fully developed by the trainees, based on survey techniques taught, with guidance from the training co-ordinator. The purpose of this exercise was for trainees to brainstorm individually and as a group on the choice of an appropriate methodology, develop a survey technique and not simply apply one dictated by a teacher.

The methods chosen were carried out in the field. During the debriefing sessions, positive and negative aspects of each technique were discussed. Trainees understood how some other techniques could not have worked, how others could have, and concluded on the shortcomings of their chosen methodology.

Participation in Frontier-Madagascar surveys

The objectives of taking part in existing projects run by Frontier-Madagascar were to:

- train students in different survey and monitoring techniques for application in the tropical coastal zone
- develop team work capacities
- promote work in collaboration with other English speaking international students
- introduce the principles of long-term monitoring projects

Each group of trainees engaged in different projects. These were as follows:

- the red tailed tropic bird monitoring programme, *Nosy Ve*
- the Lovokampy mangrove biodiversity surveys and socio-economic investigation (see photos Annexe D)

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- the intertidal zone hermit crab surveys
- the mapping of the Ampasimanara lagoon for monitoring gleaning activities

Personal projects

Each of the twelve IH.SM postgraduate students followed the Darwin Initiative Training Programme undertook a personal project. The objectives of this task were for students to:

- Learn how to carry out a project from its conception to its final output
- Gain practical experience in using different surveying and monitoring techniques
- Consider putting forward management recommendations and monitoring plans

The different steps of what a personal project entailed were as follows:

1. Choosing the topic
2. Selecting the methodology
3. Writing a survey plan
4. Providing a provisional budget
5. Seeking permissions
6. Collecting the data in the field
7. Analysing the data
8. Writing a report
9. Presenting the results
10. Debating and justifying conclusions and recommendations

Each project stretched over a period of 4 weeks, with 2 weeks of data collection in the field, and 2 weeks of data analysis and report writing. This short time frame forced the trainees to learn how to optimise their efficiency in the swift execution of planned activities and stimulated an analytical thinking process.

The subject of the project was discussed with co-ordinators prior to execution based on the capabilities of the trainee to carry it through in the given time frame. Below in table 4. is a list of the projects for which reports were prepared with guidance from the co-ordinators, prior to editing the last version.

Table 1. List of Personal Projects undertaken and reported on by IH.SM students

<i>List of Projects Reports undertaken and written by IH.SM trainees</i>	
Mr. MARTIAL Didi	<i>Assessment of the use of beach seine nets in Anakao and Soalara (with recommendations for monitoring and management)</i>
Mr. TATANGIRAFENO Sébastien	<i>A socio-economic study of coastal and marine resource use in Beheloka (with recommendations for management)</i>
Mr. RABERINARY Daniel	<i>Assessment of the cephalopod fishery of Beheloka (a basis for monitoring and management)</i>
Mr. RALISAONA Bartali Léandro	<i>Establishment of a monitoring process for lagoon gleaning activities between Ampasipoty and Anakao (a basis for management)</i>
Mr. Roger	<i>Assessment of fish exploitation and its potential socio-economic impacts in the village of Anakao (a basis for monitoring and management)</i>

Miss. VAOARIMANANA Céléstine Mr. RAKOTOJAONA Vahatra Zo Nomenjanahany	<i>The establishment of an information centre aiming at raising public awareness on sustainable marine resource use, with a local perception monitoring process</i>
Miss. RASOAMANENDRIKA Faravavy Marie Agrippine	<i>Assessment of the shrimp fishery of Lovokampy (with recommendations for management)</i>
Miss. ABOUD Amina	<i>A study of the mangrove crabs of Lovokampy (s a basis for monitoring and management)</i>
Mr. RAKOTONDRA SOA Ananias Ms. RAFAELIARISOA Claudine Mr. ZAFIHITA Gaspariel	<i>Selection and establishment of permanent coral reef monitoring sites in the Anakao region (South-west Madagascar sector), a contribution to the National Coral Reef Monitoring Initiative</i>

The IH.SM Darwin trainees presented their results on two occasions in different settings in order to gain experience in public speaking and in pitching the presentation at the right level according to varying audiences, whether scientific or lay. This occurred at:

- The first Conference (see photos Annexe D)
- The Local Community Workshop (see photos Annexe D)

2.3.6 Monitoring techniques and the establishment of a Habitat Monitoring Plan

The Objectives

The aim of this part of the training programme was a capacity building one, geared towards building a group of expertise. The group would have to be capable of undertaking monitoring work and be employable within the Province or at the National level for projects contributing to reaching the PNAE objectives, including those set out by International Conventions ratified by Madagascar, particularly the CBD, by the end of the training programme.

The application of the monitoring techniques taught falls into different categories according to the projects undertaken by the trainees. As a result, the group of expertise presents a diversity of complementary skills and covers the various work areas of the PNAE. However, the main monitoring plan on which the project focussed was directed at coral reefs.

Choice of Trainees and subject

The task of setting up a specific habitat monitoring plan was given to three trainees who's existing knowledge and experience best suited the project and who would be the most likely people to lead a long term monitoring programme after completion of the Darwin Initiative Training Project. The subject chosen was the setting up of a coral reef monitoring plan that would contribute to the National Coral Reef Monitoring Initiative itself part of the Indian Ocean Commission's Regional Environment Programme (PRE/COI-EU).

Methodology for the Coral Reef Habitat Monitoring Plan

All students were given the technical capabilities of taking part in the Coral Reef Monitoring Plan in the future. The monitoring technique taught was based on the PRE/COI methodology (Conand, 1997) which is adapted from the Global Coral Reef Monitoring Network (GCRMN) and the one already used in Madagascar. It includes both snorkelling and SCUBA diving surveys.

The first step in the establishment of monitoring sites is to undertake snorkelling surveys. Effectively, this is an overall exploration of the reef sector based on visual observations. It

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must be conducted on a site comprising 2 stations: 1 on the reef flat and 1 on the reef slope. It enables a precise choice of the location of stations after an overall assessment of coral communities. Other significant trends in the sector can also be recorded such as large-scale destruction, *Acanthaster planci* outbreak, signs of pollution and coral bleaching.

SCUBA diving was not taught and although SCUBA survey techniques were treated within the course, associated survey work was not conducted during the training programme at this time but have to be undertaken after sites have been selected. However, some of the trainees are following the PADI Advanced course and have been taught the SCUBA survey technique by Frontier-Madagascar. This should enable future application developments within the IH.SM, Frontier-Madagascar, COUT, CNRE and CNRO framework.

The role of the student was to identify three additional stations that would contribute to the National Coral Reef Monitoring Initiative, as stated above, by snorkelling exploration.

Training for the Coral Reef Habitat Monitoring Plan

The snorkelling exploration procedure was undertaken as follows:

- 9 explorations per stations on the reef flat and reef slope
- 5 min swimming parallel to the reef for each exploration
- After the 5 min swim, complete survey sheet with the following information: cover of living, dead and soft corals (using the cover scale of Dahl (1981)); *Acanthaster planci* presence & other large organisms)
- Record the GPS point of every exploration starting and ending point

10 days were planned for data analysis and report writing, the latter being entitled “*Selection and establishment of permanent coral reef monitoring sites in the Anakao region (Southwest Madagascar sector), a contribution to the National Coral Reef Monitoring Initiative*”.

2.4 Certificates

Upon completion of their work, IH.SM student trainees were presented with a certificate together with a present relating to field-work activities (snorkelling gear/watches). Certificate presentations occurred at the first Conference workshop for the first group and at the final Conference for the two other groups. Reasons behind this timing were to ensure the event was official, either with the presence of the scientific community, IH.SM senior staff or the media.

The certificate highlights the fact that they have taken part in the Frontier-Madagascar DI Marine Biodiversity Training Project and have completed all tasks successfully (Appendix 1). Furthermore, in order to promote the trainees’ future role in participating in initiatives concerning the development of sustainable management and monitoring plans in the region, a document was sent to a number of people and organisations (Appendix 2). The list of recipients was as follows:

- The President of Anakao-bas
- The President of Anakao-haut
- The President of Soalara-bas
- The President of Soalara-haut
- The President of Lovokampy
- The Maire of the Saint Augustin Commune
- The Maire of the Soalara Commune
- The President of FI.MI.MA.NO
- The Regional representative of the National Office for the Environment (ONE)

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- The Regional representative of the SAGE (Organisation responsible for implementing the Environmental Action Plan and working closely with local communities to do so)
 - The Regional representative of ANGAP (National Association for the Management of Protected Areas)
 - The Regional representatives of organisations working in the domain of marine and coastal research and resources management (World Wide Fund for Nature (WWF), Conservation International (CI), Wildlife Conservation Society (WCS), the Food and Agriculture Organisation (FAO), the Oceanographic Association of the University of Toliara (COUT)).
 - The Governor of the Province of Toliara/PDS
 - The Regional representatives of the Ministry of the Environment
 - The Regional representatives of the Ministry of Fisheries
 - The Regional representatives of the Ministry of Water and Forests
 - The Regional representatives of the Ministry of Education
 - The Regional representatives of the Ministry of Science
 - The Regional representatives of the Ministry of Tourism
-
- Each trainee was also given a copy

3. WORKSHOPS AND CONFERENCES

3.1 Introduction

Four events took place throughout the year to complete and develop skills acquired through the theoretical and field aspects of the training programme. The workshops were organised either in Toliara or in Anakao and run either in French or Malagasy depending on the set objectives and the context. The events when occurring in Toliara facilitated the involvement of potentially key interested organisations and individuals, thus providing a real life interface for trainees, a useful discussion and integration platform for sustainable management planning and a suitable media coverage opportunity for the general public.

3.2 First Workshop

Présentation de la Formation: ‘Darwin Initiative Marine Biodiversity Training Project’

Workshop presenting the Darwin Initiative Marine Biodiversity Training Project

The first event was a workshop presenting the Darwin Initiative Marine Biodiversity Training Project. It took place at the IH.SM library, Toliara, on 18 March 2002. The event was organised and facilitated by the project staff team with the assistance of several IH.SM students on the logistics front.

The objectives of the event were as follows:

- To introduce the Darwin Initiative Training Project in the context of the existing Frontier-Madagascar structure
- To enhance IH.SM students presentation skills acquired during the DI training
- To stimulate a constructive debate on monitoring and management of the marine and coastal local area based on the research undertaken by the DI trainees and their recommendations

The timetable of the workshop was spread over one morning and the day was chosen to ensure the maximum participants could attend.

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Box 1. Timetable of the first first workshop

9h	Presentation of Frontier-Madagascar and the Darwin Initiative training Project (CW)
9h25	Introduction on what the Training Project entails for IHSM trainees (GH)
9h35	Introduction on what the Training Project entails for Community Representatives and Fisheries Officers (ZT)
9h45	Each IHSM DI trainee presents the results of his personal project (15 minutes each with 5 minutes question time)
	<ul style="list-style-type: none">▪ MARTIAL Didi - <i>Assessment of the use of beach seine nets in Anakao and Soalara with recommendations for monitoring and management</i>▪ TATANGIRAFENO Sébastien - <i>A socio-economic study of coastal and marine resource use in Beheloka with recommendations for management</i>▪ M. RABERINARY Daniel - <i>Assessment of the cephalopod fishery of Beheloka: a basis for monitoring and management</i>▪
10h45	Open Debate (facilitator CW)
11h10	Certificates are distributed to the IHSM DI trainees (CW, GH, ZT)
	MW makes a speech to thank Frontier-Madagascar
11h30	The BBC documentary <i>'The Blue Planet'</i> is shown
12h00	Discussions continue over a cocktail
	Media interviews are carried out

The participants were sent invitations explaining what the conference would entail a month in advance and had to confirm their attendance. This was to ensure that the venue was appropriate in size and finger food for the cocktail ordered proportionately. Posters were also placed at the University and other educational institutions, and the numbers this would attract estimated.

Over forty people came to the venue including organisations from the development sector, from the government and non-governmental conservation organisations. The University Head of the Science, University lecturers and professors, many students in marine sciences and other, the television and the radio, hotel owners and Frontier-Madagascar staff and research assistants were all represented in the audience.

During the question times and the debate following the presentations, various topics were discussed. A synopsis is presented below:

- Research techniques utilised by students were questioned and approved of after explanations, particularly concerning justifications for future monitoring
- The length of the study time was commented on, with congratulations to students on the amount of data collected in such a restricted time frame when knowing how difficult it is in Madagascar
- The validity of data was questioned and successfully justified in most cases
- Past studies linked to the subjects were pointed out although it was generally agreed that access to existing information is a problem
- The problem of having to pay or give presents to local communities that have already been exposed to a researcher proceeding that way was debated
- Other environmental problems relating to the utilisation of marine and coastal resources was discussed
- The potential for stronger collaboration with the ONE (EMC section) was discussed in relation to monitoring for the PNAE. The development of a stronger collaboration is an area that Frontier-Madagascar is working on although the whole political structure is being restructured and EMC changing status to SAGE.

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- The FAO and Ministry of Fisheries showed particular interest on results and future monitoring based on that.
- Various questions were also asked concerning more details about Frontier-Madagascar and the future of the organisation, the Darwin Initiative and the Convention on Biological Diversity (CBD), SCUBA diving training and BTEC development for Malagasy students.
- Much encouragement was given to what was judged as a positive initiative.

The outcome of the workshop was successful in achieving the original objectives. Discussion points are summarised below:

- Based on the questions asked by the audience, the structure, the aims and objectives, the current research and the training programmes undertaken by SEE and Frontier-Madagascar became clearer to the audience.
- Through the media coverage of the event (both on the radio and the television), the profile of Frontier-Madagascar was raised at the provincial level and Darwin Initiative was publicised.
- The DI trainees experienced presenting to an audience of officials, functionaries, lecturers, doctors, professors and governmental officials who are there to question their work (both scientifically and ethically) and debate view points.
- The DI trainees learnt how to argue their points of view, justify chosen techniques, further explain results, and the value of drawing conclusions and making recommendations.
- The open debate raised certain points that the audience agreed that should be acted on. These included:
 - The need for better communication between organisations,
 - The need to better the system of availability of information, including past research, in order to improve monitoring initiatives,
 - The need for better integration in planning and implementing sustainable management initiatives of marine and coastal environments was underlined.

3.3 Second Workshop

Problèmes Régionaux pertinents à l'environnement marin et côtiers et au Département des Pêches et identification de solutions

Workshop: Regional problems for the marine and coastal environment and the Fisheries Department and identification of solutions

The second event consisted in a workshop involving fisheries officers and treating of regional problems in the marine and coastal environment with solutions from the Fisheries Department. It began mid-morning of 23 May 2002, at the IH.SM library, and continued over lunch and in the afternoon at the Zanzibar terrace, Toliara. The event was organised by the project staff team and facilitated by the project co-ordinator. The participants included the trainees and the project staff.

The objectives of the workshop were:

- For participants to better their understanding of key interested parties in the sustainable management of resources
- To identify key local environmental problems and functional problems within the Department of Fisheries at the Provincial level with view of identifying solutions
- To test Fisheries Officers DI trainees newly acquired skills at debating solutions and plans for the sustainable management of resources within an international, regional and local legal context.

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Box 2. Timetable of the second workshop

8h	Introduction to the day's activities
8h30	Last lecture: ' <i>International, national and regional politics</i> ' to introduce the Workshop's debating question for the rest of the day: <i>The Indian Ocean and Madagascar, are there potential solutions for the sustainable management of resources ?</i>
10h00	Question time
10h20	Summary of Training Programme (Lectures)
10h30	Break
10h45	Practical Exercise (each trainee worked on this alone): Identification of environmental problems linked to particular activities of the trainee in his/her job area List of the worst regional environmental problems in the trainee's opinion Identification of problems that prevent the trainee to implement his/her job requirements and objectives
11h05	Restitution: Presentation of the outcome of the practical exercise and discussion
11h35	Break
12h30	Lunch at Zanzibar and general discussions
13h30	Practical Exercise: ' <i>Role Play</i> '
14h50	Summary of all conflicting interests in the sustainable management of marine resources
15h10	Debate over solutions and wrap-up of the Practical Exercise
15h30	Break
15h45	Practical Exercise (undertaken as a group): Identification of environmental solutions linked to particular activities of the trainees in their job area with input from others List of solutions for identified worst regional environmental problems in the trainees opinion Identification of solutions to alleviate problems that prevent the trainees to implement their job requirements and objectives as individuals and as a department List of Actions
16h30	Summary of the day

The '*Role Play*' was an exercise designed to stimulate the participants to consider conflicting pressures on the local resources to be integrated in sustainable management plans. Please refer to box below for explanations.

Box 3. Role Play

Jeu de rôle (see below for summary in English)

La région X est une zone côtière possédant 100km de côte. La région est centrée autour d'une grande ville principale et se compose de plusieurs petits villages. La pêche est l'activité principale de la région. Néanmoins, les pêcheries montrent des problèmes majeurs qui menacent la santé à long terme des ressources marines et côtières. Ces enjeux majeurs sont :

- la surexploitation des ressources. En effet, les chiffres des captures ont diminués régulièrement depuis une dizaine d'années. Les efforts de pêche ont augmenté, les CPUE ont diminué et les techniques de pêche ont changé (les filets possèdent des mailles très petites maintenant)
- la sédimentation. En effet, deux fleuves majeurs s'écoulent dans la région et charient des quantités importantes de sédiments se déposant sur les récifs. Aucune étude scientifique n'existe vraiment à ce sujet mais des observations personnelles de différents scientifiques de la région.
- Une nouvelle technique de pêche destructrice est utilisée à l'échelle locale et pour le moment à un niveau faible mais la tendance est à l'augmentation.
- La pêche industrielle a montré des impacts négatifs sur les ressources marines. Les châlutiers à crevettes par exemple ont un taux de bycatch de 500% au minimum.
- Une entreprise d'aquaculture de crevettes a un projet d'installation d'une ferme aquacole dans la région. Le site choisi est une mangrove située à côté d'un village de 500 habitants. L'entreprise prévoit une ferme de 5ha avec une aquaculture de type intensive. Tous le personnel qualifié est étranger et l'entreprise prévoit d'employer 4 personnes locales.

Considérant la situation actuelle et les enjeux, le gouvernement régional demande une révision du plan de gestion régionale des ressources marines et côtières.

- Rôle 1 – Investisseur principal dans l'Entreprise d'aquaculture
Mr. RAFARAMAMDIMBY Salvador Calvin, Chef de Division Pêche Artisanale
- Rôle 2 – Représentant des Communautés Locales
RAZAFINDAMANANA Julienne, Chef de Division Pêche Traditionnelle
Absente, remplacée par ZALIHANTA Tanantely
- Rôle 3 – Chercheur scientifique et ONG environnementale
MANOELY, Contrôle de l'application de la réglementation/Surveillance côte
- Rôle 4 – Ministère de la Pêche et FAO
NOELY, Chef de Division de la Pêche Industrielle/Surveillance côte
- Rôle 5 – Ministère de l'Environnement, Office National de l'Environnement (EMC)
RASOAMAMAHIRANA R. Céline, Responsable Aquaculture
- Rôle 6 – Ministère du Budget et du Développement des Provinces Autonomes
LIVINY Etsiavitra Augustine, Contrôle d'établissement
- Rôle 7 - Avocat du Diable, Représentant de tout autre point de vue
WEBSTER Chloë

Role Play

The coastal area 'X' discussed has 100km of coastline, is centred around a big town and also contains many small villages. Its main activity is fishing. However, the different fisheries seem to have major problems that threaten the health of marine and coastal resources in the long term. Pressures include over-exploitation of resources, sedimentation, destructive fishing techniques, industrial fisheries by-catch and a big company planning to set up a shrimp farm in a mangrove close to a village of 500 habitants and employing essentially foreign staff (only 4 local staff).

Considering the above, the Regional Authorities have asked for a revision of the management plan concerning coastal and marine development. Discussions involved key stakeholders:

- Role 1 – Main investor for aquaculture
- Role 2 – Local Community Representative
- Role 3 – Researcher for Environmental NGO
- Role 4 – Ministry of Fisheries and FAO
- Role 5 – Ministry of the Environment, ONE (EMC)
- Role 6 – Ministry of the Budget and the Development of Autonomous Communes
- Role 7 - Devils advocate, representing other view-points

The outcome of the workshop was constructive.

- The DI Fisheries Officers trainees learnt how to identify problems in the light of issues they were not completely aware of (content of lectures prior to workshop).
- The DI Fisheries Officers trainees learnt how to identify problems with a solution orientated approach, both singularly and debating it in a work group with job positions in various fields.
- The DI Fisheries Officers trainees learnt how to understand view points of various key interested parties in the development of the marine and coastal zone and the sustainable use of natural resources.
- The participants contributed concrete ideas that can enable the sustainable development of the region in an integrated way. The key priorities to address in the future were identified as follows:
- The problem of information awareness and access to information (as in existing reports in the field) and information systems (databases).
- The problem of limited funding for implementation of job objectives (this also being linked to political instability and corruption in developing countries).
- Lack of updated training.
- Lack of communication between organisations and Ministries.
- Practical Exercises in order to access and obtain information on various issues were set as tasks for the future and are still followed up to date.

3.4 Third Workshop

Recherches scientifiques, sensibilisation et stratégies de gestion pour l'utilisation durable des ressources marines et côtières.

Workshop: Scientific research, public awareness and management strategies for the sustainable use of marine and coastal resources.

The third event brought together the project's trainees and other people from the local community as well as trainees from IH.SM for a workshop entitled 'Scientific research, public awareness and management strategies for the sustainable use of marine and coastal resources'. The workshop took place at the Anakao school on 10 July 2002 and 26 participants attended.

This event was carried out in Malagasy as it was felt this would facilitate constructive debates among participants. An experienced facilitator was brought in from outside for neutrality.

The objectives of the workshop were to:

- provide an interactive platform and interface for two key sectors of actors involved with sustainable environmental management: local communities and postgraduate students
- present the results of the research projects undertaken by the DI IH.SM trainees in order to provide feedback to the local community
- test IH.SM trainees' presentation skills acquired during the DI training programme
- put the IH.SM students in the real context of resource management processes
- gather the village representatives for a brainstorm on environmental issues
- test Local Community Representative trainees' level of understanding and involvement in the issues presented and discussed after having following DI training programme
- stimulate a constructive discussion/debate on public awareness issues and management strategies for the sustainable use of the local marine and coastal resources
- trigger constructive initiatives involving DI trainees and the rest of the attendees from the local community

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The day's timetable was as follows:

Box 4. Timetable of the third workshop

9h	Introduction of the workshop: schedule and aims (CW translated by facilitator)
9h05	Introduction of the different participants
9h10	Presentation by the IH.SM trainees personal project (with question time)
	<ul style="list-style-type: none">• RALISAONA Bartali Léandro <i>Establishment of a monitoring process for lagoon gleaning activities between Ampasipoty and Anakao: a basis for monitoring and management</i>• ROGER <i>Assessment of fish exploitation and its potential socio-economic impacts in the village of Anakao : a basis for monitoring and management</i>• RAKOTOJAONA Vahatra Zo Nomenjanahany <i>The establishment of an information centre aiming at raising public awareness on sustainable marine resource use, with a local perception monitoring process</i>• MARTIAL Didi - <i>Assessment of the use of beach seine nets in Anakao and Soalara with recommendations for monitoring and management</i>• TATANGIRAFENO Sébastien - <i>A socio-economic study of coastal and marine resource use in Beheloka with recommendations for management</i>• RABERINARY Daniel - <i>Assessment of the cephalopod fishery of Beheloka: a basis for monitoring and management</i>
10h00	Identification of the major problems in the Anakao area & their causes
10h50	Break
11h10	Group brainstorming session: <ul style="list-style-type: none">- 1st group: Resource use issues (problems, causes, potential solutions)- 2nd group: environmental awareness and the most efficient methods
11h50	Restitution and discussion/debate on the proposed solutions for both themes
12h30	End of the workshop and thanks
12h35	Refreshment

The workshop was interactive and all participants contributed their opinions and ideas. Both parties gained an understanding of each other and identified solutions that can now feed into the applied process of sustainable management of resources at the local level. In particular, it was obvious that:

- the IH.SM trainees learned how to face an audience made of people who do not generally have a high level of understanding concerning science but who have extremely high vested interests in the ecological health of a habitat and its resources as they depend on it for their livelihood
- the IH.SM trainees learnt how to argue their points, further explain results, and most of all, they learnt to take into account the point of view of local communities when drawing conclusions and setting out recommendations
- the local community representative trainees and other locals learnt more about what you can obtain with scientific research and monitoring, and understood the need for such initiatives in sustainable management
- all participants contributed concrete ideas that can enable the sustainable development of the region in an integrated way

3.5 Fourth Workshop

Conférence: Présentation des activités et des Résultats du projet Darwin et Préparation du plan de suivi des récifs coralliens

Conference: Final presentation of the activities and results of the Darwin Initiative Training Programme and preparation of the coral reef monitoring plan

This event took the form of a conference that marked the end of the Darwin Initiative Marine Biodiversity Training Project. It took place in the conference room of the Capricorne Motel, Toliara, on 6 September 20002. It consisted in a final presentation of the training project achievements, including of the coral reef monitoring plan preparations.

The event was conducted in French although the proceedings were then translated in Malagasy (in *Vezo*) to ensure the community representatives could pass on the information to their village. Fifty people attended including trainees and the event received media coverage.

The objectives of the conference were as follows:

- to present the activities of the Darwin Initiative Marine Madagascar Biodiversity Training Project and its results to different environmental organisations of Toliara and to the general audience through media coverage of the event
- to present and discuss habitat monitoring plans developed during the project
- to give feedback to trainees through highlighting achievements

The conference covered one morning with a timetable as follows:

Box 5. Timetable of the final seminar

10h00 Introduction to the day's activities (CW)
10h05 Speech from the Director of IH.SM on the positive results of the IH.SM/Frontier-Madagascar collaboration and on the wish of a longer productive continuity (MW)
10h15 Origins of the Darwin Initiative project in the International context (CW)
11h00 Description of the Darwin Initiative - Marine Madagascar Biodiversity Training programme activities (GH)
11h30 Coffee Break
11h45 Summary of achievements and Presentation of the aims of the Habitat Monitoring Plan for Coral Reefs in the South West (CW)
12h15 Question Time, Discussion and Wrap up
12h30 Refreshments and Discussion

Various topics were discussed throughout the event. The question session was very constructive and resulted in brainstorming with regard to the potential of additional training activities. Points raised are summarised below:

- The involvement of the local community in habitat monitoring would be necessary and interesting for the long-term overview. For the community to be able to monitor coral reefs, they need to use simple indicators of the health of the environment. There is however not always the dedication and interest to do so.
- A development of the DI project was discussed. For enhanced legacy of a project's initiatives, many attendees agreed on a beneficial solution aiming at training trainers who can carry on the awareness raising, especially in the local communities.

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- The conference proved to be particularly successful with all objectives achieved. Trainees commented positively when looking back on the achievements gaining from the training. The final conference reinforced trainee understanding of the important links between different organisations for the development and implementation of sustainable management plans.

4. PUBLICITY

Media coverage was organised at various points throughout the year to explain what the project was about and to present outcomes to the general audience.

- National Television Two programmes were filmed including a 30 minute documentary
- Regional Television Two programmes were filmed
- Local Radio Three interviews were recorded and DI MBTP was mentioned 10 times
- National Newspaper A Press release was sent
- Newsletter Two six monthly Newsletters were published

5. LESSONS LEARNED

5.1 Local Community Representatives

5.1.1 The project perspective

From the co-ordinators perspective, training local community representatives proved to be a success. Comments concerning the local fisheries status made by participants, after training and in general discussions are particularly encouraging. These comments point towards much greater understanding of the reasons governing environmental degradation and place local people in a position whereby their participation in sustainable management systems can gain additional respect from other coastal zone stakeholders. The project has empowered trainees to make informed decisions in ocean governance processes and defend their views in a wider context, a point which became clear at workshops. In other words, their involvement in marine resources management plans should add efficiency to integrated efforts for a sustainable development while protecting biological diversity.

Certain aspects of the political, cultural and economic context do however present risks for the long-term retention and application of this set of new approaches 'imposed' by the training programme and espoused by trainees. People's basic needs, personal interests and cultural habits tend to override environmental principals in developing countries. For this reason the co-ordinators strongly encourage the reinforcement of the outcome of this project through further training and through rapid and increased involvement in the current ICZM initiatives.

Further training would also be necessary to achieve an involvement of the local community at the scientific level, within the undertaking of monitoring projects. Indeed, expectations that the trainees would be willing and motivated to take part in scientific field work such as Frontier Madagascar undertake were soon unveiled as wrong assumptions. Not only do basic scientific notions lack but the cultural setting makes it an unlikely occurrence until the local community has been exposed to additional global change concepts and outcomes, and until environmental education is intensified across generations and social groups. Presently, the

involvement of local community is achievable at the level of socio-economic surveys only. Indeed, although trainees had extensive knowledge of fish species, scientific rigour necessary for underwater surveys was lacking upon repeated trials. The latter were however useful to lead participants in understanding the need for such work as the supporting basis of political decision-making in sustainable management plans.

5.1.2 The trainee perspective

Formal feedback obtained from the participants proved particularly interesting with respect to favourite aspects of the training programme (Appendix 3). Indeed, results covered a wide range of activities. Some trainees were particularly keen on the theoretical part of the course where they learnt a lot more about species they specialise in fishing, such as sharks or turtles. Others were keener on the sustainable management and political lectures and discussions, which was also obvious during workshops. These participants specified they would be keen to learn more about such issues. Finally, a proportion of trainees favoured the field trials, and expressed the will to learn how to dive or 'breathe under water'.

The wide range of personal preferences reflected in responses was perceived by co-ordinators as both positive and surprising considering the small number of people. Such representation is much needed in integrated sustainable management planning when public participation is required. As a result, the choice of trainees was a successful one.

5.2 Fisheries Officers

5.2.1 The project perspective

From the perspective of co-ordinators, training the fisheries officers was the most challenging in terms of logistics and delivery of programme content. Work schedules and family requirements made it difficult to find an appropriate time bracket for the course which, as a result, had to be intensified. However, participants did not appear to suffer from an overload of information.

Methods of delivering the course content and running the practicals had to be re-adjusted on the first day. The majority of participants were over 40 years of age with many years of experience as functionaries in the fisheries department of Toliara. Involvement and participation based on personal expertise was therefore sought from trainees during lectures to eradicate any patronising impression that could have wrongly arisen.

The training was successful in achieving the set objectives with participants gradually opening up. It became clear that each in turn benefited from the different subjects discussed. Yet, while the programme was useful, practicals also underlined the urgent need for further empowerment such as at the structural and infrastructural levels, with technical information access skills, and within the context of global change, at the political level.

5.2.2 The trainee perspective

Formal feedback was sought from participants (Appendix 4) who could remain anonymous should they wish so. Although co-ordinators encouraged and expected constructive criticism, reactions to the training programme were very positive, having visibly opened minds on specific issues and stimulated motivation for future action. However, it was also clear that for this motivation to remain high, further support would be needed, as explained above.

5.3 IH.SM Students

5.3.1 The project perspective

The co-ordinators felt that although the IH.SM training programme was by far the most demanding part of the project, it was extremely successful, particularly on the scientific side and with the establishment of the coral reef habitat monitoring plan. Juggling with timetables from the University, that of research and that of tides was particularly tricky. Furthermore, swimming capabilities were generally poor and bringing students to the adequate level for survey work was time consuming. Various other unexpected delaying factors occurred but the programme worked out eventually.

Performance in report writing, public speaking and leadership in field research for subsequent work were all skills that had very much improved after taking part in the training project. Personal motivation to better their English capacities was also noticeable among students. Self-confidence was much increased and having acquired a wider perspective on the field of marine science and the sustainable management of marine resources, students discovered many more potential work opportunities for their future career path.

As future scientists on whom environmental politics will rely, the co-ordinators felt that the training had been suited to the regional needs.

5.3.2 The trainee perspective

From feedback both verbal and evidence from the written investigations, it appeared that the greatest majority of participants were extremely satisfied with the training and proud of what they had managed to achieve through their involvement in research activities.

5.4 Workshops

All workshops were useful events based on the achieved results, as well as on formal and informal feedback. A few complications arose in the process, such as with the languages, recording what was said and attendance compensation fees. Yet, these were remedied and the series of workshops ran smoothly. A particularly great asset was the use of these venues to attract the media which proved to be a successful mean to publicise the project in the Toliara region as well as at the national level for people who could not attend and for the general public.

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ATTESTATION DE FORMATION DARWIN INITIATIVE

Ce papier atteste que Mr **Tatangirafeno Sebastien** a participé à la formation de l'Initiative Darwin* proposée par Frontier-Madagascar sur une durée de 3 mois. Cette formation vise à apporter une approche appliquée aux étudiants dans les domaines de la biologie marine et de la gestion de l'environnement et de ses ressources. Les qualifications acquises durant la formation sont :

- La capacité de mener un projet de recherche, de sa préparation, de son exécution sur le terrain, ainsi que de la réalisation d'un rapport
- La capacité d'appréhender les différentes composantes de l'environnement marin et côtier
- Une approche intégrée de la gestion des zones côtières

Les formateurs de l'Initiative Darwin confirme que Mr Tatangirafeno Sebastien a suivi la formation avec grand succès.

Le 18 mars 2002,

Chloë Webster

Co-ordinatrice du project

Gwenaël Hémary

Co-ordinatrice de formation



DARWIN INITIATIVE MARINE BIODIVERSITY TRAINING PROJECT



CIRCULAIRE D'INFORMATION

INITIATIVE DARWIN

La fondation Darwin (Département pour l'environnement du Royaume-Uni) est une société anglaise qui finance des projets liés à la protection de la biodiversité et à la survie des espèces. Frontier-Madagascar a reçu, en Octobre 2001, des fonds pour créer un programme de formation, sur un an, visant à l'enseignement et la sensibilisation de personnes malgaches sur les enjeux environnementaux de la région Sud Ouest de Madagascar et les différents moyens de gestion. Le projet vise trois types de personnes en temps qu'acteurs clefs du développement durable de la région: les étudiants de l'IH.SM, les communautés locales et les officiers des Pêches.

SEE ET FRONTIER

La Société pour l'Exploration Environnementale (SEE) est un Organisation Non Gouvernementale (ONG) anglaise créée en 1989, basée à Londres. Les différents projets que la SEE finance sont mis en place dans différents pays d'Afrique et d'Asie du Sud Est. Le partenariat avec des organisations gouvernementales ou non, ainsi qu'avec des universités forme un projet nommé FRONTIER. Le but de la société est de promouvoir et exécuter des programmes de recherche sur le terrain ainsi que de former et de sensibiliser autrui afin de mettre en place des projets contribuant à la sauvegarde et à l'utilisation soutenable des ressources naturelles. A Madagascar, la SEE a travaillé sur la côte Sud Ouest depuis Janvier 2000. La SEE est en collaboration avec l'Institut Halieutique et des Sciences Marines en tant que Frontier-Madagascar et entreprends des initiatives sur l'environnement marin et terrestre.

IH.SM

L'Institut Halieutique et des Sciences Marines (IH.SM) a été créé en 1992 à la suite de la fusion de 3 entités : la Station Marine, la filière Océanologie appliquée et l'Unité de Formation Supérieure Halieutique. Il a pour mission la formation et la recherche en matière de Pêche, d'Aquaculture et d'Environnement marin et littoral. L'IH.SM possède un large spectre de partenaires allant d'autres universités internationales aux collectivités locales en passant par les organismes tel que FRONTIER et les sociétés privées.



Questionnaire de fin de formation Darwin Initiative Programme – Madagascar Du 16 au 18 Avril 2002

COMMUNAUTÉS LOCALES

Les participants de la formation Darwin Initiatives sont priés de bien vouloir remplir le questionnaire suivant une fois la formation finie. Merci par avance.

1. Nom : Félix Raolake
Position : pêcheur
2. Comment avez-vous trouvé l'accueil au camp de FRONTIER?
Bien
3. Comment avez-vous trouvé le déroulement de la formation? C'est-à-dire, le planning des journées était-il trop chargé, pas assez chargé ou bien équilibré?
Moyen (équilibré)
4. Pensez-vous que le contenu des cours de la formation était approprié et intéressant?
J'ai bien compris les explications: les choses intéressantes 'Menaces sur les écosystèmes'
5. Quelle(s) partie(s) de la formation avez-vous préféré?
Ecologies
6. Y-a-t-il un (des) sujet(s) qui d'après vous auraient dûs être traités et ne l'a pas été durant la formation?
Non
7. Autres commentaires:



Questionnaire de fin de formation
Darwin Initiative Programme – Madagascar
Du 16 au 18 Avril 2002

COMMUNAUTÉS LOCALES

Les participant de la formation Darwin Initiatives sont priés de bien vouloir remplir le questionnaire suivant une fois la formation finie. Merci par avance.

1. Nom : Itoh Pentekoste
Position : pêcheur

2. Comment avez-vous trouver l'accueil au camp de FRONTIER?
Bien

3. Comment avez-vous trouver le déroulement de la formation? C'est-à-dire, le planning des journées était-il trop chargé, pas assez chargé ou bien équilibré?
Moyen

4. Pensez-vous que le contenu des cours de la formation était approprié et intéressant?
Les choses que l'on a appris sont bien

5. Quelle(s) partie(s) de la formation avez-vous préféré?
Ecologies

6. Y-a-t-il un (des) sujet(s) qui d'après vous auraient dûs être traités et ne l'a pas été durant la formation?
Non

7. Autres commentaires:



Questionnaire de fin de formation
Darwin Initiative Programme – Madagascar
Du 16 au 18 Avril 2002

COMMUNAUTÉS LOCALES

Les participant de la formation Darwin Initiatives sont priés de bien vouloir remplir le questionnaire suivant une fois la formation finie. Merci par avance.

1. Nom : Michel Jean Fleury
Position : pêcheur

2. Comment avez-vous trouver l'accueil au camp de FRONTIER?
Bien (satisfaisant)

3. Comment avez-vous trouver le déroulement de la formation? C'est-à-dire, le planning des journées était-il trop chargé, pas assez chargé ou bien équilibré?
Bien équilibré

4. Pensez-vous que le contenu des cours de la formation était approprié et intéressant?
Bien = Approprié et intéressant

5. Quelle(s) partie(s) de la formation avez-vous préféré?
Gestion

6. Y-a-t-il un (des) sujet(s) qui d'après vous auraient dûs être traités et ne l'a pas été durant la formation?
Non

7. Autres commentaires:



Questionnaire de fin de formation Darwin Initiative Programme – Madagascar Du 16 au 18 Avril 2002

COMMUNAUTÉS LOCALES

Les participant de la formation Darwin Initiatives sont priés de bien vouloir remplir le questionnaire suivant une fois la formation finie. Merci par avance.

1. Nom : Clément Désiré
Position : pêcheur
2. Comment avez-vous trouver l'accueil au camp de FRONTIER?
Bien
3. Comment avez-vous trouver le déroulement de la formation? C'est-à-dire, le planning des journées était-il trop chargé, pas assez chargé ou bien équilibré?
Bien équilibré
4. Pensez-vous que le contenu des cours de la formation était approprié et intéressant?
Bien, Approprié et intéressant
5. Quelle(s) partie(s) de la formation avez-vous préféré?
Gestion
6. Y-a-t-il un (des) sujet(s) qui d'après vous auraient dûs être traités et ne l'a pas été durant la formation?
Non
7. Autres commentaires:



Questionnaire de fin de formation
Darwin Initiative Programme – Madagascar
Du 16 au 18 Avril 2002

COMMUNAUTÉS LOCALES

Les participant de la formation Darwin Initiatives sont priés de bien vouloir remplir le questionnaire suivant une fois la formation finie. Merci par avance.

1. Nom : Charles dit Vani
Position : pêcheur

2. Comment avez-vous trouver l'accueil au camp de FRONTIER?
Bien (satisfaisant)

3. Comment avez-vous trouver le déroulement de la formation? C'est-à-dire, le planning des journées était-il trop chargé, pas assez chargé ou bien équilibré?
Bien équilibré

4. Pensez-vous que le contenu des cours de la formation était approprié et intéressant?
Bien = approprié et intéressant

5. Quelle(s) partie(s) de la formation avez-vous préféré?
Gestion

6. Y-a-t-il un (des) sujet(s) qui d'après vous auraient dûs être traités et ne l'a pas été durant la formation?
Non

7. Autres commentaires:



Questionnaire de fin de formation
Darwin Initiative Programme – Madagascar
Du 16 au 18 Avril 2002

COMMUNAUTÉS LOCALES

Les participant de la formation Darwin Initiatives sont priés de bien vouloir remplir le questionnaire suivant une fois la formation finie. Merci par avance.

1. Nom : [Jean](#)
Position : [Trésorier de Anakao-bas](#)
2. Comment avez-vous trouver l'accueil au camp de FRONTIER?
[Bien](#)
3. Comment avez-vous trouver le déroulement de la formation? C'est-à-dire, le planning des journées était-il trop chargé, pas assez chargé ou bien équilibré?
[Bien équilibré](#)
4. Pensez-vous que le contenu des cours de la formation était approprié et intéressant?
[Approprié et intéressant](#)
5. Quelle(s) partie(s) de la formation avez-vous préféré?
[Gestion](#)
6. Y-a-t-il un (des) sujet(s) qui d'après vous auraient dûs être traités et ne l'a pas été durant la formation?
[Non](#)
7. Autres commentaires:



Questionnaire de fin de formation Darwin Initiative Programme – Madagascar

DU 21 AU 23 MAI 2002

Officiers des Pêches

1. Nom (optionnel): **Mr. MANOELY**

Position: **Contrôle de l'application de la réglementation/ Surveillance des Pêches**

2. Comment avez-vous trouvé l'organisation de la formation (emploi du temps, logistique)?

J'ai trouvé que l'organisation de la formation était intéressante, mais il nous faut du temps pour l'application sur le terrain

3. Pensez-vous que le contenu des cours de la formation était approprié à vos besoins et à votre niveau? Si non, quelle(s) partie(s) de la formation n'étai(en)t pas adaptée(s)?

Oui, je pense que le contenu des cours de la formation était approprié à mes besoins et à mon niveau

4. Quelle(s) partie(s) de la formation avez-vous préféré? Pourquoi?

J'ai aimé toutes les parties de la formation car cette formation fait partie de mon métier étant donné que je suis à la fois un agent de terrain et un observateur de la surveillance des pêches.

5. Y-a-t-il d'autres sujets que vous auriez aimé aborder durant la formation?

Durant la formation, j'aurais aimé aborder la gestion des zones côtières, la politique régionale, nationale et internationale, ainsi que la sensibilisation du public plus en profondeur.

6. Autres commentaires:

Je souhaiterais continuer cette formation pour la prochaine fois pour bien savoir les informations non seulement au niveau régionale ou nationale, mais aussi international.



Questionnaire de fin de formation Darwin Initiative Programme – Madagascar

DU 21 AU 23 MAI 2002

Officiers des Pêches

1. Nom (optionnel):

Position: [service pêche](#)

2. Comment avez-vous trouvé l'organisation de la formation (emploi du temps, logistique)?

[Pas de commentaires](#)

3. Pensez-vous que le contenu des cours de la formation était approprié à vos besoins et à votre niveau? Si non, quelle(s) partie(s) de la formation n'étai(en)t pas adaptée(s)?

[Le contenu des cours de la formation était vraiment approprié à mes besoins car j'ai vécu sans me rendre compte de la destruction du milieu marin](#)

4. Quelle(s) partie(s) de la formation avez-vous préféré? Pourquoi?

[Plus particulièrement sur les menaces des écosystèmes bien que les cours soient tous importants et intéressants. La connaissance de ces menaces me permet de chercher une solution au préalable.](#)

5. Y-a-t-il d'autres sujets que vous auriez aimé aborder durant la formation?

[Les différents coraux existants à Tuléar.](#)

6. Autres commentaires:



Questionnaire de fin de formation Darwin Initiative Programme – Madagascar

DU 21 AU 23 MAI 2002

Officiers des Pêches

1. Nom (optionnel): **Mr. NOELY**

Position: **Chef de Division de la Pêche Industrielle**

2. Comment avez-vous trouvé l'organisation de la formation (emploi du temps, logistique)?

L'organisation était bonne côté formation et emploi du temps, mais le support logistique était moyen.

3. Pensez-vous que le contenu des cours de la formation était approprié à vos besoins et à votre niveau? Si non, quelle(s) partie(s) de la formation n'étai(en)t pas adaptée(s)?

Vraiment idéal!

4. Quelle(s) partie(s) de la formation avez-vous préféré? Pourquoi?

La partie 'Pollution marine', car avant je n'y faisais pas trop attention pensant que c'était souvent surmédiatisé quand il s'agit de la question 'Pollution'.

5. Y-a-t-il d'autres sujets que vous auriez aimé aborder durant la formation?

**Les différentes méthodes d'approche et de vulgarisation effectuées par FRONTIER auprès des pêcheurs, et des résultats obtenus, pour avoir une bonne relation avec eux!
Un échange d'expérience en soi!**

6. Autres commentaires:

J'aurais aimé avoir une formation sur la plongée et le snorkelling



Questionnaire de fin de formation Darwin Initiative Programme – Madagascar

DU 21 AU 23 MAI 2002

Officiers des Pêches

1. Nom (optionnel): **RAFARAMAMDIMBY Salvador Calvin**

Position: **Chef de Division Pêche Artisanale**

2. Comment avez-vous trouvé l'organisation de la formation (emploi du temps, logistique)?

L'organisation de la formation du point de vue logistique et emploi du temps était très bien.

3. Pensez-vous que le contenu des cours de la formation était approprié à vos besoins et à votre niveau? Si non, quelle(s) partie(s) de la formation n'étai(en)t pas adaptée(s)?

Tout le contenu de la formation était approprié à nos besoins.

4. Quelle(s) partie(s) de la formation avez-vous préféré? Pourquoi?

La pollution marine parce que:

- **Tuléar se situe sur le canal du Mosambique**
- **Toutes pollution terrestres se versent tôt ou tard dans la mer et étant opérateur économique et friant de produit de mer, cette formation m'a éveillé car notre vie est menacée.**

5. Y-a-t-il d'autres sujets que vous auriez aimé aborder durant la formation?

6. Autres commentaires:

J'aimerais recevoir le contenu des formations que vous avez expliqué sur ordinateur. (à savoir: *pollution marine*).



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DU 21 AU 23 MAI 2002

Officiers des Pêches

1. Nom (optionnel): **LIVINY Etsiavitra Augustine**

Position: **Contrôle d'établissement**

2. Comment avez-vous trouvé l'organisation de la formation (emploi du temps, logistique)?

Dans l'ensemble, l'organisation de la formation est satisfaisante, mais la formation elle-même est très concentrée, ce qui rend l'assimilation des nouvelles données difficiles.

3. Pensez-vous que le contenu des cours de la formation était approprié à vos besoins et à votre niveau? Si non, quelle(s) partie(s) de la formation n'étai(en)t pas adaptée(s)?

Le contenu des cours de la formation était approprié à nos besoins théoriques, alors c'est à nous maintenant de l'adapter selon nos besoins.

4. Quelle(s) partie(s) de la formation avez-vous préféré? Pourquoi?

De toute la formation, ce que j'ai préféré le plus, c'est la partie "Les captures et comment estimer leurs maximum pour une exploitation durable" parce que c'est le problème qui nous préoccupe le plus. En effet nos pêcheurs par insuffisance d'encadrement et financier ne suivent pas la réglementation mise en vigueur par le Ministre de la Pêche et des Ressources Halieutiques, à savoir: le calibrage des filets et interdiction de la pêche à l'explosif et poison (Iaro). Cela rend précaire la notion d'exploitation durable de la pêche traditionnelle.

5. Y-a-t-il d'autres sujets que vous auriez aimé aborder durant la formation?

J'aurai aimé aborder le problème d'encadrement et de sensibilisation des pêcheurs en vue de les organiser en groupe ultérieurement.

6. Autres commentaires:

A mon avis, il me semble que la formation que nous avons suivie la semaine dernière (à savoir cette formation Darwin) est suffisante du point de vue théorique, donc il nous faut envisager dans la mesure du possible une descente sur le terrain pour évaluer sur place l'ampleur de ce problème.



Questionnaire de fin de formation Darwin Initiative Programme – Madagascar

DU 21 AU 23 MAI 2002

Officiers des Pêches

1. Nom (optionnel): **RASOAMAMAHIRANA R. Céline**

Position: **Responsable Aquaculture**

2. Comment avez-vous trouvé l'organisation de la formation (emploi du temps, logistique)?

J'ai suivi plusieurs formation mais cette fois-ci, l'organisation a été meilleure.

3. Pensez-vous que le contenu des cours de la formation était approprié à vos besoins et à votre niveau? Si non, quelle(s) partie(s) de la formation n'étai(en)t pas adaptée(s)?

Je pense que le contenu des cours de la formation s'approprie à mes besoins et à mon niveau.

4. Quelle(s) partie(s) de la formation avez-vous préféré? Pourquoi?

Les parties de la formation que j'ai préféré:

- **Ecologie des cétacés, requins et tortues**
- **Ecologie des récifs coralliens, des phanérogame marines et des mangroves.**

Car c'est la première fois que je suis formée sur ces sujets.

5. Y-a-t-il d'autres sujets que vous auriez aimé aborder durant la formation?

Je pense qu'il n'y a pas d'autres sujets à aborder

6. Autres commentaires:

J'aimerais suivre d'autres formations concernant toujours ma pêche mais aussi l'aquaculture.