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Integrated coastal management at the regional level: lessons from Toliary, Madagascar

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Abstract

Within the framework of the National Environment Action Plan in Madagascar, an integrated coastal management (ICM) program was launched in 1997. In accordance with international guidelines, the integration effort on the coastal zone concerns the local, regional, and national levels. The field study we conducted in Madagascar in 1999 and 2000 showed that the results achieved by this program vary significantly from one level of action to another. In particular, the ICM process seems to be more difficult to initiate at the regional level. This paper presents the observations leading to this diagnostic, and enlightens some fundamental mechanisms that can explain it. General recommendations are formulated in relation to this case study. © 2002 Elsevier Science Ltd. All rights reserved.

1. Introduction

The Coastal Zone Canada Association recently stated that “there is sufficient general guidance literature on integrated coastal management (ICM) as an international practice. At least 29 key guidance documents have been produced over the past decade and a body of knowledge about important ICM principles now exists” [1, p. 13]. As we share this point of view, we shall not elaborate on the general topic of ICM, as it is already satisfactorily described and quite well known. Our research rather concentrates on analysing and assessing efforts to implement ICM.

As a part of this research effort, we conducted a detailed organizational analysis of the Malagasy coastal zone management system, focusing on the ICM effort which is part of the National Environment Action Plan (NEAP) [2]. This effort appeared

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interesting for many reasons, one of them being that its ambition is to address the issue of integration at the local level as well as at the regional and national ones. This goal was in good accordance with international guidelines, which recommend that ICM should be implemented at all these three levels—though not necessarily simultaneously—and at the international one [3–5]. Hence, our study combined work at different levels and was based on field observations, review of the existing literature and interviews with stakeholders at the local (Anakao village), regional (Toliary region) and national levels. We will first present the general context of Madagascar and the ICM efforts implemented within the NEAP framework. Then, we shall analyse the activities and achievements, point out some difficulties and focus on specific ones that are met at the regional level, but not at the local and national levels. Lastly, we shall try to identify the reasons behind these specific difficulties, find out to what extent they can be relevant to other ICM experiences and what lessons can be learnt from this case study.

2. An overview of coastal management issues and framework in Madagascar

2.1. Introduction to the national and regional context

Madagascar is an island of 590 000 km² with a 5000 km long coast, in the South West of the Indian Ocean (see Fig. 1). It is hot and humid in the east (tropical forest) with abrupt hills and nearly no continental shelf, rather arid in the west with plains and a wide continental shelf, the coast circling the central temperate highlands.

The population of 15 million, composed of 18 ethnic minorities, is rapidly growing (at a rate of 3.2% per year) and largely illiterate (20–80% according to estimations). The country, which is composed of six provinces (*faritany*), municipalities (*fokontany*) and villages (*fokonolona*), is governed by the President of the Malagasy Republic. Municipalities recently received decentralized authority, but a wide range of problems prevent them from exercising their new powers: fund raising is erratic due to tax collecting difficulties, and the municipal administration suffers from a variety of snags (from mismanagement to corruption) which can be summed up by “bad governance”. The transfer of a variety of powers to the six provinces is still under progress. Madagascar is one of the poorest countries in the world with a GNP of about US\$250 per capita. The economic activity is based on agriculture (vanilla, coffee, cloves for exportation, rice, manioc, chicken and zebu for domestic use), and fisheries (prawn is known as the “pink gold”). Sapphire mining is quickly increasing, along with tourism, which is already the second source of currency earning after fishing. Industry, mainly textile, is still little developed. Lastly, the informal economy should not be neglected, as it plays a role in the daily life of a majority of the population. This means firstly that many people have no access to official trade, for their consumers and producers activity is very limited and gives

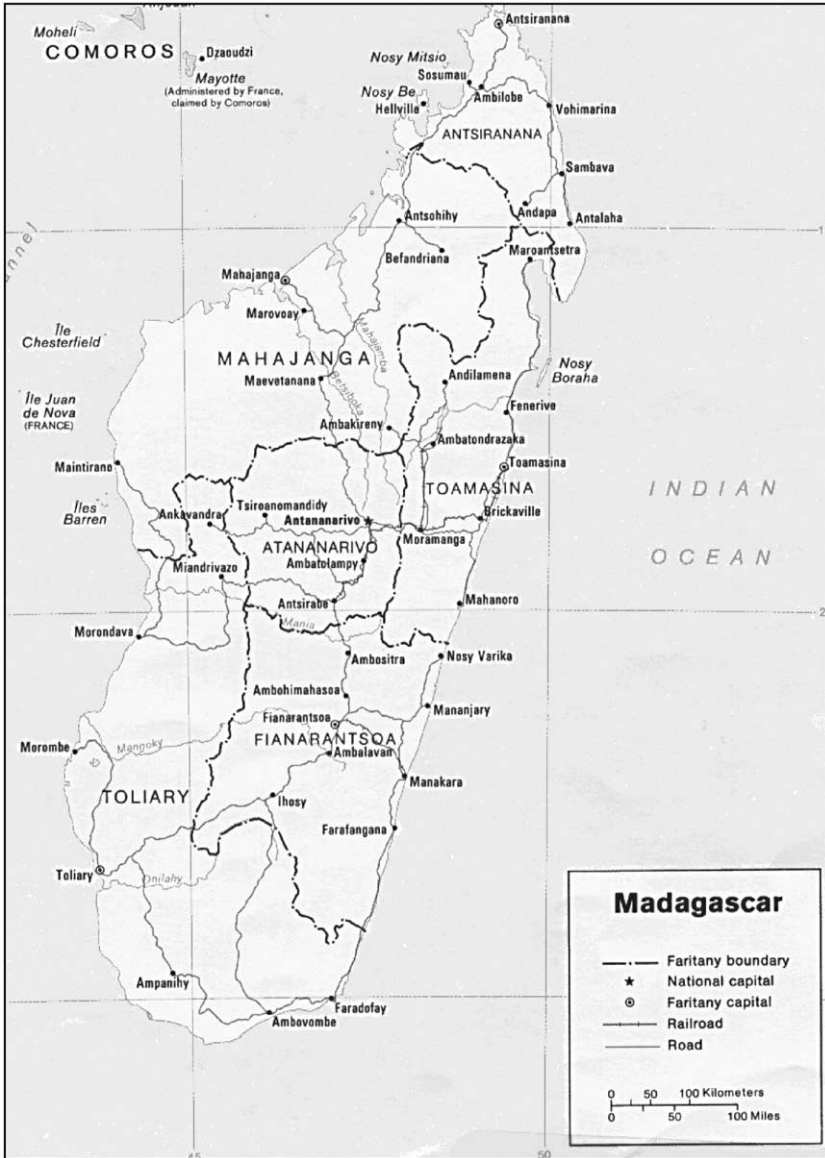


Fig. 1. Map of Madagascar.

them just enough to live on. It also means that black market and economic cheating are current.

The Toliary region, in the southwest, which is half a desert, is one of the poorest of the country. Toliary is the only major city there (about 140 000 inhabitants), and is surrounded by fisherman and farmer (zebu and chicken breeding) villages. Most of

the region is covered with a xerophile bush of high bio-diversity, a few baobab and tamarind forests, and mangroves on the coast and in estuaries. There is little industrial activity, the region being supported by fishery, agriculture (manioc, corn and breeding) and occasional trade via the Toliary harbour.

2.2. Environmental issues in the Toliary region

Madagascar is world famous for its high bio-diversity, of which a large part is endemic. However, its environment has been increasingly threatened in the last decades, due to a variety of anthropic factors that might unfortunately be considered quite common in most developing countries: deforestation, erosion, loss of bio-diversity, and poor water quality are part of them. So that the reader can have an idea of the kind of problems an ICM effort has to address in the Toliary region, let us list in more detail the essential environmental challenges prevailing there [6,7]:

- *Marine water quality*: Deforestation and erosion bring more and more terrigenous sediments, which increase water turbidity. Pollution and eutrophication are also on the rise, particularly in the Toliary Bay, due to urban effluents, domestic rubbish dumps, human and animal dejecta on the foreshore at low tide, frequent mini oil slicks due to the activity of the national oil company (SOLIMA), industrial effluents from cotton and soap manufactures, and poison fishing.
- *Halieutic resources*: In 20 years, the number of fishermen has doubled, with increasing technological capacity. Therefore, the fishing yield, as well as bio-diversity, is decreasing. Pirogue fishing is becoming more destructive and less selective, while rock pool fishing intensifies and industrial fishing is hardly controlled at all.
- *Coral reefs*: Already devastated in some places like off Toliary, they suffer from low quality of marine water and the rise in temperature, overfishing, trampling, anchors and coral mining.
- *Mangroves*: They are threatened by many forms of direct or indirect exploitation, for wood, halieutic resources, salt and grazing.
- *Fresh water*: It is scarce in the southwest of Madagascar. Rainfall does not reach 400 mm a year, with a 9–11 month dry season and wadi rivers. Moreover, ground water is still brackish, a few kilometres away from the shoreline, threatening public health, livestock breeding and agriculture.
- *Tourism*: Still little developed in the region, it is concentrated in Toliary and two coastal villages (Anakao and Ifaty) where scuba-diving is the main attraction. Environmental impacts of related infrastructures might still be considered as low, but tourists create a demand for shells, coral reef pieces, turtles, etc., and competition between foreign divers and local fishermen is already quite fierce on some sites.

Box 1

National law framework for coastal environment and natural resource management [8]

1. *Halieutic resources*

Regulation: Traditional fishing (sail pirogue, beach and rock pool fishing) is not regulated, except for certain protected species such as turtles; for craft (motor pirogue) and industrial fishing, a licence is issued by the government: it determines the species, tools, dates, amount and size among others, allowed

Enforcement: A lot of fishing villages are located in remote areas, beyond the reach of law enforcement agencies. The marine police (army) has so little means that penalties are extremely scarce whereas violation of the law is common

2. *Coral reefs*

Regulation: They are not concerned by any kind of specific rule, except in protected areas. Their exploitation is regulated by the general legislation on public domain resources (authorization and payment of a licence)

Enforcement: None

3. *Wood*

Regulation: Access to the forests is regulated by the Ministry of Water and Forestry, although community-based management is beginning to be recognized within the EP2 framework

Enforcement: Resource access is almost free in practice

4. *Land use*

Regulation: Private settlement on the 50 pace wide seaside (25 in cities) must be authorized by the State Property Department (with a tax payment), for a renewable 30-year lease

Enforcement: Only the most important buildings are controlled. Moreover, private property limits and municipalities boundaries are often extremely blurred

5. *Pollution of the sea*

Neither the United Nations Convention on the Law of the Sea (UNCLOS, 1982) nor the International Convention for the Prevention of Pollution from ships (MARPOL, 1973) has been ratified.

Furthermore, the three ratified conventions (OILPOL, Nairobi and Ramsar) have not yet been transposed in Malagasy law

Telluric pollution is not regulated

2.3. *Malagasy coastal management system*

To tackle these challenges, what are the resources offered by the legal framework for coastal environment and natural resource management in Madagascar? At the national level,¹ legislation related to natural resource and land use is highly complex, but we may summarize its main items as follows in Box 1.

These sectoral rules play an important role in the management of Malagasy coastal zones, and some of them are as old as the Malagasy Republic itself, which dates back to 1960. However, given the imperfections and the incompleteness of

¹For reader's information, at the international level, the Malagasy Republic is a party to three international conventions related to the sea and the coastal zone: OILPOL (prevention of oil pollution), Nairobi (protection, management and development of East African Coastal Zones) and Ramsar (protection of wetlands). In reality, none of these three conventions has constraining implications for the signatories.

these rules, and the recurrent deficiencies of law enforcement in Madagascar, national and international experts consulted in 1995 found it necessary to set up a complete ICM system. Unsurprisingly, the country lacked the financial and to a certain extent the human means to do so. Hence, from the beginning, ICM efforts were mostly impulsed and supported by international donors: to understand the institutional setting in which these efforts take place, it is necessary to take a look at what happened since 1990.

Malagasy environmental policy is based on a Charter enacted by the National Assembly in 1990. Since 1991, the Charter has been implemented through an ambitious multi-donor program, the NEAP, which is composed of three 5-year phases (from 1991 to 2007) called “Environment Programs” (EP1, 2 and 3). The NEAP is implemented by the National Office of the Environment, under the supervision of the Ministry of Environment. Its first 5-year phase (Environmental Program 1, EP1) did not specifically address coastal areas. It focused on the improvement of existing environmental management tools (mainly highland protected areas), on the creation of new entities (such as the National Office of the Environment), and it attempted to modify the environmental legislation. But in parallel, a convention was signed in 1993 between the Indian Ocean Commission (bringing together the Comoros, Madagascar, Mauritius, French Reunion Island and the Seychelles) and the European Union, giving birth to a “Regional Environment Program” for south-western Indian Ocean island states. This was the first experience of an ICM program in Madagascar, and it concentrated on two demonstration coastal sites: the Menabe region (west) and Foulpointe (east). We will not further detail this program because it is neither part of the ICM system in the Toliary region, the one we chose to focus on in this paper, nor at the national level.

NEAP phase 2 (EP2, 1997–2002) is a US\$154 million program, funded by a variety of international donors (mainly UNDP/GEF, the World Bank and different bilateral co-operation agencies) and by the Malagasy Government (US\$30.8 million). In 1995, the evaluation of EP1 concluded that it was absolutely necessary for EP2 to address coastal area issues, and to support the building of an ICM policy. Therefore, ICM is one of the “strategic goals” of this second phase. Theoretically, all the program components (14 in total), for example “multiple-use forest ecosystems”, “ecotourism and protected areas” or “support to regional management and planning” (AGERAS), have a role to play in the ICM process, for every environmental issue or management methodology they deal with may be relevant to coastal areas as well. However, EP1 evaluation has asserted that a specific ICM component would be necessary, at least to initiate and promote the integration process. Hence, the marine and coastal environment (MCE) component has been explicitly commissioned to implement ICM. The mission of MCE is not to run projects, but rather to define and set up a normative framework for sectoral coastal activities and to create and manage participatory structures at the national, regional and local level (see Box 2). MCE has chosen two pilot sites in Nosy Be (northwest) and the Toliary region, on which we focus here.

Box 2

The “marine and coastal environment” (MCE) component of EP2 (adapted from Gabrié and Randriamiarana [9])

1. *Goals of the MCE component:*
 - Help progress towards sustainable exploitation of renewable resources
 - Improve living conditions of coastal communities and support Malagasy economic development
 - Prevent and decrease marine pollution
 - Resolve conflicts between coastal area users and between concurrent activities
 - Maintain marine bio-diversity and ecological function of coastal ecosystems (coral reefs and mangroves in particular)
2. *Strategic implementation principles*
 - Adopt an integrated management process
 - Adopt a decentralized process
 - Organize public participation and consultation
 - Facilitate the best possible co-ordination between the different marine and coastal programs by international donors
3. *Levels of action*
 - National
 - Regional
 - Local

3. From ICM framework to implementation: the activities of the MCE

As mentioned above, the NEAP “coastal and marine environment” component is in charge of implementing an ICM at the local, regional, and national levels. Therefore, to have a clear and global idea of its achievements and difficulties, we have analysed MCE’s activities at these three levels.

3.1. *At the local level*

The “marine and coastal environment” component has a decentralized Technical Support Office in Toliary, which is designed to take over the action of the national office at the local and regional levels. This Technical Support Office is shared with the “support to regional management and planning” EP2 component (AGERAS) so that they can work in close collaboration: in particular, AGERAS is supposed to set up the local (at the village level), municipal and inter-municipal participatory structures (LPS, MPS and IMPS) that MCE can use as integration tools and user conflict resolution arenas (see Fig. 2).

In practice, AGERAS is not able to set up these structures quickly enough, so the MCE component has to do part of this job itself. In order to capture the interest of the population and to initiate the integration process on concrete bases, some micro-actions, such as repairing wells, providing public garbage cans and toilets, or fixing dunes with plants, accompany the setting up of participatory structures. The

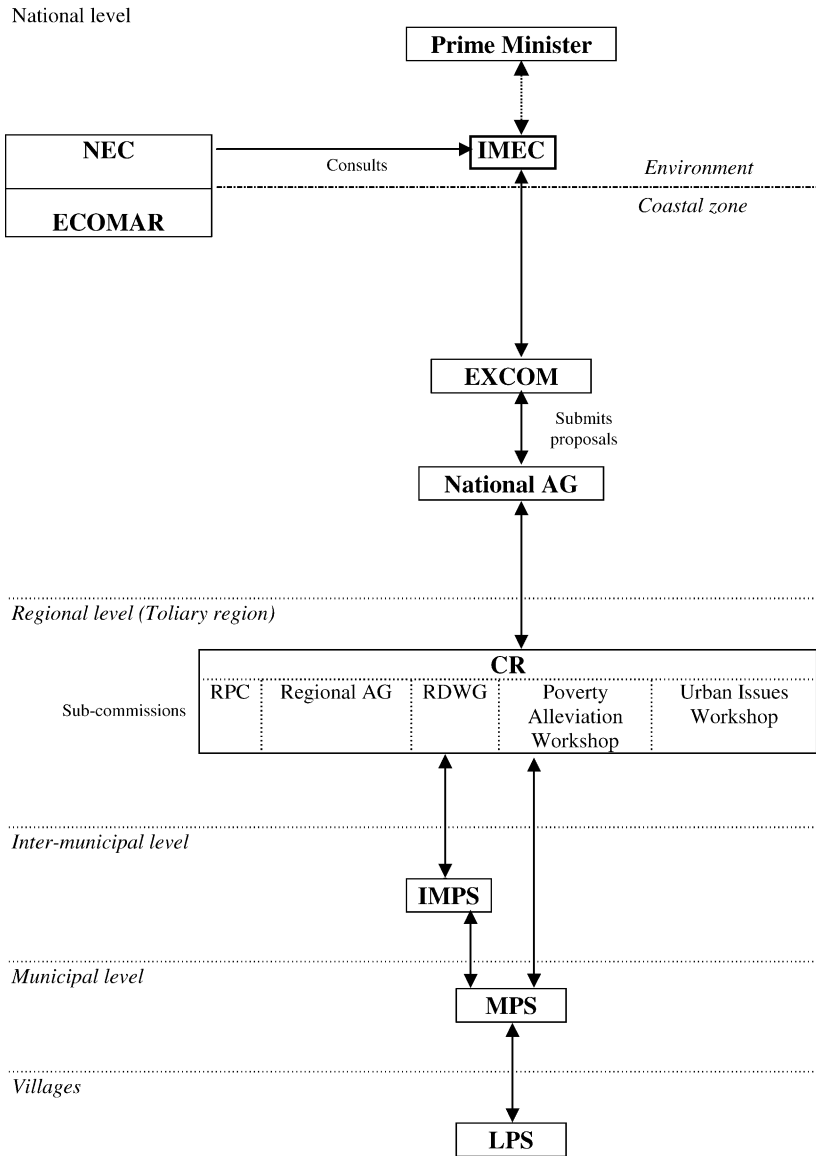


Fig. 2. Organizational chart of coastal management participatory structures [2, p. 31]. (NEC: National Environment Council; IMEC: Inter-Ministerial Environment Committee; ECOMAR: NEC's steering committee for coastal and marine issues; EXCOM: Executive Committee; AG: Advisory Group; SC: Steering Committee; RPC: Regional Planning Committee; RDWG: Rural Development Working Group; IMPS: Inter-Municipal Participatory Structures; MPS: Municipal Participatory Structures; and LPS: Local Participatory Structures).

population is expected to start being involved in participatory structures thanks to these small-scale projects.

Although MCE tries to play its role in different locations in the Toliary region, in practice, this component concentrates on one pilot village, Anakao, and on its relations with five surrounding villages (which are part of Saint Augustin and Soalara municipalities). For several years, Anakao fishermen had been in conflict with those from the other five villages over a small island called Nosy Ve. This island is sacred and therefore totally protected for the Anakao villagers, though absolutely secular for the others. The latter took advantage of the situation by fishing freely around it and even by camping on it. MCE succeeded in organizing meetings between stakeholders from the six villages, who eventually signed a “Nosy Ve Management Charter” and agreed on an implementation mechanism, which seems to be likely to solve the problem. Another conflict was brewing between the Anakao fishermen and hotel diving clubs over the exploitation of a spot particularly rich in fish (the *aquarium*). Thanks to the existing fisherman association in Anakao (created for the first conflict mentioned) and to the little number of hotels involved, the dialogue conditions were good enough for a compromise to be found, which seems to achieve satisfying and sustainable results until now.

Some real successes are achieved at the local level, based on community management mechanisms that are nowadays quite well known [10–14]. However, these optimistic observations have to be tempered by at least two limits that we can already point out:

- First, the two successful participatory and consensus-based cases presented above concern only traditional and craft fishermen from a small area for the first case, and a few scuba-diving stakeholders added to traditional and craft fishermen from only one village in the second case. We shall see in the next part of this paper why a small number of stakeholders with relatively homogenous interests on a small area may appear as a potential limit to the observed successes.
- Moreover, we observe that the integration and participatory process is not initiated in coastal villages where MCE does not directly intervene, which represents a majority of these villages. The expected and hoped replication of the process is at the best, very slow, and in most cases inexistent, just as in so many other sustainable development initiatives at the local level.

3.2. *At the regional level*

In Madagascar, municipal decentralization has recently been enacted with difficulty, although the principle of this decentralization had been accepted without much debate. On the contrary, in the preparation of the “second decentralization law”, there was a harsh debate to decide which intermediate level, between provinces and regions, should in turn benefit from the decentralization process. The country is traditionally composed of six provinces, each covering an average area of 100 000 km². They have a long history and have enjoyed various deconcentrated powers over a long period of time. They have hence gained certain legitimacy in the

eyes of the population. In contrast, the 20 regions never had any real political nor administrative existence (even if the Constitution takes them into account). However, Malagasy regions are closer to the decentralized levels we are familiar with, for example in Europe (French or Spanish regions, German Länder, etc.) and cover socio-economical and ecological entities that are undoubtedly more homogenous than the large ones covered by provinces. That is why international donors, like the NEAP, all along the 90s, focused on the regional level as the intermediary one to implement their programs. Actually, the only donor to have worked with provinces before the new decentralization law is the UNDP, for its program on “governance and public policies for sustainable human development” (1998–2003). The long-expected “second decentralization law” was finally enacted at the beginning of 2000, and decided upon the provinces against the regions. This choice seems to have been motivated by domestic political reasons, in addition to the fact that it was found less expensive to create and run six new governing bodies than 20.

Field observations at the regional and provincial levels show and confirm that ICM efforts exclusively address the regional one. A parallel can be drawn with the local level situation where efforts tend to focus on villages and local communities whereas the Municipalities are the only organizations to have decentralized powers.

At the regional level, the Technical Support Office of MCE and AGERAS in Toliary has set up participatory structures, which are all commissions of the Steering Committee (SC, see Fig. 2). The SC has three main goals:

1. Allow the emergence of projects eligible for funding by the Environmental Management Support Regional Facility (FORAGE, another EP2 component). This goal could not be reached yet, mainly because of a lack of expertise in designing projects and of inappropriate human capacity at the regional level (EP2 staff represent an exception, but their role is not to design projects).
2. Support the integration of coastal and marine environment issues in the design of the Regional Land Use Plan, which should be prepared by the region (according to a draft act, which dates back to the set up of the SC). The SC was already at a standstill regarding these plans before the second decentralization law; things went even worse when the regions were officially laid aside a few months later.
3. Organize participation and consultation of public and private coastal stakeholders. Contrary to what was foreseen, the private sector (industry, industrial fishery, tourism, etc.) does not take part in the SC, which actually only brings together some administrations and NGOs which were already involved before in integration issues for sustainable environmental management. Moreover, discussions clearly focus on the city of Toliary instead of addressing the whole region. Last, the SC works irregularly, in a way that really makes it difficult to assess. In any case, no outputs are produced, so that this third goal does not seem any closer to be achieved than the first two.

On the whole, the ICM process at the regional level is extremely weak; almost all undertaken efforts are at a standstill, without much sign of favorable evolution.

3.3. *At the national level*

At the national level, four main structures of integration exist (see Fig. 2):

- The Inter-Ministerial Environment Committee (IMEC) is an administration co-ordination body for the integration of environmental concerns into sectoral policies. It depends heavily on the political will of the Government—particularly on that of the Prime Minister—to make it work efficiently. As far as we know, IMEC has hardly had the opportunity to try and do its essential work until now.
- The National Environment Council is a consulting body, which resembles a meeting of wise men, named after the advice of high-ranking political figures among politicians and scientists mainly, all known for their strong interest in environmental issues. Information about its real work is quite hard to gather. However, one thing is certain: the ECOMAR sub-commission, in charge of coastal and marine issues, never worked since it was created so that relevant stakeholders consider it as dissolved *de facto*.
- The Executive Committee is an operational political body, which decides upon the main orientations and strategies for coastal areas, based on the National Advisory Group (AG) proposals (see below). It is composed of high-ranking officers from ministries, NGOs, donors, etc. The EXCOM has never functioned yet.
- The National AG (“Groupe de Travail et de Réflexion”), is a think-tank that works on coastal policies design and their implementation tools. It is composed of representatives from each ministry, from NGOs, important donor programs like UNESCO/MAB, and from a few research centres. Its members meet regularly and have elected a chairman. They are about to submit to the Government and National Assembly a draft document for a national policy of Malagasy Coastal Zone Sustainable Development [15] prepared with MCE’s assistance. This document assesses the state of ICM efforts in Madagascar and formulates many important recommendations. Moreover, its preparation was an opportunity to initiate and organize fundamental debates. We can therefore consider this document as the most significant MCE’s output at the national level until now.

On the whole, the National AG is the only body among these four to have made any progress towards more ICM. It is about to edit an important and constructive document, which corresponds approximately to one of MCE’s primary goals [9]. Opportunities for this document to result in effective environmental management improvements at the national scale are however quite limited. On the one hand, the political backing of this effort does not seem equal to the scale of the changes (e.g. in the natural resource management rules) recommended by the advisory group. On the other hand, every law and every government decision in Madagascar suffers from extremely difficult implementation, for a variety of reasons among which we find corruption, disorganization and lack of means of the police force, and the high pressure of a few lobbies.

4. Diagnostic and interpretation: the specific challenges of implementing ICM at the regional level

The main point of this part is to try to explain why the regional level is so problematic to ICM implementation. Leaning on general theoretic literature, we shall point out reasons for the failure, that are partly specific to Madagascar, but that may also be extended to many other case studies around the world.

4.1. Diagnostic

The analysis we conducted at three geographic and organizational levels showed that the ICM Program is partly successful at the local and national levels. Successes are admittedly very partial and incomplete, but they suggest that the process is under progress in spite of all the difficulties met, which were partly expected.

On the contrary, it is quite clear that up to the present, nothing could be done at the regional level. Analysis of this will be the topic of the rest of this paper. Is it, as some people suggest, due to a lack of financial means? Or has the strategic priority been deliberately concentrated on the two other levels? Our observations lead us to believe that none of these hypotheses is satisfying. Of course, there has been an obvious choice to focus human and financial resources, and the effort in general, on the local and national levels instead of the regional one. But this choice was highly constrained by strong regional specific action difficulties. These difficulties lead both to the failure of early attempts, and to the allocation of the main effort on the other levels when the snags—only vaguely identified—were implicitly considered insurmountable. We shall now try to clarify the regional characteristics that appeared decisive to us.

4.2. The difficulty of collective action for common-pool resources at the regional level

In a situation where stakeholders harm each other because of inappropriate management of their natural common-pool resources (CPR), an interesting way out is often for them to set up jointly a new management system, which can be more sustainable and less conflicting. ICM is partly based on the opportunities offered by collective action for the sustainable management of CPRs. Problems of halieutic resources, mangroves, plain water or coral reefs in the Toliary region raise precisely that type of challenge. Within EP2 framework in particular, we have noted that most of the effort and hope hinges on the working of participatory structures that have been set up. Hence, we found it important to analyse in terms of collective action the specific difficulties met at the regional level. We built on Olson's statement [16, p. 2] that "even if all of the individuals in a large group are rational and self-interested, and would gain if, as a group, they acted to achieve their common interest or objective, they will still not voluntarily act to achieve that common or group interest" (except in specific conditions like with a small group of individuals, coercion or "some other special device").

Going on Olson's hypothesis, we wanted to know why in some local Malagasy communities, the members succeed in co-operating with each other for more ICM, whereas they invariably fail to do so at the regional level. We tried to identify in our field work, some key factors that could explain the contrasts we observed between levels of action. As we shall see in the following paragraphs, the literature on the *Commons*, of which Elinor Ostrom's work [14] was particularly valuable, turned out to be helpful in analysing the conditions of an efficient collective management of CPRs.

Firstly, it is clear that appropriators at the local level (such as, the fishermen from different villages and the diving operators) cannot remain in an open conflict for a long period of time, for their activities are highly interdependent. In our example of the access to Nosy Ve, the inhabitants from Anakao could not accept the fact that the fishermen from neighbouring villages profane one of their sacred sites on a daily basis. On the other side, the profaners knew that they risked a possible violent reaction from the population of Anakao. As for the conflict over the "aquarium", we can say that the villagers now perceive the economic necessity of the presence of the tourist operators (mainly based on diving activities) in Anakao. At the same time, to be able to carry out their activities, these operators need to be on good terms with the villagers, not least for their supplies, as the village is quite isolated. The state of affairs before the intervention of the CME was thus intolerable for all parties. Applying a similar analysis on a regional level, we feel that the absence of a declared conflict between for example the population and the polluters, or between the illegal fishermen and the police, and the absence of a daily interdependence among the stakeholders, could lead to the maintenance of the status quo for many years before the stakeholders (especially those with enough power to act) feel the pinch from the degradation of their natural resources and subsequently, from the deterioration of their living conditions. As Ostrom points out [14, p. 211] the fact that "most appropriators share a common judgement that they will be harmed if they do not adopt an alternative rule" encourages collective management of natural resources. This explains why the situation described here is favourable to the local level, as compared to the regional one.

In addition, the population of a fishing village is generally quite homogeneous, in spite of the social hierarchies, which always exist. For example, the standard of living and the income sources are relatively similar, and subsequently, the changes in the mode of natural resource management affect the population in a reasonably similar way. However, in the region of Toliary, we can find a whole range of socio-economic activities which, in turn, implies different levels of standards of living as well as a varying degree of dependence on resources and on the quality of the environment. Once again, if we go by Ostrom's criterion that "most appropriators will be affected in similar ways by the proposed rule changes" [14, p. 211], we find that it is regularly met at the local level and much less at the regional level.

Besides that, it is less demanding in terms of both time and cost to organize meetings in a village or to create a local association. This is made easier by the fact that the majority of the villagers are not occupied the whole day long or every single day with their activities, be they fishing, trading or animal husbandry. However, the

same cannot be said for the regional level, where some stakeholders, such as heads of industry and high-ranking government officials, are not necessarily able to or do not know how to make time for stakeholder participation meetings. The relatively high cost and the slowness of modes of transportation due to the dilapidated state of the roads and the uncertain though necessary journeys by pirogues, only aggravate the problem for all the stakeholders from outside Toliary. We therefore suspect that the high transaction costs constitute one of the reasons that the participants of the regional consultative structures are reduced to those from the city of Toliary itself, as we have mentioned above. These observations seem to show the impact of yet another of Ostrom's criteria not being met at the regional level: when "appropriators [do not] face relatively low information, transformation, and enforcement costs" [14, p. 211], then collective action becomes more difficult.

Finally, the members of a community of villagers know one another, and are intricately linked together by strong social or family ties. They are in constant contact as they go about almost all their daily activities. Even with the rapidly increasing size of the villages due to the growing population, and even in the presence of rural exodus, coastal villages remain nevertheless relatively small and stable communities: in this sense, they are in no way comparable to the community of inhabitants of a region. These elements of analysis can be linked to the following three favourable criteria spelt out by Ostrom: "most appropriators share generalized norms of reciprocity and trust that can be used as initial social capital" [14, p. 211], "the group appropriating from the CPR is relatively small and stable" [14, p. 211], and "appropriators (are) involved in many situations together" [14, p. 206]. These three conditions which encourage collective action are also, in our case, better met at the local level than at the regional one.

It is necessary to point out the fact that Ostrom draws her design principles from the analysis of small-scale case studies on CPR, which are selected for their heuristic value. She herself states that "because these are relatively small-scale situations, serious study is more likely to penetrate the surface complexity to identify underlying similarities and processes" [14, p. 26], and "the processes of self-organization and self-governance are easier to observe in this type of situation than in many others" [14, p. 29]. Nevertheless, when we consider the theoretical bases of her work, which draw heavily from the domains of economics and political sciences, nothing prevents us a priori from applying her results more widely, not only to resource management but also to land use management, and, if necessary, to larger scales. In our example, we feel that it is pertinent to apply this analysis to both the local and regional levels and use Ostrom's criteria as a basis on which we compare the conditions of collective action at both levels. This seems to be all the more justified as the EP2, through its MCE component, grounds its ICZM efforts at the regional level on participatory principles and methods which are precisely those of local small-scale community-based management.

On the whole, many obstacles to collective action make ICM efforts at the regional level in Toliary—based on participation, consultation, consensus building and collective action—far more challenging than at the local level.

4.3. The limits of an informal participatory process in a regional situation with weak political and administrative structures

Our analysis on the regional particularities affecting collective action would not be complete without a study on the participatory structures themselves. At the regional level in Toliary, most of them still have an informal status. They lack any clear working procedure, for example with appointed or elected chairmen and secretaries, regular meetings or a defined mechanism to convene stakeholders when a number of them express the need to do so. Margerum and Born [17, p. 16] have shown how such lack of formal organization can hinder integrated environmental management.

They point that “regular and clearly recognized procedures for interaction are more likely to be sustained in the face of changing personnel in stakeholder organizations. The people may change, but there is an expectation that the person in the representative position with the organization will be involved in the process”. Admittedly, participatory structures being set up at the local level are in most cases as informal, but working conditions are undoubtedly more favourable at this level. Typically, these local arenas are hardly, if ever, confronted with the personnel turnover in stakeholder organizations, which we mentioned above. Moreover, Margerum and Born also point out that “as the number of co-ordinating parties increases and becomes more complex, co-ordination via ad hoc arrangements becomes more difficult. In these settings, the transaction costs of creating and maintaining process rules are likely to be less than the cost of recreating processes on an ad hoc basis. Finally, in settings where there are many interrelated issues and organizations, the need and demand for clear process rules becomes greater”. We see that the informal status of participatory structures set up by MCE does not really meet the specific difficulties of implementing ICM at the regional level.

Strong political and administrative structures could of course go a long way in overcoming the limits of informal participation. Such is clearly not the case in Madagascar, and in the wake of the second decentralization law, the regional political void could turn out to be a crippling obstacle. It is indeed possible for collective action to come about at the level of the villages and in essentially informal settings, whereas the municipalities are the official decentralized units. However, nothing can lead us to expect that this approach depending largely on informal processes can resist the change of scale between villages/municipalities and regions/provinces.

4.4. National guidelines may be easier to produce than regional arbitrages

The points made so far help in understanding why efforts at the regional level show less encouraging results than at the local level. We now turn to the national level to see what comparisons can be made there. If we try to evaluate the conditions for collective action according to Ostrom’s criteria (even though it might seem bold to do so at the national level), we can say that the prerequisites for collective action are not better filled. Besides, the participatory structures are not always formal

either, and the same can be said for the way in which they function. Moreover, conflicts over the use of natural resources and of land space also remain mainly latent and rarely surface. In spite of this, we have observed that the ICM program at the national level managed to obtain some positive results.

This is mainly due to a major difference in the types of action that are implemented at the different levels. At the national level, actions are concerned with broad policy orientations, principles and management rules, which are operational only at lower, regional or local levels. For example, an organization of fishing industries could support or accept a document on general policy orientation encouraging responsible and sustainable fishing practices, it could even stand by and watch restrictive legislation being passed without raising much opposition—all as long as it knows that the activities of its members would not be subject to regular and stringent control (as in the case of the Toliary region). At the national level, the discourse on integrated management is therefore highly consensual (with leitmotifs such as conflict resolution, consultative processes, participation) and echoed willingly by a majority of stakeholders as they are aware that the implementation and enforcement of such a strategy is improbable. As Mermet noted, “integrated management, whether applied in speech or in writing, is actually a sovereign balm to soothe the irritations due to conflicts of interest and to the real deadlocks relative to environmental problems. The stakeholders who stand to gain from avoiding conflicts—for example, the majority of politicians and administrations—find themselves spontaneously adopting the discourse of integrated management” [18, p. 181]. On the contrary, co-ordination and integration at the regional level demand to overcome harsh antagonisms, which often cannot be achieved only through a consultative process: it is therefore a matter of arbitrating and of settling the differences. This would come under the competencies of the political and administrative sphere, whereas it is precisely the role that the stakeholders from these domains are the most reticent to take on.

5. Conclusion

Study and analysis of integrated coastal management efforts in Madagascar (1) confirms that the regional level has a central role to play in the implementation of integrated coastal management, but (2) shows that in practice, it is sidelined in Madagascar. This situation is not so much due to anecdotal or temporary difficulties, as to conditions and obstacles specific to the regional level of intervention. This affirmation seems to have some relevance beyond this case study on Madagascar. The focalization on the local level and the general national framework—at the expense of integration at the regional level—can be found in numerous other settings. Furthermore, a large part of our work on the regions can be transposed to all other scales of territorial division coming between the village on one extreme and the country as a whole on the other, which we can call “meso-levels”. Depending on the context, such a meso-level could be a big city, a county, a province, or a federated state.

Finally, we wish to underline the fact that the change of geographic and organizational scale implies modifications in the structure of the problems encountered, which in turn imply changes in the structure of solutions and management systems which can be implemented. In other words, it is not simply “the same thing on a bigger scale” or “the same thing on a smaller scale”. Faced with these difficulties, there is a strong temptation to concentrate on what we do know how to do, or at least, on what we know how to experiment on: producing a discourse and general policies on the national level on the one hand, and on the other, seeking refuge in local community action. The principles of local community-based management are starting to be well known, countless case studies have been conducted and documented in scientific journals, reports of international funding agencies, international conferences and on the Internet. This is of course, beneficial on the whole, but there is a great risk of rejecting the regional level and the difficulties, which are specific to it into a “too hard box”. We think that it is necessary to develop multi-level approaches to the ICM: holistic approaches, but with different scopes of analyses—both in terms of action and evaluation—which would be appropriate for each level. For example at the regional level, nothing can be done bypassing the existing political and administrative system: there is strictly no use in trying, which is not as true at the local level. But one has to expect that such multi-level approaches might seem, at the beginning, disconcerting, because they wander from more familiar processes of local community action and the preparation of large scale guidelines.

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