

# 9 Linking Institutional Weaknesses to Deforestation Drivers in the Governance of Protected Areas in Madagascar

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## 9.1 Introduction

Protected Areas – places set aside through legal or other means for the purpose of biodiversity conservation – are the predominant global conservation strategy (Watson et al. 2014). Indeed, the expansion of the global protected area (PA) estate has been one of the major concerns of the contemporary biodiversity conservation movement. Terrestrial PA coverage has grown from approximately 9.4 million ha in 1990 to 20.3 million ha in 2018 (UNEP-WCMC et al. 2018). In 2020, protected areas covered 15.4 per cent of the planet’s land surface and 7.7 per cent of the oceans (Protected Planet 2021). Moreover, signatories to the Convention on Biological Diversity (CBD) are expected to continue extending protected area coverage (CBD 2020).

In principle, the expansion of protected areas is prioritised globally, notably because their success in conserving biodiversity depends on their coverage and representation – they can only protect ecosystems and species that occur within them. In practice, the simple establishment of protected areas is not sufficient to conserve their constituent biodiversity, because those PAs must also successfully buffer that biodiversity from processes that threaten their viability (Gaston et al. 2008; Watson et al. 2014; Adams et al. 2019). In other words, protected areas must be effectively managed. However, global targets and legislation such as the CBD still measure protected area progress mainly through the extent of areas and number of those conservation units around the world (Barnes et al. 2018).

While protected areas can be effective in preventing habitat loss and maintaining species (Butchart et al. 2012; Geldmann et al. 2013; Carranza et al. 2014; Coetzee et al. 2014; Beaudrot et al. 2016), many PAs around the world are not effectively managed (Leverington et al. 2010; Watson et al. 2014) and continue to lose biodiversity (e.g. Clark et al. 2013; Laurance et al. 2013; Heino et al. 2015; Brown et al. 2019; Rada et al. 2019). In tropical low-income countries in particular, anthropogenic pressures such as agricultural encroachment including large-scale commercial agriculture and shifting cultivation, illegal hunting, overfishing, uncontrolled natural resource extractions, including illegal logging for timber and

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charcoal production and infrastructure development, represent major challenges for a sustainable management of PAs (Stolton and Dudley 2008; Tranquilli et al. 2014; Schulze et al. 2018). In response, conservation NGOs have increasingly focused on protected areas' effectiveness notably by developing a set of protected area management effectiveness (PAME) as an assessment tool. As an example, the Management Effectiveness Tracking Tool (METT), WWF's Rapid Assessment and Prioritization of Protected Area Management methodology (Ervin 2003) and the IUCN's framework for assessing management effectiveness of protected areas (Hockings et al. 2006) were developed in early 2000s.

While the quantification of PA effectiveness is an important step, a qualitative improvement of the conservation performance of PAs requires a deep understanding of why ineffectiveness occurs (Barnes et al. 2016) and most importantly, what drives the related institutional weaknesses. However, there has been little research into the conditions and processes that influence protected area outcomes. Existing methods such as METT largely focus on management processes and inputs (Geldmann et al. 2018; Lham et al. 2018), yet conservation outcomes are also influenced by external contexts, i.e. the socio-economic and political environment of the surrounding landscapes that largely determines the threats PAs face (Corson 2018; Barnes et al. 2016; Scales 2011).

In this chapter, we use a case study of a recently established but severely threatened protected area in Madagascar to explore the factors impeding its effectiveness. Harboursing unmatched levels of endemic biodiversity twinned with critical threats due to the high dependence of many local residents on natural resources for their subsistence and income, Madagascar is a top global conservation priority (Brooks et al. 2006) and among the top ten countries attracting foreign aid to support conservation (Miller et al. 2013). Hundreds of millions of US dollars have financed projects to promote conservation and development, but the island continues to experience a severe environmental crisis (Waeber et al. 2016; Jones et al. 2019).

### **Box 9.1 Key actors and interests of the management of protected areas funding in Madagascar**

Biodiversity conservation in Madagascar is internationally driven with massive support from multilateral and bilateral donors ranging from banks to philanthropy such as World Bank, AfDB, l'Oréal Foundation, MacArthur Foundation, etc. Since the structural adjustment, these fundings are often received and managed by non-state organisations – for example UN-agencies such as UNEP, UNDP, and NGOs such as WWF, CI, WCS. In the 2000s, conservation NGOs have experienced a massive increase of their financial portfolio to promote biodiversity preservation in Madagascar.

Historically, it was during the colonial period, particularly in the 1920s, that the first protected areas were established in Madagascar. However, the 1980s marked the conservation boom in Madagascar (Kull 2014). In 1991, Madagascar launched the first National Environmental Action Plan (NEAP) in Africa resulting in massive international funding for biodiversity preservation.

International actors such as foreign biologists, international non-governmental organisations such as CI, WWF, WCS, donors such as World Bank and governmental organisations such as USAID have played and continue to play a key role in shaping conservation and development policies in the forest frontier in the country (Corson 2017).

The NEAP has shifted the power relations between state and non-state actors and reinforced issues on power asymmetries in the forest frontier in Madagascar. The 1990s were marked by the decentralisation of forest management to forest-dependent communities through the creation of a new management system known as community-based management from data released in 2014 (Rabemananjara et al. 2016). However, this has led to the issue of local elite capture failing to meet devolution of power to local communities and to promote sustainable forest management for poverty alleviation (Pollini 2014). In the 2000s, a rapid expansion of protected areas was achieved, and by 2020 protected areas covered 7.1 million hectares of national territory to reconcile both conservation and development. Protected areas of 1.7 million ha are mainly national park devoted for biodiversity preservation, but research and recreational activities are permitted. They are managed by a private/public organisation known as Madagascar National Park. Despite the efforts to promote tourism in these parks they are facing financial crisis and depending heavily on donor's support for their management. In 2005, a trust fund known as the Madagascar Biodiversity Fund (FAPBM) was set up to support MNP and National NGOs to support their operating protected area management cost. Protected areas of 5 million ha set for multiple use are managed in delegated management between state and international and national NGOs but remain unclear on how forest-dependent communities can benefit from the multiple-use approach. Up to 467 000 ha have been categorised as orphan sites or paper parks due to the absence of a delegation or proper management by Ministry of Environment and Sustainable Development (MEDD) to support their management. These governance arrangements are aiming to decentralise forest management from a state-centred approach represented by the Ministry of Environment and Sustainable Development (MEDD) to the inclusion of local communities and NGOs. However, it has led to a play of cunning strategy by both actors to advance their specific agenda to expand territories for biodiversity and reinforced state power to dismiss customary land rights.

Most endemic biodiversity is forest dependent (Goodman and Benstead 2005), but deforestation and forest degradation continue at globally high rates (Zinner et al. 2014; Desbureaux and Damania 2018; Vielledent et al. 2018), driven primarily by shifting cultivation (for subsistence and cash crops) especially in poorest communities, illegal mining and logging, and massive demand for firewood and charcoal (Fritz-Vietta et al. 2011; Gardner et al. 2015; Jones et al. 2019). To address these issues, the central government has been rapidly expanding protected area

system since 2003 (Gardner et al. 2018). Paradoxically, there is evidence that many of the newly established PAs have not been effective in slowing or eradicating the principal threat of deforestation and biodiversity loss (Eklund et al. 2016; Desbureaux and Damania 2018; Vieilledent et al. 2020).

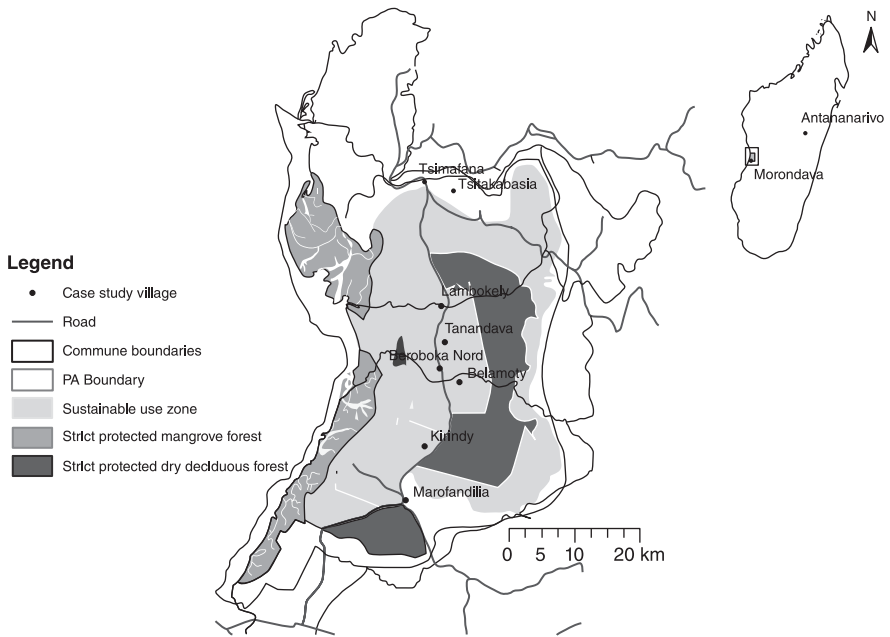
In order to better explain the major factors that limit the effectiveness of Madagascar's protected areas in addressing deforestation, we carried out an institutional analysis of one of the country's most threatened PAs, Menabe-Antimena, using the Institutional Analysis and Development (IAD) framework. The IAD framework is widely used to conceptualise and explain complex human-environment interactions, such as common pool resource management, that affect multiple stakeholders (Mannetti et al. 2017; Nigussie et al. 2018). It can be used to unpack the linkages between stakeholder groups and how they interact with the environment (Vatn 2005; Ostrom 2011), enabling the diagnosis of institutional arrangements in order to highlight the theory that drives a specific outcome (Ostrom 2005; Ostrom 2011). In our selected case study in Madagascar, the outcome is the persistence of deforestation and biodiversity loss in Menabe-Antimena protected area.

## 9.2 Methodological framework

### *Study area*

Menabe-Antimena (Figure 9.1) is an IUCN category V protected area of 209 041 ha, and includes the largest remnant of deciduous dry forest in the west of Madagascar (Zinner et al. 2014). It conserves a range of endemic and locally endemic forest and wetland species, and provides the last remaining habitat for three endangered vertebrates: the flat-tailed tortoise (*Pyxis planicauda*), Madagascar giant jumping rat (*Hypogeomys antimena*), and the world's smallest primate, Madame Berthe's mouse lemur (*Microcebus berthae*). It is therefore recognised as one of the top conservation priorities in Madagascar (Ganzhorn et al. 2001; Waeber et al. 2015).

Rural communities around the PA depend heavily on agriculture, charcoal production and the exploitation of timber and non-timber forest products for subsistence and income, as well as fisheries in coastal areas (Ganzhorn and Sorg 1996; Sandy 2006; Gardner 2011). Although the region is semi-arid and has infertile soils, the rural economy is dominated by small-scale agriculture and in particular a form of shifting cultivation known as *batsake*, where forests are cleared to produce cash crops according to market demands (Réau 2002; Sandy 2006; Scales 2011; Filou 2019). As a result, the PA suffers the highest deforestation rate in the country (Zinner et al. 2014), and is estimated to have lost 19.3 per cent of its forest cover between 2000 and 2015 (Hudson 2015). Indeed, deforestation doubled in 2010–2017 compared to 2000–2010 (Vieilledent et al. 2020), and at current rates the site is projected to lose 67 per cent of its forest cover by 2025 (Hudson 2015) and 100 per cent by 2050 (Vieilledent et al. 2020). As a result, the PA now comprises a mosaic of forest and low-intensity or abandoned



*Figure 9.1* Map of Menabe-Antimena protected area showing different protected area zones and the eight villages in which the study was carried out in Madagascar.  
*Source: Author's creation*

agricultural land, of which the latter is essentially of zero value for endemic biodiversity.

The PA was granted temporary protection in 2006 and definitive protection in April 2015, as part of Madagascar's 'Durban Vision' to triple the size of its PA network (Gardner et al. 2018). It is divided into two distinct zones: a strict protected zone in which no extractive resource use is authorised, and a sustainable use zone in which different uses are permitted but regulated Figure 9.1 (Fanamby 2014). Its management is delegated by the state represented here by the MEDD to Malagasy non-governmental organisation (NGO) Fanamby officially since 2015, though specific sites are managed by other organisations under sub-delegation contracts. In addition, some forest patches and freshwater wetlands in the sustainable use zone are managed by local community associations through community-based natural resource management (CBNRM) legislation (Pollini et al. 2014). The CBNRM areas are managed according to a management plan by users' associations called COBA and the rules-in-use are defined in a form of local regulation called *dina*.

Although Fanamby are the official managers, the PA has a complex governance structure involving multiple stakeholders including NGOs, regional and local authorities, regional government technical services, local community associations and private sector operators (Republic of Madagascar 2015). The PA board

committee is divided into two levels: (i) the orientation and evaluation committee (COS) and (ii) the invited parties. The first group is the regional consultation platform for management orientation and socio-economic development of the PA that conceptualises and executes the activities. The last group participates in the annual meeting of the platform to bring their expertise or support when it is required. The platform has to meet at least once a year to ensure implementation of the PA management plan.

### ***Data collection and analytical framework***

We used a qualitative approach to explore the factors limiting the effectiveness of the PA based on the experience and perceptions of a range of key stakeholders. We framed our data collection protocol around the six elements of the IUCN-WCPA management effectiveness evaluation framework (context, planning, inputs, process, outputs, outcomes) (Hockings et al. 2006), and thus collected data related to: (i) the management applied to the PA and its impacts and (ii) the socio-economic and political context influencing the management of the Menabe-Antimena PA.

We used purposive sampling and snowball sampling to identify key informants involved in or impacted by the management of the PA. We used the list of actors in the governance structure to sample stakeholders directly involved in PA management, and supplemented this with interviews of local communities, regional authorities, and private sector operators active in the site. In total, we conducted 53 key informant interviews (KI) and 12 focus group discussions (FG), between April and June 2018 (Table 1). These data were supplemented with consultation of secondary data including pertinent legislation, unpublished research reports and other grey literature (minutes of consultations and other meetings, technical reports etc.).

We carried out data collection in a two-stage process, first focusing on off-site stakeholders (NGOs, regional authorities, private sector) and subsequently interviewing local communities living within and around the PA. For the latter, we carried out key informant interviews and focus group discussions in eight villages that were identified by NGO staff as having large numbers of residents involved in shifting cultivation within the PA (Figure 9.1). The research obtained ethical approval from the School of Anthropology and Conservation, University of Kent, and free, prior and informed consent was obtained from all participants. All data are presented anonymously to protect the identity of informants.

We coded the data using NVIVO-11 to identify emergent themes, and then used the Institutional Analysis and Development framework to conceptualise the underlying factors limiting the effective management of the protected areas. The framework consists of interconnected components linked by direct feedback, with the action situation as the main unit of analysis. The first step of the analysis is to identify and understand the action situation where different actors interact and engage in a series of actions framed by norms, conventions, formal and informal rules, in order to understand the patterns of interaction that have led to the outcomes

*Table 9.1* Overview of key informant interviews and focus groups conducted with stakeholders in the Menabe-Antimena protected area

<i>Stakeholders</i>	<i>Data collection</i>
<p><b>Off-site stakeholders</b></p> <p>Conservation actors (managers and partners):                      Fanamby, CNFEREF, Durrell Wildlife Conservation Trust (Madagascar), WWF.                      (Fanamby, CNFEREF and DWCT are NGOs directly involved in management of the PA. WWF operates in the region and offers technical and financial support to the PA managers.)</p> <p>Regional offices of government authorities and technical services:                      Environment, Agriculture, Tourism, Land Registry and Topography, Region, Prefecture, Army and Judiciary</p> <p>Other non-state actors operating in the PA (development actors, businesses):                      FIVE Menabe, AD2M, Louvain Cooperation, Alefa Menabe (local NGO), private sector businesses (agricultural products trader, local sawmill and carpenter)</p>	<p>10 key informant interviews with staff</p> <p>13 key informant interviews with staff</p> <p>9 key informant interviews</p> <p>11 key informant interviews</p>
<p><b>Communities living within and around the PA</b></p> <p>Elected members of local communities within and around protected area (Commune, Fokontany, village level):                      Deputy mayor, Head and deputy head of Fokontany, Village committee, Communal tax collector                      (The fokontany is the smallest administrative unit in Madagascar, and a Commune regroups several fokontany.)</p> <p>Non-elected members of local communities within and around protected area:</p> <ul style="list-style-type: none"> <li>• Temporary agricultural workers</li> <li>• Members of community-based forest management associations (COBA) involved in patrolling</li> <li>• Members of community-based forest management associations (COBA) involved in patrolling</li> <li>• Members of community-based forest management associations (COBA) involved in tourism</li> <li>• Heads of migrant households (2–5 years in area)</li> <li>• Heads of migrant households (2–5 years in area)</li> <li>• Members of farming organisation</li> <li>• Non-COBA members</li> <li>• Mixed COBA and non-COBA members (resident and migrant)</li> </ul>	<ul style="list-style-type: none"> <li>• 4 key informant interviews</li> <li>• 3 key informant interviews</li> <li>• 3 focus groups (4–8 participants)</li> <li>• 1 focus group (5 participants)</li> <li>• 3 key informant interviews</li> <li>• 1 focus group (5 participants)</li> <li>• 1 focus group (4 participants)</li> <li>• 2 focus groups (4–8 participants)</li> <li>• 4 focus groups (4–8 participants)</li> </ul>

observed (Ostrom 2005): in our case, the action situation is the management of the PA. The last two steps are to (i) identify the contextual variables affecting the action situation (the biophysical conditions, attributes of the community, and rules-in-use) that contribute to the outcomes observed, and (ii) conceptualise the complex links between the components of the system (Ostrom 2011). By applying the IAD framework, we seek to understand the key institutional attributes leading to the persistence of deforestation in the PA.

### **9.3. Results: understanding institutional weaknesses in biodiversity governance**

Deforestation is caused primarily by small-scale agriculture which has been the main livelihood of forest-dependent communities in the Menabe region for many decades. Efforts to address this threat, as well as others such as charcoal production and timber extraction, have involved a range of incentives (e.g. livelihood-based interventions) and coercion measures (e.g. law enforcement). However, all study respondents affirm that deforestation is worsening.

We have to walk 5 to 6 hours to reach the nearest forest to clear to grow maize. These last 10 years, the forest has been cleared so quickly. Soon there will be no more forest here, with the current land rush.

*FG10, mixed COBA and non-COBA members*

#### ***Action situation: sticks and sermons and a few carrots to reinforce coercion***

The action situation of the institutional analysis is the management of the PA, which has included a range of activities that can be divided into positive incentives (carrots) and enforcement approaches (sermons and sticks).

Positive incentives aim to reward local community members for respecting the regulation of the PA. It includes payments for male members of community-based management carrying out patrolling and ecological monitoring activities to reinforce control on forest use. To target the larger group to benefit from positive behaviour aligned with biodiversity preservation, a village-based payment for ecosystem services (PES) scheme was carried through community-based ecotourism, investments in semi-mechanised agricultural activities, and the provision of social support. However, respondents felt that the reach and effectiveness of these interventions is limited by three principal factors: (i) implementation approach, (ii) type of project offered, and (iii) sustainability of project benefits.

According to some respondents, the implementation approach of positive incentive investments limited their reach and effectiveness. Although some investments targeted whole communities (for example water infrastructure maintenance or the funding of army surveillance to ensure security), most targeted individual households and prioritised COBA members because they have already demonstrated a commitment to forest management. However, only limited numbers of



Table 9.2 Description of management activities carried out in the PA to reinforce command and control on the forest frontier

<i>Activity type</i>	<i>Description of activity</i>
<i>Sermons to educate on restriction related to the PA management</i>	
Awareness raising and information	Series of awareness-raising activities conducted, particularly in 2017. Two main approaches: <ul style="list-style-type: none"> <li>• Community meetings involving a range of stakeholders, to inform communities about the rules-in-use and sanctions</li> <li>• Signposts and markers erected in villages and around the PA.</li> </ul>
Visit of key governmental officials	Prime minister and minister of the environment and sustainable development visited the villagers and key actors involved in the PA governance to increase visibility on the deforestation issue in the area.
<b>Sticks for law enforcement to control forest use</b>	
Law enforcement	There are two processes for enforcement of PA regulations: <ul style="list-style-type: none"> <li>• Local authorities or COBA patrollers inform DREEF, the promoter or subdelegates of an infraction; if budget available, DREEF and promoter visit the site to arrest the individual(s) responsible.</li> <li>• DREEF, the promoter and subdelegates plan field mission to carry out sporadic control, depending on the budget available.</li> </ul>
Military intervention	Military interventions happen after unsuccessful attempts to regulate or monitor anthropogenic activities in protected areas by the NGOs, civil society and individual conservation practitioners. In 2019 for example, a large-scale raid by 80 armed military was conducted to burn plantations in strict conservation zones and three arrests were made in addition to the destruction of illegal corn plantations and camps.
<b>Carrots to a specific group of forest-dependent household to reinforce sticks to restrict forest use not aligned with PA management</b>	
Surveillance and monitoring patrol	9–12 COBA members per site are trained in ecological monitoring and surveillance and receive compensation to carry out patrols four times a month (approx. \$2 US/person/patrol).
<b>Carrots to induce positive behaviour of forest-dependent communities for biodiversity preservation</b>	
PES (Payments for Ecosystem Services) for biodiversity conservation	In 2008–2012 a village-based PES scheme financially rewarded communities who were successful in conserving their forests.
Agricultural support	Material support to farmers including the provision of seeds and equipment.
Promotion of community-based ecotourism	One COBA site has been adapted for community-based ecotourism with training in tourism capacity building provided.
Social support	Various social support projects including maintenance of ox-cart wheels, and funding of rural army posts to enhance security.
Ecotourism	A community-based ecotourism set in one part of a large, protected area to support community development and job opportunities.

beneficiaries have been selected to participate, due to selection criteria and highly constrained funding. As a result, neither migrant households nor resident households not involved in COBA tend to benefit from such investments.

Only a few people are members of the COBA in this site, but the many projects promoted here to help us change our livelihoods to not depend on *hatsake* have only benefited those in the COBAs. The promoter knows that most of the households living in this PA cannot afford to stop doing *hatsake* without strong support from them.

*KI44, non-COBA member*

The COBAs of PA Menabe-Antimena face the same barriers as most COBAs in Madagascar: they are dominated by local elites' captures and supported by external actors mostly to promote and defend biodiversity preservation. A few elite households, relatively well-educated compared to the community as a whole and living near accessible roads, have agreed to run the association known as COBA. Recent migrants, who are often there to earn quick money to move to another area or return to their home village, rarely join COBA because they have to be officially registered in the area, which they do not always do.

The funding available cannot cover the whole community. We have to focus our support on those who are already keen for conservation, COBA members. The funding also requires that the support is only provided to those who are eligible, and newcomers don't meet the criteria. We have a huge problem of migration to the area, which is increasing the number of people in the PA so quickly, but they are not even officially registered as legal migrants [so we cannot work with them].

*KIII, conservation actor*

The second issue concerns the types of projects implemented, which often do not match the needs and expectations of the beneficiaries. Project promoters specified that they had carried out preliminary studies prior to selecting projects; however, sometimes communities required projects that could not be implemented with available budgets.

We asked them to build irrigation infrastructure, as we have not been able to use the flat land in our communities since the drought in 1960. But we did not receive any feedback since they studied the area. Instead, they gave us farming equipment and some peanut seed, which were not what we really need if they want us to stop using the forest land.

*FG11, mixed COBA and non-COBA members*

In fact, NGOs often rely on a restricted funding process or on maintaining the status quo approach developed during the Integrated Conservation and Development Project (ICDP) in the 1990s, despite its failure. These fundings are already

framed to a specific theme, either by the donors or by the NGOs, to support specific community projects through small livelihood projects such as livestock and farming. This type of funding assumes that supporting livelihoods through agriculture or livestock projects to promote market-oriented livelihoods is the way to induce positive behaviour for biodiversity conservation in forest-dependent communities.

The activities required to manage this PA mostly depend on external donors. The PA is not financially independent and most of time the funding available cannot cover many activities that we wish to do according to the management plan.

*K111, conservation actor*

The final issue identified concerned the sustainability of the benefits provided by these one-off projects. Project promoters are limited because the funding is unstable, often does not arrive in time, and is insufficient to make the investment sustainable. The one-off projects cannot help communities to overcome the opportunity costs of conservation, which have a long-term impact on their livelihoods. Despite various scientific studies calling for reform of financial support for conservation, it is observed that donors do not always adjust their financial system to respond to the problems faced by NGOs. NGOs are more accountable to donors than to the target communities that are affected by the expansion of biodiversity conservation areas.

We depend on external donors and most of the time the community project is for a short period, so we have to look for new funding to be able to provide the same support every year. The chronic political crisis in country exacerbates the situation, because sanctions lead to reduced funding.

*K110, conservation actor*

COBA members said that they were not receiving tangible benefits through the livelihoods project. However, they continue to work with conservation actors to: (i) gain benefits through other activities, by attending political meetings outside their village, where they receive per diems, stay in good condition accommodation and travel to an area they have never been to or will never afford to go based on their income; (ii) have a job as a local patroller or guide that provides them with a more or less stable income; (iii) be well informed about different decisions made outside the village regarding access to land and future funding in the area.

The support offered is too small to get much benefit. I got a few cups of peanut seed, and we have to share farming materials like ploughs with the whole community. I did not perceive a benefit that will allow me to not depend on the forestland, and it was just offered once.

*K148, COBA member*

Management has also focused on enforcement activities, i.e. application and enforcement of PA regulation; however, this has been sporadic due to a lack of

resources. The PA managers do not have the authority to apply the law and thus rely on government agencies (the Forest Service and Gendarmerie); however, these agencies do not have the resources required to implement enforcement activities. As a result, they depend on funding provided by the promoter or other conservation partners to cover the costs of surveillance and enforcement missions. Alarmed by the magnitude of deforestation within the PA, the actors managing the PA had implemented an urgent plan in 2017. They also lobbied national-level decision-makers on several occasions and brought different Ministers to the region to witness the situation.

Different entities including the regional court, Office of the Region, Prefecture, Forest Service and army, as well as the PA promoter and subdelegates, have implemented awareness-raising activities to inform communities about the rules in place within the PA. Panels and markers have been established to physically mark the PA boundaries and inform people of prohibited activities. Since the 2017 farming season, numerous individuals were arrested and jailed for carrying out cultivation in protected forest. Because of many military interventions held in the protected areas, many elected local officials started to be vocal relating to the issue that small farmers are being put in jail as they are losing votes from communities and need to sympathise with them or do not consider *hatsake* to be a serious offence:

During the clearing and planting activities in the 2017 farming season, many men and women were caught and put in jail. They were very strict last year but they also know that we need to eat so, they might jail a few of our family but it won't stop us if they don't provide any alternatives.

*KI44, non-COBA member*

Most of rural communities depend on farming as their main livelihood, and *hatsake* is not the same as other crimes such as killing or stealing. We are talking here about activities that are illegal, but our society has failed to teach these people to develop sustainable livelihoods.

*KI21, regional authorities*

### ***Biophysical conditions: a forestland well known for its farming potential***

Menabe-Antimena PA has long been known for its farming potential, and the conversion of forest to maize cultivation using *hatsake* has been prevalent in the area for decades (Réau 2002; Scales 2011). Once land becomes unsuitable for maize after two to three years of cultivation, the land is switched to peanut cultivation, occasionally intercropped with maize or cassava, for a further four to six years prior to abandonment (Raharimalala et al. 2012; Ramohavelo et al. 2014). The global market for peanuts has been strong since the arrival of a Chinese peanut exporter in 2014, and a national drinks manufacturer (Malto-Star) is said to underpin a stable market for maize. Several roundtables were organised with the different stakeholders to explore strategies to minimise their negative impacts, but no significant impact had been observed at the time of the study.

The accessibility of the PA's forests and the economic opportunities offered by these crops have attracted several waves of migration from the south of Madagascar (particularly of the Antandroy ethnicity), with migrants settling temporarily to practice *hatsake*. Numerous respondents suggested that the rapid depletion of protected forests is due to these migrants, describing them as free-riders who overconsume the resource to maximise short-term benefits before moving to another site to repeat the same practice.

Since maize and peanuts increased in price and demand has been stable, we have seen these last 10 years many Antandroy have come to clear forest; afterwards they sell the land to residents or any households who want the land, and they move to another site.

*FGI, COBA member*

Migration in the region dates can be traced back to the French colonial period and the crops which boom at different times in the region has reinforced these migrations coupled with wealthy local elite, who have better access to the national and global market, and have played a key role in these migrations. More labour is needed to grow maize and peanuts at low cost and migrants who are willing to carry farming deforestation as local residents are either afraid to break the law related to forest use restriction or have sufficient land to focus on more peanuts plantations. However, the wave of migration in Menabe-Antimena is not only market-driven but also reflects the migration of households from the south of the country facing extreme climatic conditions and several areas well-known as deadly development projects and programmes in their home region.

Internal migration has been a big issue in this area for a long time, but it is getting worse as more and more Antandroy from the South are coming here to overuse the protected resource for short-term economic interest.

*KI4, conservation actor*

### *Community attributes: forest as a conflictual arena to get incomes*

Multiple sets of stakeholders, each with different practices, expectations and interests, have been integrated into the governance structures of the PA in an effort to harmonise their actions. However, the lack of cohesion and coordination of actions between these stakeholders has hampered the effective delivery of interventions intended to reduce anthropogenic threats within the PA. This is associated with two underlying factors: (i) the diverging objectives and values of stakeholders, and (ii) differences in their relative influence and power. Given these differences, we categorise stakeholders into PA 'supporters' who are actively involved in PA management, and PA 'opponents' who prioritise the economic valorisation of protected resources through farming.

PA opponents include migrant communities and powerful actors involved in agricultural value chains (e.g. local elites: elected or wealthy individuals, mobile

labour from the south of the country). Activities of migrant communities were often suggested by respondents to be the main cause of deforestation, and were said to be connected to regional ‘elites’ involved in the collection and commerce of peanuts and maize. The latter have a high relative power to influence decision-making processes that impact heavily on effective management of the PA.

The administration and government agencies are underfunded and cannot fulfil their duties properly, but many corrupt and powerful individuals [in these bodies] are also getting benefits from the production of maize and peanuts here. So, they will keep using their power until they no longer have interest in these resources.

*KI22, regional authorities*

The PA ‘supporters’ consist of actors legally appointed as governing the PA including members and residents involved in COBA. These stakeholders are limited in their power, resources and capabilities. Long-term resident communities, migrants and COBA members all rely heavily on natural resources due to a lack of employment opportunities and their lack of education and are unable to develop alternative livelihoods without sufficient support.

Small farmers like us don’t have the skills to work in the State to get a salary every month. The forest is our office that provides us the salary that we need to fulfil our basic needs such as food, health and education for our kids.

*FG10, mixed COBA and non-COBA members*

In addition to differences in relative power, these sets of stakeholders also have conflicting values, resulting from the contradiction between sectoral policies and the socio-political interests of the stakeholders. Although government policy has highlighted conservation as a national priority and it is recognised that small-scale agriculture is the most important driver of deforestation in many PAs, agricultural policy remains focused on agricultural intensification within irrigated areas rather than reducing shifting cultivation by developing sustainable small-scale agricultural models such as agro-ecological systems. Less attention is focused on farmers living within PAs who lack access to such irrigated fields, and livelihood-based interventions associated with the PA have not been successful in overcoming biodiversity preservation externalities that it imposes on local cultivators. Moreover, some stakeholders within government agencies have set other priorities and act against such policy, and claim that economic growth and social stability (i.e. the local economic benefits derived from cash crop value chains) are more important than protecting the forest, which is valued only for the quick economic returns from its conversion to other land use including agriculture.

The government set conservation as the priority policy of the country, but it was not integrated into the vision and mission of many different departments working in economic growth. We are also afraid of the retaliation of people if we are too strict, as they depend so heavily on the protected forest.

*KI13, regional authorities*

In this country, people use the argument that the communities who cut down and burn the forest are poor – if we do not provide them with enough support, we should allow them to do *hatsake* for their subsistence. This rhetoric has been used by many actors to gain people's support during election and to get rich.

*KI21, regional authorities*

### *Institutions or rules-in-use*

The institutional context in which the PA has evolved includes a range of formal and informal rules and an ambiguous property rights system. Three issues in particular affect the institutional context of the PA and limit its effectiveness. First, the enforcement of laws prohibiting deforestation and exploitation in the PA is weak, largely due to a lack of resources and corruption within the government agencies responsible. Second, the constitutional amendment which allows the free circulation of Malagasy citizens anywhere within the national territory has permitted continued waves of uncontrolled migration which has rapidly increased the population around the PA and pressures on its land and resources. Menabe-Antimena PA has attracted labour migration looking for opportunity which has market-driven crops to gain relatively better income compared to their native village. Third, in the absence of functioning formal land tenure systems, there is widespread acceptance of customary tenure, whereby whoever clears forest land claims ownership over the cleared land. The PA is considered to be mainly state-owned, although some plots have been privately owned since colonisation as a production area. It is mainly because of the overlap of these private areas that the PA has been classified as multiple use. In fact, the official mapping of Menabe-Antimena PA did not indicate any household land claiming customary rights.

The Menabe-Antimena PA has long been poorly managed by the state, and it was only in 2006 that the NGO Fanamby invested in supporting state management of the area to promote biodiversity preservation. However, making the area a protected area is not enough to resolve the conflict of interest between conservation and agricultural frontier. The free movement of people, the tenure system that encourages forest clearing, and the lack of law enforcement creates a situation of almost open access to forest land, rapidly leading to a tragedy of the commons. The Menabe-Antimena PA illustrates the institutional disorder in land access and use policies on Madagascar's forest frontier. The forest thus becomes a conflictual frontier to earn income and wealth between powerful actors who have access to different power resources. However, poor forest-dependent communities are often blamed, used or manipulated to support the specific agenda of powerful actors and pay for the externalities of biodiversity preservation or agricultural expansion.

*Patterns exacerbating institutional ineffectiveness in PA management*

The interrelationships between the different institutional factors we have identified explains the complex socio-institutional situation in which management of the PA has evolved (Figure 9.2). Strong demand for cash crops, driven by both domestic and export markets, creates a situation where clearing forest for cash crops is perceived as more attractive to poor communities than leaving it for conservation without significant benefits at local level. The lack of reliable funding has weakened PA managers’ ability to implement effective and efficient enforcement and incentive biodiversity conservation measures. These limitations are exacerbated by regular political crises in the country, which has created an erratic institutional context dominated by corruption, cronyism, socioeconomic crisis and poverty traps. This generalised crisis in the country has been profitable for powerful actors, who take advantage of the weakness of the state to impose social institutions on less powerful actors, thus hampering effective management of the PA.

**9.4 Discussion**

Menabe-Antimena has long been prioritised as one of the most important biodiversity areas in Madagascar, and has benefited from protected area status since 2006. Despite this, it continues to suffer such intensive deforestation that complete destruction of the forest, and the associated extinction of at least three vertebrate species, is expected within decades (Vieilledent et al. 2020). By using an

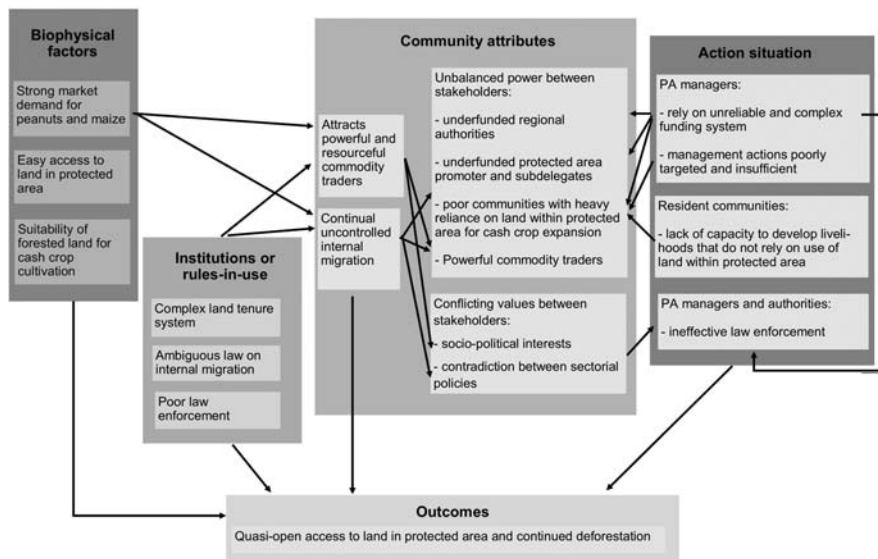


Figure 9.2 Conceptual model of key factors limiting the effectiveness of protected areas in Madagascar, based on the case study of the Menabe-Antimena.

Source: Author’s creation



institutional analysis to examine the factors – both within the management of the protected area itself and of the socioeconomic context in which it is embedded – that have influenced its ineffectiveness, we have provided insights into how deforestation has been able to persist and indeed increase despite years of protected area management efforts. Our findings suggest that the ineffectiveness of the PA has occurred because managers have had inadequate funding to either provide farmers with viable alternatives to shifting cultivation or adequately enforce the law, and because the PA has been insufficiently mainstreamed into regional economic and governance priorities. In the absence of effective enforcement and viable alternatives, shifting cultivation remains the most attractive livelihood option for resident and migrant communities.

Deforestation in the Menabe-Antimena protected area is driven by growing domestic and export markets for maize and peanuts, which can be easily grown using shifting cultivation. The economic returns from such cultivation can be relatively high, serving to attract migrants from the south of Madagascar and leading to rapid increases in local population (Scales 2011; Vieilledent et al. 2020). The attraction of migrants to forest and other resource frontiers is a widespread driver of biodiversity loss throughout Madagascar (Cripps and Gardner 2016; Jones et al. 2018), and a challenge for PA managers to address: however, livelihood-based interventions at Menabe-Antimena are not reaching migrant communities for reasons of funding eligibility.

While PA managers have invested in livelihood-based interventions to provide alternative sources of revenue, the projects have tended to be of short duration and poorly matched to the needs of the communities, thus failing to fully compensate the opportunity costs of foregoing shifting cultivation, or provide a viable alternative to deforestation for farmers. In addition, the investments have been limited in scope, so that agricultural support reaches only a small proportion of cultivators. As elsewhere in Madagascar, this suggests that protected area managers are failing to adequately compensate local people for the opportunity costs of forest conservation (Poudyal et al. 2018), despite the existence of social safeguards policies in protected area legislation (Gardner et al. 2013; Virah-Sawmy et al. 2014). As a result, shifting cultivation continues.

The limited size and scale of these interventions is dictated by a lack of funding, which has hampered management throughout the PA's history. The adequate resourcing of PAs is essential for achieving positive conservation outcomes (Leverington et al. 2010; Geldmann et al. 2015, 2018; Barnes et al. 2016; Gill et al. 2017), but finance for PAs in Madagascar depends heavily on unreliable funding from international donors: this consists primarily of short-term grants with complex administration processes, and is vulnerable to changing funder priorities and national political crises (Gardner et al. 2018).

Given the ineffectiveness of livelihood-based incentives to reduce shifting cultivation, the PA managers are partially reliant on law enforcement activities to prevent deforestation. However, this disincentive also has limited effectiveness because the PA managers do not have authority to apply the law and the government's law enforcement agencies do not have the budgets or motivation to do so.

Enforcement missions are therefore sporadic because they must be funded by the PA managers, and they rarely result in appropriate penalties due to the unwillingness of the authorities to convict those apprehended. Moreover, enforcement targets the cultivators themselves rather than the elites and middlemen that promote and facilitate illegal logging and deforestation, limiting its impact. Efforts are equally required elsewhere in the supply chain to ensure the buyers of maize and peanuts do not promote the cultivation of these commodities in the PA, or purchase stocks derived from land within it.

The limited interest of the public authorities in enforcing protected area laws is hugely problematic as it renders the PA managers without legitimacy to use force to apply the law. Although the Malagasy central government seems to ostensibly prioritise biodiversity conservation, this is not reflected in the priorities of decentralised authorities at regional and local levels. In addition, both authorities suffer from chronic underfunding which limits their ability to fulfil their duties, there is poor cohesion of sectoral policies leading to conflicting priorities between sectors and ministries, and corruption is generalised at all levels (Ferguson et al. 2014; Gardner et al. 2018; Jones et al. 2019). Thus, although the protected area contains the Avenue of Baobabs (the most widely photographed image of Madagascar) and sustains much of the region's tourism industry, the enforcement of PA-related laws is not prioritised by local and regional authorities, the Ministry of Agriculture does not incorporate the PA into its planning, and important actors across the region fail to value the PA or seek to defend the PA. As a result, the PA continues to be plundered for short-term gain of a small number of individuals controlling the agricultural commodity trade (Scales 2011; Vieilledent et al. 2020), rather than managed for the greater benefit of the region and nation. Effectively mainstreaming biodiversity across governance sectors will be essential to reduce threats to PAs across the country and ensure that transnational and national NGOs and local community PA managers have the necessary backup from local and regional authorities to be able to address them at the local level.

## **9.5 Conclusions**

Creating protected areas is not sufficient to ensure their sustainability including to arrest the processes that threaten their biodiversity – they also have to be effectively managed. Therefore, global sustainability and biodiversity conservation policies should focus equally on the quantity and most importantly on the quality of the global protected area estate. Focusing on continual expansion of PAs is leading either an increase in the number of paper parks or private communities from their land to make territory for biodiversity, thus harming their livelihoods. Conservationists should ensure that the most important sites, such as those harbouring species that occur nowhere else, are adequately funded. While the expansion of protected areas to maximise the representation of species and habitats is important, much of the world's existing PA estate occurs in tropical low-income countries with weak governance, poor rural populations with few development alternatives, and high anthropogenic pressures on forests driven by agricultural

commodity markets to respond to both domestic and international needs. Our analysis suggests that to be effective in such circumstances, PAs must have sufficient and permanent resources to be able to make deforestation unattractive as a livelihood option, and work with government authorities at different levels and other non-state actors to ensure PAs are treated as regional development priorities and integrated into all relevant planning especially those deal with agricultural issues.

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