

## Manuscript Details

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### Abstract

In 2003 forest landscape restoration (FLR) work began in Madagascar and a national working group for FLR was created. Over the course of the following years, the implementation of an FLR project in Madagascar's Fandriana-Marolambo landscape was shaped by, and in turn influenced, governance, specifically tenure rights and stakeholder engagement. This case study describes this evolution and provides an account of governance arrangements set up to facilitate project implementation and longevity. Whilst initially the forest administration was at the core of the landscape's governance, over time, recognizing the critical role of local communities, a shift has occurred which has placed communities living in the landscape at the center. Today, 13 years later, the government of Madagascar has committed to restoring 4 million hectares by 2030 under the African Forest Landscape Restoration Initiative; lessons from this project should be upscaled to support this ambitious commitment.

<b>Keywords</b>	Forest landscape Restoration (FLR); governance; Fandriana-Marolambo; WWF
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## Submission Files Included in this PDF

### File Name [File Type]

Reviewer comments.docx [Response to Reviewers (without Author Details)]

World Dev Persp Mada case study2\_rev.doc [Manuscript (without Author Details)]

Highlights Mansourian etal WDP\_rev.docx [Highlights]

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Please see below our responses to the two reviewers whom we gratefully acknowledge.

<b>Reviewer 1</b>	<b>Responses</b>
The case report describes a forest landscape restoration effort in Madagascar and argues of the importance of governance for the effort.	
In short, I have three objections to the article:	
1. This is the most important objection. To me, it is unclear how the case represents ‘forest landscape restoration’ and why it was ‘novel’. First, the landscape restoration seems to have resulted in the creation of a large protected area (around 100.000 ha), and then some 22.000 ha of community agreements. However, it is unclear what these agreements imply for communities. The report also describes lots of nursery developments, support to alternative income generation opportunities etc. which is completely standard in most so-called community forestry efforts and integrated conservation and development projects. Thus, I would need a more detailed and precise description of why this constituted a landscape restoration effort and what was novel about the governance setup.	<p>A new paragraph has been added that defines FLR and explains that until this project there was nothing that could really qualify as FLR in Madagascar.</p> <p>The following sentence was added after the project objective: “A comprehensive landscape vision was thus taken to define specific restoration objectives for the landscape, identify relevant stakeholders in the landscape (and beyond) and prioritise restoration activities at individual sites within the landscape.”</p> <p>The governance set up is certainly novel in Madagascar (and indeed in most cases where forests are a government resource) and is explained in detail in the section now entitled “multi-level decision-making”.</p>
2. Related to this, the word ‘governance’ is used excessively in the report (five times in the abstract, for instance) without ever being defined. So, if we don’t know what governance is here, how can we approach an understanding of its possible novel characteristics. ‘Governance’ must be replaced with more careful descriptions of who have rights to do what on areas with different land tenure – i.e. plant trees, fell trees, sell tree products, sell land, change land-use away from forests, etc. etc.	<p>The five instances in the abstract have been reduced to three.</p> <p>Two uses of the term “governance” have now been defined in the paper:</p> <ol style="list-style-type: none"> <li>1. Governance challenges more broadly (see ref. to Lemos and Agrawal on p.3)</li> <li>2. Governance arrangement (see ref. to Kozar et al. on p.2)</li> </ol>
3. Apart from governance, there are lots of other unexplained terms in	Although the reviewer was not specific, we have double-checked the

<p>the report. Many of the institutions described are not presented leaving people unfamiliar with Madagascar at a complete loss.</p>	<p>paper to ensure any obscure terms are unexplained.</p>
<p>4. The effort described seems to have been extremely well funded (French Foreign Ministry, Air France, GoodPlanet foundation, WWF Switzerland and WWF Sweden, Durrell Wildlife Conservation Trust (DWCT)). It would be interesting to know the total amount of donor finance involved and to get a brief reflection on the possibility of replicating this effort (which covered a landscape of 200.000 ha) across the country.</p>	<p>We have managed to dig out an approximate figure of EUR 1.6 million.</p> <p>The possibility of replicating is linked to the overall government commitment (reason for keeping that part in the conclusions and the highlights – see below).</p>
<p>So, in short, more attention to detail, context, novelty and replicability outside of an intensively financed project context is needed, and this will require space, which is limited. To help with that I propose that the reference to the new 4 mio ha idea is removed – it’s not relevant to the story of Fandriana Marolambo.</p>	<p>We are reluctant to remove the reference to Madagascar’s commitment to restore 4 million ha, since this is an added value of this case study: to use the experience to shape those future investments in the 4 million ha. (see response above).</p>
<p><b>-Reviewer 2</b></p> <p>- This case has potential to contribute to this SI, and indeed presents some important lessons about the challenges for FLR and the evolution of approaches in Madagascar. However, it needs work in terms of reorganization and re-framing to make a strong and clearly articulated case.</p>	
<p>Specific comments: Introduction: The second paragraph can be reduced to a single sentence on selection of a priority landscape based on XYZ criteria and defined by XYZ actors.</p>	<p>This has been somewhat reduced but not so radically given its importance in the broader governance context of the FLR work.</p>
<p>P.2 "the importance of governance arrangements": Can you be more specific about what kind, or what aspect, instead of governance just broadly stated?</p>	<p>Based on this reviewer’s comment and that of Reviewer 1, the following sentence has been added: “Governance arrangements are defined here as the institutional arrangements, decision-making processes, policy instruments and underlying values in the system by which multiple actors can pursue their interests in multifunctional</p>

	landscapes (Kozar et al., 2014)." The next section then explains in more detail our meaning.
P.2 "The project led to changes in agricultural practices": Why did land users change their practices?	This has now been better explained (because of the zoning and contracts, because of local level facilitators engaging with them, because of innovators proving the value of switching)
P.3-onward, regarding framing of national versus landscape levels: The discussion is not so much around issues at the different scales, but rather discusses different governance aspects, which cross multiple scales. The discussion would be strengthened by reorganizing along these aspects, such as tenure, and the roles of different stakeholders. For example, in the first paragraph after the "National level" heading, a good point is made but is not well articulated, mostly because it is not discussing tenure "insecurity" per se but more about tenure claims and conflicts, and the second paragraph under the "National level" heading discusses tenure insecurity, and it is not at the national scale. Overall, this section is more about tenure as a complex governance issue for FLR. The last paragraph under the "National level" heading discusses decision-making and management, and does not follow the rest of the discussion on tenure. Instead, this should be brought into a discussion of multi-stakeholder governance structures, discussing who plays a role in decision-making and management and how this has changed over time. Indeed, this transition is made at the beginning of page 5, but as it now stands not in a way that is well-linked to the preceding discussion.	<p>This is a useful point for which we thank the reviewer.</p> <p>We agree that the problem is not only about tenure insecurity (and have thus added "conflicting claims and lack of clarity").</p> <p>We have also changed the heading to "Tenure" and changed the next heading to "Multi-level decision-making" in which we also subsumed the paragraph on the national working group.</p>
P.8 The paragraph beginning with "While" seems to contradict itself. Is there government interest or not? My understanding from this paper is there is. This claim needs to be clarified.	The difference is one of scale. We have added "national" in front of government.
P.8 From the sentence "Over the duration of the project..." through "successfully engaging in forest restoration": This is the strength of the paper! This could be brought to the introduction and the content of the	We have added a sentence at the end of the introduction to that effect.

paper re-framed accordingly.	
Figures: I'm not sure that the figures offer much value, especially given the length limitations of Case Reports.	We have cut out the first one which was less relevant to the specific governance changes and have merged figures 2 and 3 into one. We feel however, that the 2 figures that remain illustrate well the progression in governance arrangements. However, if space is an issue, these could possibly be removed.

## Novel governance for forest landscape restoration in Fandriana-Marolambo, Madagascar

### Introduction

Madagascar's moist forests harbour a unique biodiversity with rates of endemism at approximately 80 to 90 percent for all taxa. However, forest loss and degradation have plagued the island for decades, leaving only about 10 percent ~~of the island~~ forested cover. As such, forest restoration is a priority and forest landscape restoration (FLR) is a particularly appealing approach in a country with high poverty rates since it addresses both ecological and human dimensions as well as considering large scales.

Forest landscape restoration was defined by 30 scientists convened by WWF and IUCN in 2000 as a "planned process that aims to regain ecological integrity and enhance human wellbeing in deforested or degraded landscapes". In Madagascar until the beginning of this century, forest restoration efforts had been small-scale, essentially using a limited number of exotic species and the links between ecological and social dimensions were missing.

To explore options for engaging in FLR in Madagascar, WWF organized in 2003 a first workshop in ~~the capital, Antananarivo,~~ to bring together a range of stakeholders including the government, the private sector and non-governmental organizations. One outcome of the workshop was to define and agree on socio-cultural, ecological, economic and political criteria to prioritize and select a landscape for FLR. ~~Workshop participants debated a range of socio-cultural, ecological, economic and political criteria. A final set of criteria was agreed and these were then applied to 14 landscapes proposed by the group in order to narrow the list of potential landscapes down to three.~~ In a next phase a researcher ~~then visited~~ all three shortlisted landscapes to discuss and apply the criteria to each. Her results were then endorsed by a multi-stakeholder national working group on restoration set up following as a result of the workshop ~~(see Figure 1).~~

~~As a result of~~ The selection of Fandriana-Marolambo (FM) as a priority landscape was therefore, based on extensive research and the application of nationally-agreed criteria, notably the preparedness of local communities to adopt new technologies and approaches, their level of education, their dependence on forests, as well as local political support and ecological importance of the forest. Funds raising were raised from the French Foreign Ministry (MAE) for an initial 4-year FLR project implemented by WWF-Madagascar for a full blown FLR programme in this landscape was then undertaken, with the project's overall objective being that "The goods, services and authenticity of the moist forests of the landscape of Fandriana-Marolambo are restored so as to support the development of the populations and to secure the objectives of biodiversity conservation." A comprehensive landscape vision was thus taken to define specific restoration objectives for the landscape, improve connectivity, identify relevant stakeholders and prioritize restoration activities at individual sites within the landscape. The founding of this project on a detailed and consultative process proved essential to its acceptance at various levels and supported its continuity. Over the course of 12 years an approximate EUR 1.6 million were invested in this project with funding from MAE followed by

**Figure 1:** ~~Five steps in selecting a priority landscape for FLR in Madagascar (Source: From Mansourian and Vallauri, 2014)~~

Funding for an initial 4-year project implemented by WWF-Madagascar was obtained from the French Foreign Ministry (MAE) in 2004. It was followed by successive phases (funded by Air France and the GoodPlanet foundation, WWF Switzerland and WWF Sweden,) and involvement from other partners such as Madagascar National Parks, Durrell Wildlife Conservation Trust (DWCT) and several forest managers' and community associations, and continues to this day. Over the course ~~During~~ of the successive phases, the importance of governance arrangements as a fundamental building block to any long term, sustainable and effective engagement in the landscape became evident. Governance arrangements are defined here as the institutional arrangements, decision-making processes, policy instruments and underlying values in the system by which multiple actors can pursue their interests in multifunctional landscapes (Kozar et al., 2014). These arrangements evolved over the course of the project from being top-down with the authorities at the center, to a more collaborative and bottom-up approach, which proved critical to ensure local-level collaboration and implication in the FLR initiative.

## 2. The case study Fandriana-Marolambo landscape

The Fandriana-Marolambo (FM) landscape is situated in east-central Madagascar and covers an area of approximately 200,000 ha which includes a mosaic of ~~Three major types of vegetation are found in the landscape:~~ primary forest, degraded primary forest ~~(edges, forest fragments and areas of timber harvest)~~, secondary forest ~~or savoka~~, savanna and agricultural areas. An estimated 150,000 people inhabit the landscape from three different ethnic groups: Betsileo, Vakinankaratra and Betsimisaraka. ~~An estimated~~ and 2,730 households live directly from the use of forest and natural resources. ~~The landscape is remote and state presence and services are minimal.~~

The project objectives followed a dual ecological and ~~social~~ (socio-economic) dimension, in line with the FLR definition noted above. A landscape-wide restoration vision was developed, and within this framework specific interventions identified to help move the landscape from its current degraded state to one with more biodiversity and one that supplies more goods and services to its inhabitants. Significant efforts centred on ensuring that local communities could not only engage with the restoration actions but actually could also see a direct benefits ~~for themselves in order to secure durable change. This was done firstly through local level facilitators who raised awareness among communities about alternative tree species and agricultural and restoration practices, and helped to recruit some "innovators" who set an example and created a snowball effect. Because they were local, facilitators found appropriate means to engage communities in restoration, for example through restoration songs (Roelens et al. 2010). Also, through the project, zoning and contracts were negotiated with communities promoting both active and passive restoration. These zones were based on a landscape approach and reflected the current state of the forest, including recognizing the importance of the zone around the future national park as being a priority for restoration.~~ The project led to changes in agricultural practices such as improved crop fertilization, crop combinations and cropping system over vegetative cover to reduce the impact of slash and burn practices, improved rice cultivation techniques which did not involve the use of fire, and agroforestry. Alternative livelihood enterprises were also promoted, such as the production of essential oils, honey, and small animal and fish farming. ~~For example, the project introduced improved rice cultivation techniques which led to a five-fold increase in production of rice in Ambodinonoka and in the rural commune of Betsimisotra, thus,~~

to reducing-reduce pressure on the forests while improving peoples' livelihoods. The project also provided training in nurseries of local species given the limited knowledge and experience until then working with local species. As a result, after five years, the project could boast a total of 58 community, school or family nurseries which produced a total of 475,000 plants from over 100 native species (Roelens, 2010); over 50 native tree species have been actively used to restore degraded parts of the landscape, food security has improved and incomes have increased.



### **Governance and FLR in Madagascar**

When the project started in 2003, governance was not being considered much in restoration. Governance understood in the broadest sense, considering interventions aiming at changes in environment-related incentives, knowledge, institutions, decision making, and behaviors (Lemos and Agrawal 2006) was first considered in this project by seeking The project sought to engage different decision-makers and policymakers through its-the first workshop and the creation of a national level working group on FLR. Through the practical implementation of the project, it became clear that governance aspects had to be addressed at the landscape level as well. In successive phases of the project, governance therefore, took on more importance, particularly in .- Governance aspects are described at two areas levels: firstly1), tenure the surrounding national governance challenges that impacted on the project and 2) secondly, the active governance arrangements sought by the project to facilitate and ensure its sustainability multi-level decision-making.

### **National level: Surrounding national governance issues Tenure**

Insecure or unclear tenure has been identified as an underlying cause of deforestation in Madagascar. As in most of Madagascar, the land in FM is under customary tenure arrangements with no formal deeds or titles. While the country has embarked on land reforms to improve the land rights of communities, in practice, procedures are slow, costly and complex. As the project developed, tenure became a critical issue, on-in three levels ways: firstly 1) a protected area was due to be created inside the landscape, so the national parks authority (MNP) resisted any project involvement in this part of the landscape for fear that once communities engaged in restoration in this area they would claim it as their own; secondly and more generally 2), the issue of overlapping tenure between traditional and legal status of lands and forests.-; Thirdly 3), the use of exotic species (particularly eucalyptus) in restoration in Madagascar tends to facilitate land appropriation by those involved in the restoration, whilst using native species creates native forests which under Malagasy legislation belong to the State. Tenure insecurity, conflicting claims and lack of clarity thus provided a profound governance were thus significant challenges affecting the course of the project. As such t The project and its successive phases ended up investing significant time attempting to tackle these underlying structural challenges to restoration in addition to focusing on the more technical forestry-related aspects of the project issues.



The promise of improved tenure security (through "community contracts"), access to restored ecosystem goods and services, and payments for ecosystem services have been critical incentives for local community engagement in restoration (Mansourian et al., 2014). Madagascar's forestry legislation provides for co-management arrangements under the "secure local management" or "GELOSE" law (of 1996) and the 2001 law on contractual management of forests. Under these mechanisms communities organize themselves in associations (called "COBAs") and negotiate contracts with the central government, the commune and local authorities, in collaboration in all



cases with an NGO. Through this project these contracts were adapted to contain restoration aspects (see below).

~~As in most of Madagascar, the land in FM is under customary tenure arrangements with no formal deeds or titles. While the country has embarked on land reforms to improve the land rights of communities, in practice, there is still a long way to go. Procedures are slow, costly and complex. Insecure or unclear tenure has been identified as an underlying causes of deforestation in Madagascar (Wendland et al., 2010). In contrast, the promise of improved tenure security (through “community contracts”), access to restored ecosystem goods and services, and payments for ecosystem services have been critical incentives for local community engagement in restoration (Mansourian et al., 2014).~~

### Multi-level decision-making

~~Also, a~~At the **national** level, the **national** working group on FLR was established with the aim to support FLR implementation in the country. In particular it was meant to prioritizse work on FLR and support landscape-level implementation. In practice, while meetings of the FLR national working group took place over several years, they eventually died down - Interestingly although, with recent interest in restoration ~~(see below)~~, Madagascar has now re-established such a working group.

### At the landscape level,

#### Landscape-level: Three phases of governance arrangements

~~t~~Three phases of governance arrangements ~~in the landscape~~ can be identified: one prior to the project and two that developed over the course of the project.

Prior to the FLR project, exclusive governance by the forest administration was the norm in the FM landscape. To promote new settlements in the area, during the 1970s and 1980s, the government issued permits to farmers to allow them to remove forests in favour of agriculture. The massive forest loss that plagued the ~~entire island of Madagascar~~whole country, led to significant outside interest and funding for conservation in the 1990s and by a reversal of government policy, punishing instead of promoting forest clearance. Understandably, conflict and mistrust between communities and forest authorities ensued.

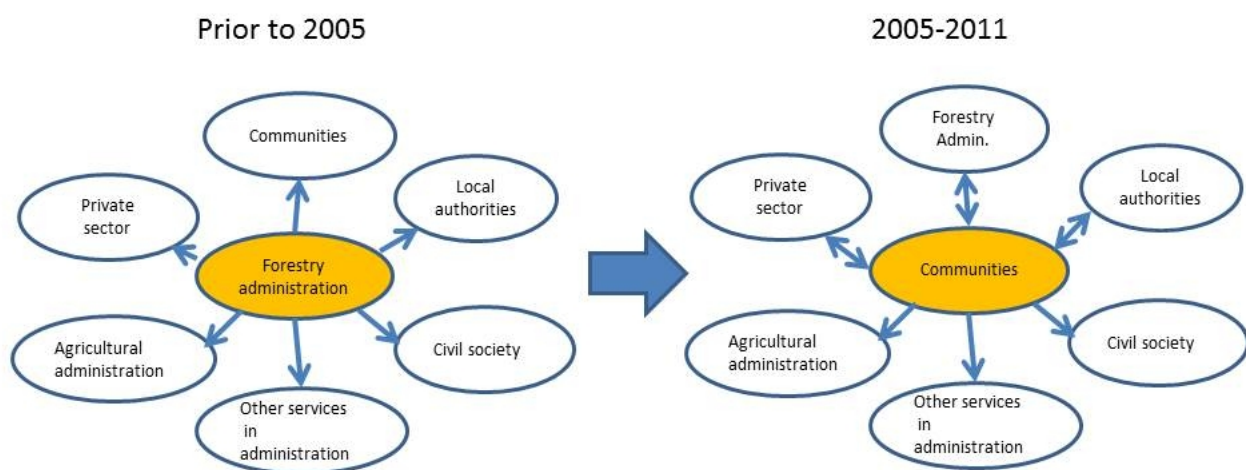
~~Figure 2 shows the model of top-down governance driven by the forest administration in the forest landscape. In this first model of forest governance, which is focused on managing the resource itself, the forestry administration is the central, and arguably, sole actor managing the land, dictating laws, processes and sanctions, with local communities facing the consequences.~~

As a result of this legacy, during the first 5 years of FLR implementation in FM~~Fandriana Marolambo~~, the project faced the mistrust of local communities and had to engage in lengthy and detailed negotiations with community leaders and local authorities to work on the underlying tensions related to distrust and poor tenure security ~~as a means to reach the ultimate objective of restoration~~. Meetings were organized to better understand communities' needs and desires from their landscape and forest. Local facilitators were hired to gain the communities' trust. Land use compromises and trade-offs were discussed in order to meet the ecological and socio-economic

dimensions of FLR. This involved adapting the ~~FLR project\_ and going back to the donor for a modification of the project\_ notably hiring more local facilitators~~ - to take account of governance realities on the ground.-

~~Initially the project intended to work through existing governance structures, notably the local planning committee (“comité multilocal de planification” or CMP). The CMP helped to integrate the project in community development plans, and to engage communities and other stakeholders during the negotiation phase. However, once the project was initiated it proved more appropriate to work directly with community groups which were strengthened and became the key counterparts in any discussions on restoration.~~

Contracts (or “community conventions”) were negotiated between the communities and forest areas and cultivation areas allocated to different community groups. In this new governance model (which took 4 years to reach) communities were placed at the centre of decision-making (see Figure 13) whereas before the forestry authorities were the central players.

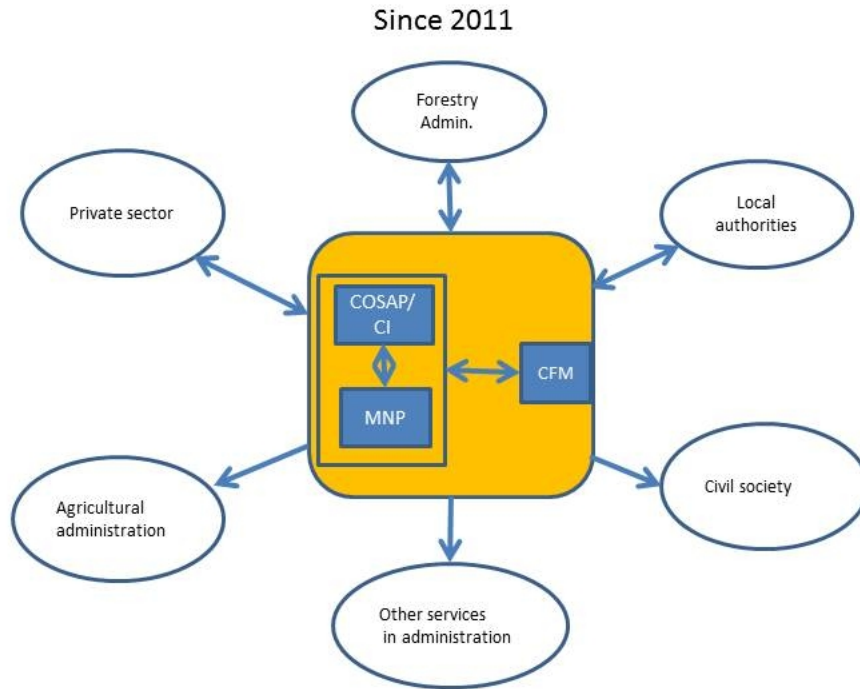


**Figure 1.** Governance arrangements: from being centered in the forestry administration to being centered in the communities

As a result, 48 village communities across the landscape were able to negotiate contracts delimiting restoration zones.

~~These~~ “community-Community forest management contracts” (“*contrats de gestion communautaire des forêts*”) cover an area of 22,239ha in the landscape within which 6,786ha were identified for active or passive restoration. The contracts provide the communities with the necessary authority to restore the forested area, and also commit them to engage in specific restoration activities. For example, in the Ezaka community in Ambatodidy, a 20ha degraded zone was delimited for active and passive restoration.

Since 2011, a core part of the landscape totalling 95,257ha was delimited as a national park. The Marolambo National Park is co-managed by the Madagascar National Park (MNP), the COSAP (Committee and support for the Protected Area) and CLP (Local Park Committee) which is present in 61 surrounding provinces (or "Fokontany" ~~(or provinces)~~. A detailed zoning process helped to further legitimize this process and ensure that communities accepted to relinquish some agricultural areas in favour of forest restoration and forest protection. In exchange, communities had ~~were~~ allocated other areas for ~~their~~ farming and other activities. In a third phase, and as a result of the creation of the PA park, a change in governance structure ~~arrangements~~ can be seen, as per Figure 42, ~~taking into account the Park.~~



**Figure 2.** Present governance arrangement in the landscape

The central body of the governance is two groups of three entities (MNP, COSAP / CLP and community forest management (CFM)). These two groups have direct links with other stakeholders including the forest administration, the private economic operators sector and local authorities. While the COSAP/MNP focus on the national park, they also consider the opinions of CLPs and communities. Under the CFM, contracts describe modalities of forest use, including restoration. Importantly,

Customary rights on the traditional use of land and social conventions were recognized and developed under the umbrella of the CFM. Contracts for forest community management describe modalities of forest use.

### 3. Conclusions - Implications for policy and practice

Governance challenges for restoration in Madagascar emerged when FLR forest landscape restoration was first introduced in the country in 2003. Some were addressed in the process of developing the project (e.g. setting up a national working group on FLR, engaging stakeholders in the selection of a priority landscape for FLR), others emerged in the course of project implementation and required adaptation of the project.

This is the only long term (10+ years) FLR programme in Madagascar and it This case study provides a unique long-term perspective (10+ years) on how landscape-level governance realities influenced the course of such a forest landscape restoration project and forced the consideration

of ~~issues~~ the root causes of forest loss, such as tenure conflicts, decision-making processes and engagement of communities that had not been initially anticipated.

Over the duration of the project, governance ~~structures~~ arrangements and processes evolved, from a more top-down approach with the authorities at the center, to a more collaborative and bottom-up approach reconciling different priorities and stakeholder interests within the landscape.

This project ~~It has~~ highlighted the underlying tensions caused by unclear (and contested) tenure arrangement, in successfully engaging in forest restoration, and the importance of placing communities at the center, in this case through local level facilitation and negotiated community contracts.

While current forest legislation and policy in Madagascar provide limited national government interest in forest landscape restoration and long-term management of forests, Madagascar's commitment to restore 4,000,000ha by 2030 under the African Forest Landscape Restoration Initiative represents an opportunity to scale up some of the lessons emerging from this case study.

Setting up and engaging in governance and specifically governance ~~structures~~ arrangements, has helped to ensure a solid foundation for future work in the landscape. Local partners are also now in a better position to continue working on restoration in the landscape as WWF phases out its engagement.

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## **Case study for World Development Perspectives:**

### **Novel governance for forest landscape restoration in Fandriana Marolambo, Madagascar**

#### **Highlights**

- Governance challenges at multiple levels - national, landscape and community - impact on forest landscape restoration in Madagascar and had to be tackled in FLR implementation in the Fandriana-Marolambo (FM) landscape
- Negotiations with communities and authorities - supported by local level facilitators - helped to design community contracts that reduced the pressure on forests, changed practices for the benefit of the communities and the forests, and supported active and passive restoration actions in the landscape
- Lessons from this project should support the government of Madagascar as it seeks to restore 4 million ha of forests by 2030

## Case study for World Development Perspectives:

### Novel governance for forest landscape restoration in Fandriana Marolambo, Madagascar

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**Key words:** Forest landscape Restoration (FLR); governance; Fandriana-Marolambo; WWF

#### **Abstract:**

In 2003 forest landscape restoration (FLR) work began in Madagascar and a national working group for FLR was created. Over the course of the following years, the implementation of an FLR project in Madagascar's Fandriana-Marolambo landscape was shaped by, and in turn influenced, governance, specifically tenure rights and stakeholder engagement. This case study describes this evolution and provides an account of governance arrangements set up to facilitate project implementation and longevity. Whilst initially the forest administration was at the core of the landscape's governance, over time, recognizing the critical role of local communities, a shift has occurred which has placed communities living in the landscape at the center. Today, 13 years later, the government of Madagascar has committed to restoring 4 million hectares by 2030 under the African Forest Landscape Restoration Initiative; lessons from this project should be upscaled to support this ambitious commitment.

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