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Tenure Security and Forest Landscape Restoration:
Results from Exploratory Research in Boeny, Madagascar

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Abstract

Madagascar aims to restore 4 million ha of degraded forests by 2030 under the Bonn Challenge. Chief among the constraints identified to forest landscape restoration (FLR) are a lack of tenure security for smallholders and weak forest law enforcement. We present preliminary results from research in Boeny Region, Madagascar to improve understanding of local tenure systems and how they might affect FLR investment. We identified two land tenure models: an endogenous model rooted in the local customary system with weak state intervention, and an exogenous model heavily influenced by external actors and where customary systems have limited legitimacy. These differences will affect FLR investment choices and success of tenure securitization. We recommend that FLR actors be trained to use tenure diagnostic tools that distinguish between different hybrid systems. Such training will provide FLR actors with the conceptual tools needed to design and implement FLR programs appropriate for complex tenure systems.

Key Words: tenure security, forest landscape restoration, commons, land registration



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1.0 Introduction

Madagascar has committed to restoring 4 million ha of degraded forests by 2030 under the Bonn Challenge. To achieve this ambitious goal, a team of Malagasy forestry experts worked with consultants to identify priority areas for restoration and provide the information needed to develop a national FLR strategy (Lacroix et al., 2016). Chief among the constraints identified to scaling up restoration were a lack of tenure security for smallholders and populations dependent on natural forests for their livelihoods and weak enforcement of forest laws. To support the Malagasy government's efforts to provide landholders with greater tenure security, Germany's Ministry of Economic Cooperation and Development (BMZ¹) is channeling financial and technical assistance for implementing tenure reforms to the Promotion of a Responsible Land Tenure Policy Project (Projet de Promotion d'une Politique Foncière Responsable, or ProPFR) in northwestern Madagascar. ProPFR, which receives technical support from GIZ-Madagascar,² is a four-year project that aims to improve the institutional framework and processes for ensuring land rights, implement FLR pilot activities on secured land, and strengthen civil society with regards to responsible land policy. The Center for International Forestry Research (CIFOR) is collaborating with GIZ-Madagascar and the University of Antananarivo's forestry program, ESSA-Forêts,³ in an exploratory study aimed at improving understanding of the relationship between tenure security and FLR investment at local and regional levels in Madagascar.

In this paper we present the preliminary results from two of four case studies carried out in Boeny Region, Madagascar in October 2018 as part of the CIFOR-ESSA-GIZ exploratory study. We begin by situating the study in the context of forest and land reforms that have taken place in Madagascar since the 1990s, followed by a description of data collection methods and the socio-ecological characteristics of the two study sites. After describing the major land cover categories present in the study area, we discuss the bundles of rights associated with each land cover type as reflected in practice, the role communes play in facilitating access to land, and patterns in the uptake of land certificates issued through commune-level land offices. We make a case for the existence of two different models of hybrid land tenure in the ProPFR project zone, an endogenous model still strongly rooted in the local customary system with relatively weak intervention by the state, and an exogenous model heavily influenced by external actors

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and where the legitimacy of customary systems is contested, either directly or symbolically, through complex interactions among several stakeholder groups, and leading to a very unstable situation if not outright conflict. We argue that different approaches to enhancing tenure security are needed for these two models in order for FLR initiatives to succeed.

2.0 Tenure reform and forest landscape restoration context

Tenure rights affect who can use land and resources, as well as the ways in which they can be used and for how long. These, in turn, affect whether and how much landholders or resource users are willing to invest in forest restoration practices (McLain et al., 2018). Tenure security is also an important factor that can affect the uptake of FLR practices and the extent to which FLR initiatives are able to encompass large geographic areas. Landholders are more likely to make investments, such as planting trees or installing terraces, that provide benefits in the long-term if they feel confident that they or their household members will be able to access those benefits (Lawry et al., 2017; Robinson et al., 2017). Governance system characteristics also affect FLR implementation, in part because governance affects the extent to which tenure rights can be exercised and whether securing rights through formal processes leads to better social and ecological outcomes (He and Sikor, 2017). Lack of local or state enforcement capacity may negate a person's ability to derive benefits from the trees or shrubs growing on land to which they have management or use rights (Sunderlin et al., 2014). Disconnects or overlaps between agriculture and environment ministries can result in policies that favor forest conversion and undermine incentives for farmers to invest in restoration (Resosudarmo et al., 2014). Moreover, the lack of opportunities for meaningful participation of local communities and individuals to engage in land and resource decision-making may engender resistance to FLR practices or lead to inappropriate program approaches and policies (Duchelle et al., 2017). All of factors affect how the costs and benefits of restoration are distributed, and therefore whether a sufficient number of people can be motivated to engage in restoration practices such that landscape scale restoration becomes feasible.

2.1 Land and forest tenure reform in Madagascar

In the 1990s Madagascar embarked on a series of forest policy and legislative reforms aimed at shifting some of the state's forest management authorities and responsibilities to local management groups known as Vondron'Olona Ifotony (VOI) or, in French, Communautés Locales de Base (COBA). The first such



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legislation, Loi No 96-25,⁴ referred to as GELOSE (Gestion Locale Sécurisée), focused on decentralizing natural resource management and making it easier for users to become forest managers. This law established a legal framework that enabled management rights to specific resources to be transferred from the state to local communities (VOI) through agreements drawn up between the forestry administration, the VOI or COBA, and the commune (Pollini et al., 2014). This three-way process proved to be cumbersome, and was modified in 2001 through a decree that authorized the forest administration to enter directly into forest management contracts (Gestion Contractualisée des Forêts, GCF) with VOI (Pollini et al., 2014). This reform, which removed the commune from the contractual agreement process, was designed to simplify the process of getting rights to manage forest resources. However, the process for submitting a demand for a management transfer has also proved to be cumbersome and time-consuming (Cullman, 2015). The Nouvelle Politique Forestière (New Forest Policy) continues to emphasize management rights transfers; it also calls for the forest administration to coordinate its activities with other actors in the forest sector, particularly the decentralized stakeholders. The promotion of FLR is one of its objectives.

In 2005, Madagascar adopted a new land policy aimed at enhancing tenure security for a broad swath of Malagasy households through simplifying and decreasing the cost of land registration. A key reform was a shift from the presumption of state ownership for untitled land to a presumption of private ownership for such lands, in effect recognizing existing claims to land. A second key reform was the establishment of a decentralized land administration system functioning in tandem with the centralized system, with communes empowered to issue land certificates through newly established local land offices. A third innovation was the introduction of the Local Plan of Land Occupation, a GIS-Based land records system, that keeps track of the status of lands within commune and enables data on land transactions to be shared between the land administration and the communal land offices. By 2014, more than 120,000 land certificates had been delivered to private individuals, a figure that far exceeded the number of land titles issued since independence (Burnod et al., 2018). In a study of tenure security perceptions among 1862 households selected from four regions and nine communes in Madagascar, Burnod et al. (2018) found that having a land certificate reduced landholders' fears of losing access to land in both the short and long term. In contrast, possession of informal tenure documents (*petits papiers*) reduced fears of losing access to land in the short term but not in the long term. They also found that although the process of certification has induced conflict, the local land offices are able to facilitate their resolution (by providing

⁴ Loi n° 96-025 relative à la gestion locale des ressources naturelles renouvelables



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information about where to go to get them resolved) as well as the resolution of preexisting conflicts. However, they found that considerable variation exists across communes and regions in terms of the number of households with certificates, and that wealthier households were more likely to obtain certificates than those that were less well-off. The Nouvelle Lettre de Politique Foncière 2015 calls for the continuation of the 2005 reforms; it also calls for coordination between tenure management and territorial planning, and the need to determine the boundaries and uses of Aires Protégées and the forest domain.

The Plan National d'Aménagement du Territoire (PNAT) (National Land Use Plan), which calls for the development of regional and commune land use plans, is also important for tenure security and FLR. These plans use a participatory process to identify different land use zones within commune and regional boundaries, and thus shape where on the landscape restoration activities will be focused. By limiting where particular land uses can occur, these land use plans can potentially increase tenure security by reducing the occurrence of incompatible land uses.

2.2 Implementing tenure reform as a means to incentivize FLR

Boeny Region in northwestern Madagascar was one of three areas identified in the Restoration Opportunities Assessment Methodology (ROAM) report as a suitable area for implementing FLR on a broad scale. The National Restoration Strategy (Republique de Madagascar, 2017) lists five priority restoration options, four of which are applicable in Boeny: restoration of degraded lands, degraded natural forests, agroforestry landscapes, and degraded mangrove forests. ProPFR operates on the assumption that tenure security and access to land, which the ROAM report argues are prerequisites for broad scale forest restoration, are insufficient for rural residents in northwestern Madagascar, particularly for women and marginalized groups. Four strategies have been identified as having strong potential for improving tenure security and access to land in the Boeny Region. These include tenure policy improvements and streamlining land administration, a systematic tenure inventory, providing landholders with a tenure inventory form that can serve as a first step toward obtaining a land certificate, and building local conflict resolution capacity by strengthening non-governmental actors. Specific actions to be undertaken include: institutional improvements that will strengthen tenure security, conducting pilot activities designed to restore forest landscapes by strengthening land rights, and supporting civil society organizations to build their capacity to develop and implement tenure policies conducive to sustainable forest use.



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Our exploratory study of tenure security and FLR in Madagascar's Boeny Region seeks to increase understanding about how land tenure security and willingness to invest in restoration practices are linked in the ProPFR project area. Our findings can assist FLR planners in identifying FLR practices that are compatible with existing tenure and governance arrangements in the study area, as well as tenure and governance reforms with potential to promote widespread use of FLR practices.

3.0. Methods

We conducted the research in four rural communes (hereafter referred to as communes) that ProPFR staff had selected as pilot sites for ProPFR's initial implementation phase. These included the communes of Mariarano, Ankijabe, Katsepy, and Ambalakida. However, our analysis here focuses on two of the communes, Ankijabe and Mariarano, and the four pilot fokontany located within them (Ankijabe and Belalitra in Ankijabe commune; Mariarano and Antanambao in Mariarano commune). We focus on these two communes because they represent two very different land tenure and forest restoration contexts, and illustrate the importance of understanding contextual differences when designing forest restoration implementation strategies. We used a combination of participatory mapping, focus group interviews, and key informant interviews to collect data. In each of the study sites, we first held a participatory mapping session with two or three commune officials using a large format satellite image showing the entire commune as a base map. During this mapping session we identified the major land use types and recorded local terms for each land use type, information which helped guide subsequent focus group discussions on tenure security and forest restoration.

We worked with community leaders (e.g., Deputy Mayor, President of the fokontany, leaders of women's associations) to convoke a minimum of two, and in some cases three, focus groups in each fokontany. In both Mariarano and Ankijabe communes we supplemented the land use mapping and fokontany focus group sessions with individual and group key informant interviews. In Mariarano, we held one participatory mapping session with commune officials and five focus group sessions, including one focus group for women, in the two pilot fokontany. Additionally, we held key informant interviews with two VOI members. A total of 40 persons contributed data for the Mariarano case study. In Ankijabe, in addition to the commune mapping session, we held three focus group sessions in the pilot fokontany, including two with mixed participation, one for women, and one informal session with an Antandroy migrant. In addition, we interviewed two members of the local park committee, one fokontany leader, and



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three members of a recently established civil society organization alliance. A total of 36 persons contributed data for the Ankijabe case study.

All of the interviews, mapping sessions and focus group discussions were carried out in Malagasy with translation on-the-spot into French or English for team member, RM. Two team members took handwritten notes during the mapping sessions, focus group discussions, and key informant interviews. We used thematic analysis to analyze the data.

4.0 Socio-ecological context

Boeny Region falls within the tropical dry deciduous forest zone of northwestern Madagascar, an ecoregion characterized by a large number of endemic plant and animal species. The region has an annual rainfall averaging 1700 mm; the rainy season lasts from November to March and is followed by 8 months with little to no rain. Forests in the region are heavily fragmented and few large blocks of forest remain. Ankarafantsika National Park, which is located in our study area, is one of the larger forest blocks remaining. Small-scale agriculture is the main source of livelihood for most rural inhabitants, with rice being the dominant crop. Other crops grown in the area include maize, cassava, and peanuts. Forests are important to the local population for both subsistence use and as a source of products, such as charcoal, raffia leaves, and honey, destined for sale in local and more distant markets. Cattle are also important to the region's culture and economy; cattle serve as a source of wealth, a sign of prestige, and are used to plough fields and pull carts. Sakalava initially settled the area, but highly productive lands suitable for growing rice in Marovoay and Ambato-Boeny have long attracted a heterogeneous population of immigrants. Mahajanga, the country's second largest seaport, and the region's capital and largest urban center, had a population of 220,629 in 2013.

The commune of Mariarano is located just 83 km northeast of Mahajanga.⁵ However, two-thirds of the distance is over a dirt road that is poorly maintained in the dry season and impassable during the four-month rainy season. The lack of year-round access greatly limits Mariarano's economic development opportunities, and the village of Mariarano, which is also the commune seat, has very limited

⁵ Data for the description of Mariarano's context was obtained from the following source: Commune rurale de Mariarano. 2010. Schéma d'Aménagement Communal (SAC 2010-2025). Région Boeny, District Mahajanga II.



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infrastructure. Mariarano has the largest surface area (147,200 ha) of our two case study communes, but with an average population density of 6 persons per sq km, it is the least densely populated. Nearly half the commune's residents live either in Mariarano fokontany (9488 inhabitants) or Antanambao fokontany (2412 inhabitants), both of which have some of the commune's most productive agricultural land. Titles or land certificates have been obtained for only 2 percent of the commune's land (186 ha are certified and 1956 ha are titled). None of the titled land is located in the two pilot fokontany. The commune's Guichet Foncier is located in Mariarano, and most of the parcels for which land certificates have been obtained are located in the fokontany of Mariarano and Antanambao.

Ankijabe is located in the southeastern part of Boeny Region and is situated 132 km by road from Mahajanga.⁶ Much of that distance is along National Highway 4, a major paved road that connects Mahajanga with Antananarivo, and which is heavily traveled throughout the year. With a small land area (37,088 ha) and high population density (69 inhabitants/sq km), land in Ankijabe is in short supply and high demand. Roughly 7 572 ha (25.8 percent of the commune's surface area) have been titled and 1 477 ha (5 percent of the commune's surface area) have been certified. However, most of the titled land was titled during the colonial period. Much of that land has since been abandoned and re-occupied by squatters. Such lands cover roughly 9.8 percent of the commune's land area. The certified lands are scattered throughout the commune.

The two case study communes are quite different in their settlement and land cover patterns. Ankijabe commune's population density (69 persons per sq. km) is 10 times greater than that of Mariarano's (6 persons per sq km). Ankijabe fokontany, which is the commune seat and economic center of the commune, has 116 persons per sq km, and is by far the most densely populated of the four fokontany included in the study. Belalitra fokontany, which adjoins Ankijabe fokontany, has a population density of 42 persons per sq km; the fokontany of Mariarano and Antanambao have densities of 10 and 7 persons per sq km respectively.

Land cover in the two communes also differs considerably (Figures 1 and 2). In Ankijabe, agricultural land occupies nearly 61.2 percent of the commune's surface, and is by far the most abundant land cover

⁶ Data for the description of Ankijabe's context was obtained from the following source: Commune rurale d'Ankijabe. 2012. Schéma d'Aménagement Communal (SAC 2012-2027). Région Boeny, District Ambato Boeny.



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type. Roughly 14 percent (3,131 ha) of the cropland consists of rice fields; the remainder is planted with dryland crops, such as maize, cassava, and black-eyed peas. Although 28 percent of Ankijabe commune's land area is covered with natural forest, the vast majority of forested land (74 percent) is located within Ankarafantsika National Park. In Mariarano, only 1.3 percent of the land area is farmland, primarily rice fields. Savanna, both grassy and wooded, and natural forests dominate the landscape.

5.0 Research results

Our research findings include a description of the major land cover types found in the two study sites, the tenure rights associated with each of the land cover types, and the key differences between the tenure systems in the two study sites.

5.1 Major land cover types

Three major land cover types – forests (several types), savanna, and seasonally flooded riverine bottomlands – are found in both study sites. We describe the characteristic of each of these categories, as well as important sub-categories within them in this section.

5.1.1 Forest (ala)

Several different types of natural forest are found in Mariarano and Ankijabe. Savannas with more or less dense stands of Bismarck palm (known locally as satrana), *Ziziphus* spp., or other types of trees are also found in both communes but the savanna land cover category is discussed in a separate paragraph.

Dense dry forest: Dry forest covers much of the landscape in Mariarano. Although some clearing has occurred for agriculture, study participants attributed the bulk of the clearing in recent years to the expansion of the village of Mariarano. The Atialan'ankatsabe forest, is managed by a VOI under a management contract with the state. Villagers reported that forest conditions have improved since management responsibility was transferred from the state to the VOI. However, illegal tree harvesting, particularly for charcoal production, continues in forested areas not under VOI management. In Ankijabe, dry forest cover has diminished greatly over the past decades due to agricultural expansion in upland areas. Large areas of forest were cleared legally under



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clearing permits issued by the Forest Service up through the end of the 1990s. Currently the only forests remaining outside of Ankarafantsika National Park (ANP) are in the park's buffer zone. However, despite the area's protected status, forest conversion to cropland continues in and around the edges of the park.

Raffia (ala rofia): Although they do not occupy large areas, raffia stands are extremely important in both communes for village livelihoods, whether their products are used domestically or sold in markets. Raffia trees often grow in wet to very wet zones, and provide construction materials and fish while also protecting water sources. In both communes, raffia stands are being gradually converted into rice fields.

Mangroves (ala honko) and bamboo (ala valiha): Two other types of forests – mangroves and bamboo stands – were identified as important forest resources during the participatory mapping in Mariarano, but not in Ankijabe. The bamboo stands in Mariarano are small in number and geographic extent. Mangrove forests are much more extensive but still cover a relatively small portion of the commune's area (5053 ha). The mangrove forests are part of the state public domain and nominally are managed by the state. However, study participants reported that loggers from outside the area illegally harvest the mangroves, which they then convert into charcoal for sale in Mahazanga.

5.1.2 Savanna (banja)

Savanna, both grassy and wooded, is found in both sites. Known locally as banja, these are large open spaces with some tree cover. When densely covered with Bismarck palms (satrana), they are known as "ala satrana"; in areas where *Zizphus* (mokonazy) dominates, they are referred to as "ala mokonazy". Both woody and non-wood products, including charcoal and construction materials, are harvested in the banja. Specific uses of the banja are described below.

Pasture (kijana): Kijana are pasturelands for zebu cattle. A hypothesis developed after several interviews with villagers is that the kijana is spatially "mobile", in the sense that whether a parcel of land is considered kijana varies with the movement of the herds. In both communes, a decline in the number of cattle has been accompanied by a decrease in the number of kijana and the area



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that they occupy. The reasons for the decline in cattle numbers vary from cattle disease and cattle thefts (Mariarano) to the expansion of sedentary agriculture (Ankijabe).

Rainfed cropland (tanimboly): In both communes, portions of the *banja* are being progressively transformed into fields for dryland crops. Diverse crops are cultivated in the tanimboly including beans, black-eyed peas, corn, manioc, peanuts, and taro. Depressions are particularly sought after because water is more available in such areas.

Reforested areas (fambolenkazo): Reforestation is a new way of transforming the *banja*. The Programme de Lutte Antiérosive (PLAE), a government-supported project has established some reforested parcels in both communes; Project Eden, an international non-governmental organization (NGO) based in Mahajanga that has been active in mangrove restoration since 2007, has recently begun supporting reforestation in the *banja* located in Mariarano commune. The number of species used in reforestation projects remains limited, and for the most part includes eucalyptus and acacia.

5.1.3 Seasonally flooded bottomlands (baiboho) and rice fields (tanimbary)

Baiboho are alluvial bottomlands and are flooded during the rainy season. Found in both communes, they are the most fertile land and are where rainfed rice and counter-season crops, such as tomatoes and onions are grown. Agricultural fields in the baiboho sometimes have scatterings of trees, most often mango trees but also other fruit trees, such as jackfruit, citrus trees, and papaya. The baiboho are especially important for women since they are typically closer to settlements and thus easier to reach. Opinions about the potential for cultivating fruit trees in the baiboho varied. In Mariarano, the women's associations would like to cultivate fruit trees on their baiboho parcels. Some have already begun to cultivate citrus trees and banana plants, and have sold the first fruits from these plantings in the local market. Importantly, they indicated that they are interested not only in the fruits and the income they would get from their sale, but also in producing seedlings. In Ankijabe, some representatives of the womens' associations said they were ready to plant trees on their land if that was the condition for being able to quickly get a land certificate. In their case, willingness to plant trees appears to be entirely linked to enhancing the tenure security of their baiboho parcels.

5.2. Tenure rights



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In both case study sites, exclusive use rights typically apply to rice field and market gardens, whether they are held individually or collectively. Other types of land (ala, banja, kijana, etc.) are open to all in some contexts, but some individuals or groups have exclusive rights to these land categories to some degree in other contexts.

5.2.1 Forests (ala)

Forests are a resource that is de facto open access in Ankijabe even though access and use of forests are strictly regulated according to formal forest law. In principle, the law is implemented and enforced by the forest administration. However, villagers interviewed reported that illegal harvesting has occurred to such an extent that most forested land has been degraded. Even the forests in Belalitra, which are located in the buffer zone around Ankarafantsika National Park and thus in theory under strict protection, are gradually being converted to cropland. Informants indicated that a former local forest agent was responsible for the situation in the buffer zone. They stated that he had hired Antandroy laborers from Ankijabe to clear land within the buffer zone so that it could be cultivated for peanuts. According to the informants, the Belalitra fokontany doesn't accept these Antandroy as authorized residents, indicating the existence of a conflict between the interests of the local forest service agent and the fokontany leaders.

Information from the focus groups in Mariarano attests to possible confusion relative to forest management rights in the Communal Land Use Plan (CLUP) (i.e., management rights not transferred to VOIs). The commune representatives say that the forest service should consult them regarding management decisions for any forests included in the CLUP. For them, the fact that the forests are mentioned in the CLUP confers the right to make forest management decisions to the commune, a right that they believe is legitimated by their knowledge of how the forest is managed. The forest clearing associated with the recent expansion of the village of Mariarano, an action that the communal officials implicitly viewed as legitimate, illustrates that the communal agents are positioning themselves as defenders of the rights and interests of the communal population with respect to forest management.

A question that this example raises is, what are the roles and powers of the commune in forest management? Another question that needs to be clarified is how the powers of the communes with respect to forest management articulate with formal forest law. However, even if the communes' prerogative to



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manage forests mentioned in the CLUP is considered valid, statements from Mariarano residents indicate that the improved conditions of their forest are attributable to the VOI and not to communal management, which has encouraged forest clearing for village expansion. Evidence suggests that either the authority of the commune to enforce forest conservation is not respected, or the commune condones unsustainable forest uses, much as the commune condoned forest clearing for the village's expansion. With respect to the transfer of management authority, it appears that it is the VOI who are able to effectively manage and protect their forest, albeit to a limited degree.

5.2.2 Lakes and raffia stands (matsabory and ala rofia)

The tenure issues associated with lakes and raffia stands are quite similar. These are both normally communal resources regulated by formal law. The lakes are subject to periodic closures to fishing and the harvesting of raffia is subject to specific legal restrictions. The informants in Belalitra appeared to be aware of these use restrictions for lakes and raffia stands. Normally individualized private rights should not apply to lakes or raffia stands. However, the Belalitra informants described two cases in which villagers were excluded from access to lakes, and several cases in a neighboring fokontany in which private individuals had appropriated raffia stands. Exclusion from access to the lakes deprived residents of pasturage for their zebus around the lakes, and from access to fishing and flood recession rice cultivation. These cases suggest that there is a risk in Ankijabe commune that powerful individuals may appropriate what are considered communal resources in both formal and customary law, with the consequence that community members are excluded from access to those resources. This risk assumes considerable importance because such exclusion deprives community members of access to an important food source and a source of income. Importantly, a focus group discussion in Belalitra revealed that an association had been created to manage the raffia stands but was never able to undertake action because the stands had already been appropriated.

5.2.3 Upland agricultural lands (tanimboly)

Individuals or the lineage have exclusive tenure rights to upland rain fed cropland. For land recently purchased by the current owner, the owner holds all rights, from rights of access to rights to alienate or transfer the land. For upland cropland that has been inherited, control rests with the lineage. In Antanambao, the representative of the fokontany consults with the lineage head before signing off on land



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sales. He verifies that either the seller has already put the land into production himself, or his father or his parents have done so. In Mariarano and Antanambao, a rush for ownership of land located in the banja with potential for conversion to tanimboly seems to be taking place, as people seek to acquire land, which they can then eventually sell.

5.2.4 Seasonally flooded bottomlands (baiboho)

Tenure for the baiboho is similar to that for the tanimboly except that the baiboho typically have a much longer history of ownership. Indeed, as the best land for farming, they have been used for a long time and many have been turned into rice fields. In Mariarano, management of the baiboho was traditionally in the hands of the eldest males in the household. As a result, in the land registers at the communal level (registered in the sense that the lands were listed in the commune land tax records), male household members were listed as the owners. However, there is now a tendency toward individualization of ownership rights to baiboho based on gender equality in Mariarano. Some of the women interviewed in Mariarano explained that they were in the process of working toward getting their family's land distributed equally among the heirs, so that they could be registered as the owners on the land certificates. Specifically, they wish to parcel out the family's baiboho such that each man and each woman will have a parcel registered in his or her name. The right to manage the baiboho will then belong to the person holding the land certificate. However, the entire family will retain rights of alienation. As a result, the written agreement that recognizes gender equality in the distribution of the family's land and permits the women in the family to claim their rights in their names, states that rights holders must have agreement from the rest of the family members before they can sell their parcels.

5.2.5 Pasture land (kijana)

The initial data about kijana tend to indicate that this is a temporary use of the banja, with the owner of a herd being pastured in areas designated as kijana exercising a de facto, but temporary management right over that space. It could be that rights of management over kijana are acquired through being a descendent of the first occupants of the area, or through social arrangements that immigrants enter into with natives to the area. As for the kijana manager, we hypothesize that he (or she) is granted exclusive control over the space during the period during which he (or she) exercises management rights because the uses that can take place in a kijana other than grazing are limited – possibly the harvesting of trees for



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construction wood or charcoal. A kijana is incompatible with agricultural uses because of the risk that the crops will be destroyed by the cattle or by the fires that are used to renew the grasses. The kijana manager does not have rights of alienation to the kijana.

Importantly, however, use of land as pasture does not appear to take priority over its use for agriculture. Indeed, the principle that agricultural use takes precedence over use as pasture is at the origin of the sedentary settlement pattern of immigrants in Ankijabe. The first occupants in Ankijabe were Sakalava herders. By offering hospitality to immigrants, however, they allowed the latter to establish cultivated lands. The more numerous the immigrants became, the less space there was for cattle grazing, forcing the Sakalava to withdraw their cattle from the zone. Similarly, in Mariarano, the herders have had to adapt by avoiding cultivated areas, even when outsiders from Mahajanga or Antananarivo have cleared the fields.

5.2.6 Savanna (banja)

The differences in tenure systems between Ankijabe and Mariarano become most apparent when one looks at the rights associated with the banja. In Mariarano, tensions appear to be emerging between customary ownership of land identified as banja and a prospective norm of individual ownership of such land through land certificates. Ankijabe, on the other hand, appears to be further along the way toward individualized ownership – with or without land certificates – of lands located in areas categorized as banja.

Mariarano: Community ownership with rights of exclusion or individual ownership through land certificates?

In Mariarano, anyone can travel freely through the banja under customary rules. Likewise, natural products, such as construction materials or trees for charcoal are open for anyone to harvest or use. From the customary tenure viewpoint, banja are open access resources for at least two reasons: first, there is no evidence, such as clearing for agricultural use or establishing a residence, of efforts to lay claim to them, and second, no customary authority is able to claim exclusive rights to these spaces. Nonetheless, in Mariarano, elders in one focus group strongly reproached Project Eden for not having consulted the community prior to implementing a reforestation project in their banja. The elders indicated that they wished that in future that the



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project would request the community's permission before doing any reforestation. However, through further informal discussions in the community, we learned that other elders have a more positive view of Project Eden, and the mayor sees the project as an important income earning opportunity for commune youth. As a result, the mayor has not given in to those who criticize his decision to allow the project to operate in the commune. From the standpoint of formal law, the banja are considered non-titled private property unless they are terre domaniale. The banja constitutes a supply of land that is open to everyone, including immigrants. However, there is potential for competition over access to land located in the banja because parcels that have been converted to cropland are no longer available for pasture or for reforestation. From a conflict prevention and management standpoint, it is important to reflect on how the progressive closure or privatization of the banja is likely to impact conflict over those spaces.

In Mariarano, immigrants do not appear to be excluded from having management rights to kijana. Tsimihety immigrants are allowed to pasture their herds in Mariarano's kijana, and some immigrants will soon obtain land certificates for parcels that they've reforested on land that was previously considered kijana. But at least implicitly, a principle of relative exclusion exists, or expressed inversely, there is a principle of conditioned inclusion to kijana for persons not native to Mariarano. We were told of a case concerning cattle theft in which the victim was a Tsimihety immigrant and her husband. Could it be that this theft was a manifestation of hostility toward outsiders, and a form of excluding them from use of the kijana?

As for the immigrant tree planters in Mariarano, two possibilities could explain their right to manage reforested parcels. Perhaps they have been sufficiently integrated socially that they are viewed as having the right to plant trees, and thus fall within the logic of exclusive communal control within the banja. Or alternatively, perhaps they have been able to gain access by following the formal legal pathway for land certification and bypassing the customary system. If so, this would signify that state law prevails (or is trending toward prevailing) in governing access to the banja. However, the conflicts over reforestation efforts by outsiders, partial or implied though they might be, seem to suggest that, to some extent, the banja in Mariarano remains under community ownership and control.



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An unusual mode of access for land rights was reported by one of the focus groups in Antanambao. Rather than putting the land into agricultural investment, some persons who intended to sell their land limited their investment to putting a fence around a parcel. The fokontany representatives present in the focus group insisted that they never sign off on land sales without having first verified the seller's rights by ascertaining whether the land has been put into production. We can hypothesize that a sale that takes place in cases where a fence is the only form of development represents an abuse of customary law. Even according to local land tenure principles, a right to land does not exist unless the land has been developed and merely placing a boundary has not traditionally been considered sufficient to indicate development.

However, another equally plausible interpretation is possible, and has the advantage of having less potential for conflict. This interpretation is related to the tenure transformation occurring around open spaces, in this case the banja. The banja have not had a history of permanent occupation or private appropriation and traditionally are considered as a vast open space under community control. However, although agricultural use is still too rare in such areas to be considered the norm, pasturing cattle in the banja around Mariarano is considered a secondary and temporary use that is in decline. A race to occupy the banja appears to be taking place, with the construction of fences being recognized as an investment that puts the land into production, albeit a less important investment (from a customary tenure rights standpoint) than cultivation.

Ankijabe: Individual ownership formalized through land certificates

In Ankijabe, the banja are spatially limited because the majority of the land has been claimed either de facto through conversion to agricultural use or through the formal legal process.

Ankijabe commune seems to have played an important role in managing the banja within its boundaries. Interviewees indicated that it was the commune that identified and allocated land for the PLAE's reforestation activities. As in Mariarano, land certificates are ready to be distributed to those who reforested parcels in the banja. However, it seems that there is potential for conflicts between local stakeholders, conflicts that can only be resolved by the state or the commune. The two major groups likely to have conflicting claims would be "first immigrants", or the descendants of the Sakalava, the first people to settle in the area, and "new immigrants", primarily Antandroy. In the eyes of the former, the latter were viewed initially as being only



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temporary workers who did not have a legitimate claim to land ownership. But because the new immigrants have gained political power, the rights of the first immigrants are now being contested, a situation which supports the notion of the prevalence of state law, which is now viewed as legitimate. Follow-up research in progress suggests that the situation may be much more complex, in the sense that several groups have been engaged in struggles to assert the legitimacy of their claims to land over a long period of time. Some groups, the Sakalava, have left while new groups of claimants, such as Merina colonists, colonial laborers under the French colonial regime, state company workers, and the more recent wave of Antandroy migrants, have appeared. The power of each of these groups has been legitimated through the influence of external organizations – Radama’s kingdom before the colonial era, the colonial state, the forest service in the 90s, and, more recently the commune through reforestation projects.

5.7. Patterns in the demand for land certificates

Data on land certification rates in the SAC (Commune Rurale de Ankijabe 2012) indicate that demand for land certificates was greater in Ankijabe, where arable land is much less available relative to the demand than in Mariarano. The more limited availability of land in Ankijabe might also mean that the risk of conflicts over land is greater. It is logical that people would turn to the state for the prevention or resolution of conflicts since it was the state, in the form of the forest service issuing clearing permits, which initially sponsored access to land. The state appears to be continuing to do so, according to reports of corruption leading to rights to raffia stands and lakes being allocated to private individuals and the tacit granting of access to land in the buffer zone around the national park. The move toward privatizing raffia stands, however, appears to have sparked resistance within the commune. The SAC developed for Ankijabe in 2012 did not mention the raffia stands. Commune representatives stated that they are calling for the SAC to be revised to take into account raffia stands so as to ensure a cessation to the privatization process. Interest in obtaining land certificates was much lower in Mariarano (Commune Rurale de Mariarano 2010), where the local community continues to exercise a certain amount of territorial control, and where community members accord such control a certain degree of or complete legitimacy.

In both case study sites, interest in land certification was greatest among migrants and women, both groups with limited rights to land under customary tenure rules. Feelings of having insecure tenure logically are linked to an interest in obtaining a land certificate. Even in an endogenous system, if a



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person doesn't feel that their tenure is secure, the logical course to take is to obtain a land certificate. Whether they have access to land in an endogenous or exogenous tenure system, women view land certificates as a means for obtaining ownership that is equivalent to that enjoyed by men. This is the case for brothers and sisters as well as for husbands and wives. For married women, obtaining a land certificate serves as a risk management strategy that would allow them to have access to land in case of divorce. However, in both sites, the women we interviewed viewed individualized land certificates as useful only for parcels categorized as baiboho or the most fertile tanimboly parcels.

Because land certificates are authorized through an external authority, migrants in particular are more likely to view them as being superior to a document obtained from local community authorities. As illustrated in the Mariarano case study, migrants are interested in obtaining land certificates through participation in reforestation as a means for acquiring access to land. The question that arises is whether it would be difficult for them to get access to land if they were not participating in the reforestation program. What is certain is that there is a degree of reluctance among locals toward providing outsiders access to land, as was pointed out by some of the elders in our focus group discussions. Power relations influence the potential for outsiders to settle in the area, and a land certificate is a tool that gives migrants some leverage.

6.0 Discussion: Two models of land tenure and implications for FLR

Our exploratory study suggests that two different models of land tenure are found in the study area – an endogenous model in Mariarano and an exogenous model in Ankijabe. We first describe key differences in the two models and then discuss what the implications of those models are for the types of FLR interventions that might be appropriate for each system.

6.1 Mariarano: Communal ownership and weak intervention by the state – an endogenous tenure system

In this model, which is exemplified in Mariarano, tenure rights remain strongly rooted in communal legitimacy. In this model, the community holds rights of exclusion and alienation more or less explicitly. In these cases, the only way that outsiders can acquire land legitimately is by purchasing a parcel that a local inhabitant has already appropriated. This, however, does not prevent those who have the opportunity or the means to work through the state to acquire a land certificate, as did the migrants involved in



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reforestation efforts in Antanambao, or to acquire land rights “by force” (in the views of some residents), as did Project Eden. But these approaches are, and likely will, remain open to conflict as long as the negotiations that lead to the acquisition of land rights remain unclear. The fact that the Sakalava prefer to not openly resist such procedures does not mean that they view such practices as legitimate. The role of the commune is ambiguous in this case, but is comprehensible if one views the commune as the interface between the state and the community. The mayor of Mariarano does not wish to support the villagers who are opposed to Project Eden, in part because he doesn’t want to lose income for the villagers, but also in part because it is possible to accommodate this project from both a formal legal position and from the community’s perspective. Because Project Eden has not sought to take steps to acquire formally recognized rights to the reforested land, from a legitimacy standpoint, the reforested land remains part of the commune’s territory. It is notable that life in Mariarano is strongly anchored in tradition, with residents adhering strongly to the traditional religion, including many taboos, such as the prohibition on raising chickens. According to the villagers in Mariarano, there was a period during which the traditional religion was weakened due to the disappearance of the traditional gods, but the traditional religion is now recovering its power.

The tenure system in Mariarano is a hybrid. There is a certain degree of individualization in rights to land but to a great extent those rights remain subject to community control. Even the individual rights sought after through the acquisition of individual land certificates for baiboho parcels remain subject to social control. The expectation of Antanambao residents that they should be consulted in the choice of lands to be reforested is an expression of this localized social control, as is the request by some Mariarano elders that projects formally consult the villagers – and not just the mayor or fokontany president – when identifying land for new restoration activities.

6.2 Ankijabe: External interventionism and the lack of a functional community system – an exogenous tenure system

In areas where the external interventionist model prevails, the stakes linked to the high economic potential of the area have caught the interest of powerful outside interests and immigrants. In Ankijabe, which illustrates this model, the state has long played a role in the land tenure system and human settlement. The Merina royal regime, the predecessors of the modern state, greatly influenced human settlement patterns in the area that is now the commune of Ankijabe (Commune rurale de Ankijabe, 2012). Merina colonists



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from the highlands first settled in the area during this period. Oral tradition attributes the right of first occupation in Ankijabe to Sakalava herders. However, by allowing immigrant farmers to settle in the area, the Sakalava created the conditions that later let them to gradually withdraw, opening the area up to occupation by what is now a socially diverse population of multiple geographic origins. Today the inhabitants include Antandroy, Betsileo, Antemoro, and other immigrant groups.

State intervention is noticeable in Ankijabe when it comes to influencing access to land. As late as the 1990s, the state actively encouraged human settlement in forested areas, as exemplified in the issuance of clearing permits by the forest service. Persons who received permits could clear as much land as they wished during a five-year period. The last authorized clearings may have taken place in 1992, the year that one Antandroy immigrant claimed that he had cleared land with legal authorization, that is, with rights granted by the state.

Participants in a regional workshop held in Mahajanga during our fieldwork mentioned that the borders of Ankarafantsika National Park may be formally moved inward due to pressure from settlers on the park's edges. With this type of explicit involvement of the state, the local population begins to view land tenure as the domain of the state and not of the community. The reputation that Ambato-Boeny District, in district in which Ankijabe is located, has among prospective immigrants for having productive land available for farming, further reinforces the frontier attitude of the population and the strong exogenous character of the tenure system. Very little land remains unclaimed, and land tenure in the area is very individualistic, with control over land approaching that of individual private ownership.

6.3 Restoration and tenure security in the context of endogenous tenure systems

Further reflection is needed regarding the opportunities for planting trees in banja in contexts such as that found in Mariarano where an endogenous tenure regime characterized by individualized tenure situated within a collective ownership framework prevails. One could envision the possibility of collective restoration, with collective rights and responsibilities being formally recognized. This would be a way to confer responsibility on communities that are demanding rights of exclusion for the resources. However, a question that must be raised is whether people in the community perceive any benefits to restoration, economic or otherwise. Forest management transfer projects are often criticized for neglecting the importance of economic motivations for forest protection. Why not apply the principle of management



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rights transfer but for the purpose of encouraging restoration and sustainable management of the banja? This would also be an opportunity to organize communities to prevent and combat forest fires, which study participants identified as a major threat to reforested areas. A collectively oriented reforestation approach would not have to exclude individual ownership of parcels, but it would imply that the collectivity would have greater responsibilities with respect to decisions about managing, excluding, and even alienation of parcels. In such a model, restoration would be motivated by a tenure security approach emphasizing social considerations (enhancing or maintaining prestige or status) and local community power.

6.4 Restoration and tenure security in the context of exogenous tenure systems

In a context of exogenous land tenure, such as that in Ankijabe, there is a lack of collective responsibility since the land tenure system is predicated on exogenous state responsibility instead of locally legitimated collective responsibility. As a result, insecurity of individual ownership is common, as evidenced by the women in Ankijabe who stated that they are ready to plant trees on their land if that will allow them to obtain a land certificate. Without the promise of greater tenure security, it is unrealistic to expect people to make restoration investments in their land, unless they can be assured of getting a reliable income from those investments. In the case of reforestation investments, the larger the reforested parcel is, the larger the income the landholder can realistically expect to derive from it will need to be. These are the types of conditions that will be necessary for FLR practitioners to ensure are made available. A key informant who said he had 5 ha of purchased land said that from a profit-making standpoint his preference would be to sell charcoal. This example suggests that it may be possible to encourage restoration by securing land through issuance of land certificates, but accompanying measures that ensure that restoration is profitable, will also be indispensable.

7.0 Implications for practitioners and policy makers

Tenure security can exist in the absence of formalization. An important theme emerging from our study is that some people in Mariarano and Ankijabe are already investing in restoration on individualized parcels (i.e. living fences, fruit trees) that are integrated into collective tenure systems despite not having land



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certificates or titles. This illustrates that it is possible in some circumstances to have tenure security and its associated restoration investments without formalization. This in turn suggests a need for FLR practitioners and planners to understand the diversity of tenure systems present in the areas identified as priorities for FLR. It also highlights the importance of developing mechanisms for evaluating how landholders perceive their rights to be and the security of those rights. This does not mean that land certification should be abandoned, but rather points to the importance of identifying which tenure securization options are most appropriate in particular socio-ecological contexts, a task that will require investing in ethnographic fieldwork that moves beyond the exploratory stage.

Recognizing and planning for tenure security risks associated with certification. FLR initiatives in Madagascar, as well as many other developing countries, will likely need to deal with challenges related to use of land certification processes that are rooted in the concept of individual private ownership in areas where individualized parcels are commonly embedded within an overarching framework of collective ownership. Individually cultivated parcels are being targeted for certification or titling on the supposition that formalization will increase tenure security for the holder and, consequently, will increase the incentive for the landholder to invest in restoration. However, individually farmed plots that are cultivated within a collective tenure framework generally have boundaries which fluctuate over time to take into account shifts in the availability of labor and other resources to the land holder, as well as changes in climate and the needs of other members of the collectivity. In such cases, formal certification risks fixing boundaries that are presently flexible and potentially reduces the resiliency of land management systems that have been developed to deal with climatic, economic, and other uncertainties. A related challenge is the risk that elites, who have the financial resource to more easily acquire land certificates, could use the certification process to claim for themselves resources managed as commons, such as raffia stands, small lakes, and cattle pastures. This suggests that it is important for FLR practitioners to recognize that there are some circumstances in which land certification may reduce, rather than increase, tenure security for some residents and create conditions likely to lead to conflict. By identifying these risks in advance, measures to eliminate, mitigate, or reduce them can be taken.

Designing land certificates for tenure systems that include individualized collective ownership. Although the demand for land certificates appears to be somewhat selective in that it is accentuated among immigrants and women, and stronger in Ankijabe than in Mariarano, a demand for land certificates clearly exists in both study sites. However, evidence suggests that land certificates are not necessarily



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perceived as a means for privatizing land in a way that gives the landholder the right to dispose of land unilaterally. An opportunity therefore exists for the land certificate to be re-designed so that it is adaptable to situations in which there is an exclusive right to land that does not include the right of alienation. In cases where indigenous tenure systems prevail, an effective tenure security approach will need to respect a degree of community authority that would support indigenous land markets and guarantee that land could not be transferred “outsiders”.

Our exploratory study of tenure security and FLR in Boeny revealed the presence of two distinct tenure models in Ankijabe and Mariarano. Although both are hybrids of customary and state law and practices, they differ greatly in the extent to which customary rules and norms retain their legitimacy among the local population as well as in the degree to which community members feel the need to turn to the state to acquire and secure rights to land and resources. These differences have practical consequences for the FLR investment choices that landholders and users are likely to make. They also have practical consequences for the types of tenure securitization approaches that are relevant given the prevailing tenure model(s) in areas where FLR programs are being implemented. Training for FLR actors (designers, planners, or implementers on the ground) is recommended in the use of tenure diagnostic tools that will allow them to distinguish between individual and collective tenure models, and between different types of hybrid systems. Such training will provide FLR actors with the conceptual tools needed to design and implement FLR programs appropriate for complex tenure systems.

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Figures

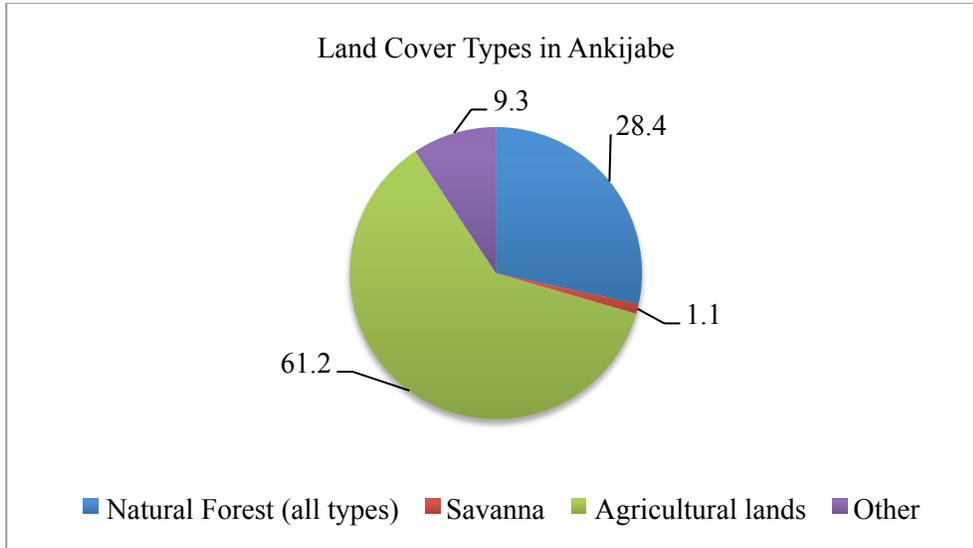


Figure 1 – Distribution of land cover types (as a percentage of total surface area) in Ankijabe. Data obtained from the Schéma d'Aménagement Communal (Commune Rural de Ankijabe 2012). The area in natural forest in Ankijabe includes Ankarafantsika National Park, which covers 7766 ha, or roughly 21 percent of the commune's land area.

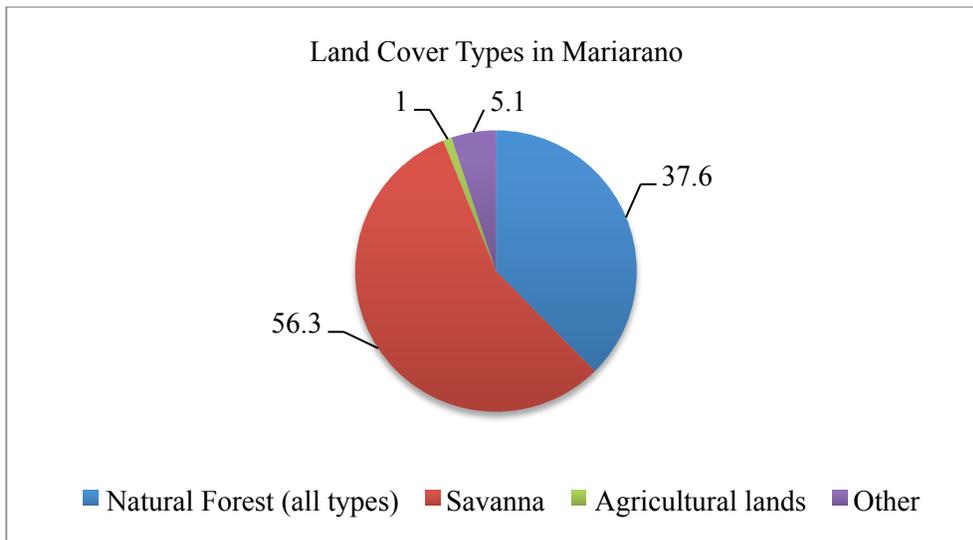


Figure 2 – Distribution of land cover types (as a percentage of total surface area) in Mariarano. Data obtained from the Schéma d'Aménagement Communal (Commune Rural de Mariarano 2010).