

Tahiry Honko: Community Mangrove Carbon Project, Southwest Madagascar

Project Idea Note

November 2014



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LIST OF THE ACRONYMS

Acronym	Definition
DNA	Design National Authority
FPIC	Free Prior and Informed Consent
GFR	General Fertility Rate
HDI	Human Development Index
IUCN	Union for Conservation of Nature
LMMA	Locally Managed Marine Area
MEESF	Ministry of Environment, Ecology, Sea and Forest
MNP	Madagascar National Parks
NGO	Non-Government Organisation
PDD	Project Design Document
PES	Payment for Ecosystem Services
R-PP	Readiness Preparation Proposal
REDD	Reduction Emission from Deforestation and forest Degradation
UN-REDD	United Nation-Reduction Emission from Deforestation and forest Degradation

LIST OF THE GLOSSARY

Glossary	Definition
Dina	A law, convention or contract established collectively by the people of the same community or village in order to govern a particular concern.
GFR	Number of births per women per 1000
Human Development Index	A composite index measuring average achievement in three basic dimensions of human development – a long and healthy life, access to knowledge and a decent standard of living.
Masikoro	Masikoro is a people who give their main attention to cattle and cultivate only on dry land
Mikea	A group of Malagasy people inhabit the Mikea forest.
Velondriake	Velondriake is community-managed protected area, which encompasses 25 villages in the commune of Befandefa.
Vezo	A coastal Malagasy ethnic group whose livelihoods are predominantly fishing-based.

LIST OF ACCOMPANYING DOCUMENTS

Document Type	Document Name
Legal	Annex 1_Arrêté_Interministeriele_n° 520052010.pdf
Legal	Annex 2_Statement_of_Protected_Status.pdf
Information	Annex 3_Minutes_from_the_latest_election_of_Velondriake_Committee
Information	Annex 4_List_of_the_Velondriake_KMD.pdf
Technical	Annex 5_Concept_model_for_mangrove_wood_use.jpg
Information	Annex 6_Accuse_de_Reception.pdf

Summary Information

Project title	Tahiry Honko - Community Mangrove Carbon Project, Madagascar
Project location (country and region/district)	The project area is the Bay of Assassins (22° 11' S and 43° 12' E), a coastal inlet in Befandefa Rural Commune, Morombe District, Southwest Region of Madagascar.
Project coordinator & contact details	Lalao Aigrette Velondriake Plan Vivo Project Leader Blue Ventures Conservation E-mail: lalao@blueventures.org Mobile : +261 (0)342 991 379 Skype: lalao.rakotomalala
Summary of proposed activities	The communities of the Bay of Assassins may conduct: <ul style="list-style-type: none"> • sustainable forest management • mangrove reforestation • afforestation and alternative fuelwood plantations
Summary of proposed target groups	The project area is home to approximately 3,000 people of three ethnicities: <ul style="list-style-type: none"> • Vezo, who are primarily fishers • Mikea and Masikoro, who are primarily/traditionally farmers and hunter-gatherers

Part A: Project Aims & Objectives

The Malagasy phrase *Tahiry Honko*, means to preserve and protect mangrove forests. The overall aim of this project is to establish a sustainable, long-term mangrove payment for ecosystem services (PES) scheme which will contribute to poverty alleviation and promote sustainable mangrove management in the Bay of Assassins. To achieve this aim, more strategic objectives are being developed through a participatory approach. Specific objectives include:

- Preserving the current quality and extent of the mangrove forests;
- Reducing deforestation of mangroves through sustainable harvesting;
- Restoring degraded areas of mangrove forest;
- Establishing native tree plantations for use as an alternative wood source.

The communities of the Bay of Assassins are highly dependent upon their mangroves for a variety of services and subsistence needs such as providing natural barriers against storm surges, providing fuel wood and construction material, and supporting a variety of fish. Despite their value, mangrove are being threatened by degradation and deforestation. Sustainable solutions are needed to secure these vital forests.

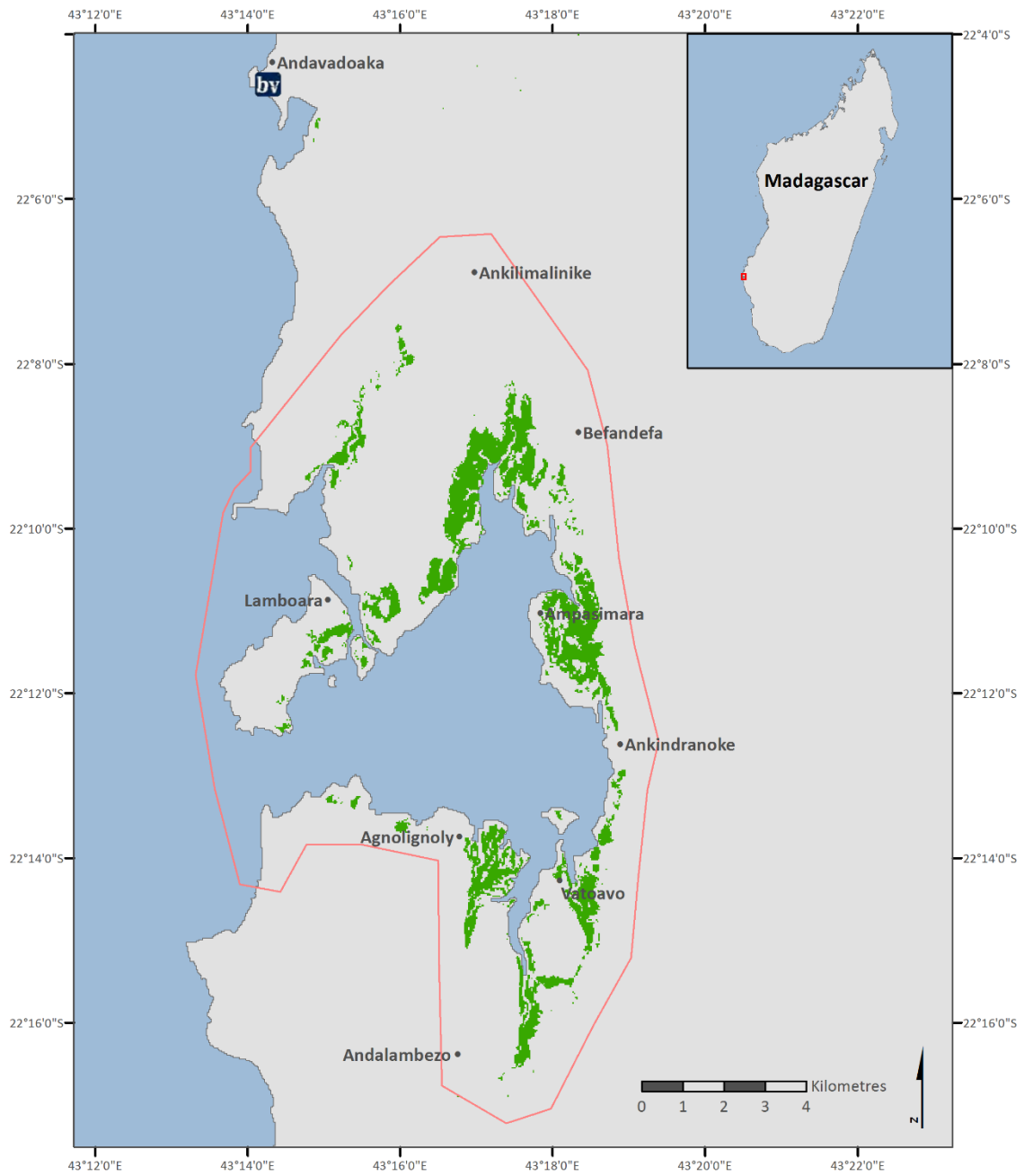
The proposed project aims to provide some long-term income to the residents of the Bay of Assassins through the sale of Plan Vivo certificates. The generation of carbon credit through the conservation and restoration of mangrove could make an important contribution to poverty alleviation and biodiversity conservation. When the communities start selling carbon credits, they are expected to benefit directly from a revenue flow, which is expected to improve the livelihoods of local community.

Part B: Proposed Project Area

Description of Project Location

The proposed project area surrounds the Bay of Assassins (22° 11' S and 43° 12' E), a coastal inlet located in Befandefa Rural Commune, Morombe District, Southwest Region in Madagascar (Figure 1). The Bay of Assassins lies in the south of the Velondriake Locally Managed Marine Area (LMMA; see section H for further details) situated adjacent to the Mikea Forest, and in proximity to the Mikea National Park, which is managed by Madagascar National Parks (MNP). The Velondriake LMMA is a Category V protected area under the International Union for Conservation of Nature (IUCN) classification.

Tahiry Honko Project Area and Villages



Key:

- Project Area
- Mangroves (2014)
- Project Villages
- bv Blue Ventures Office

Figure 1: A map of the project area, including the villages taking part in the Tahiry Honko project.

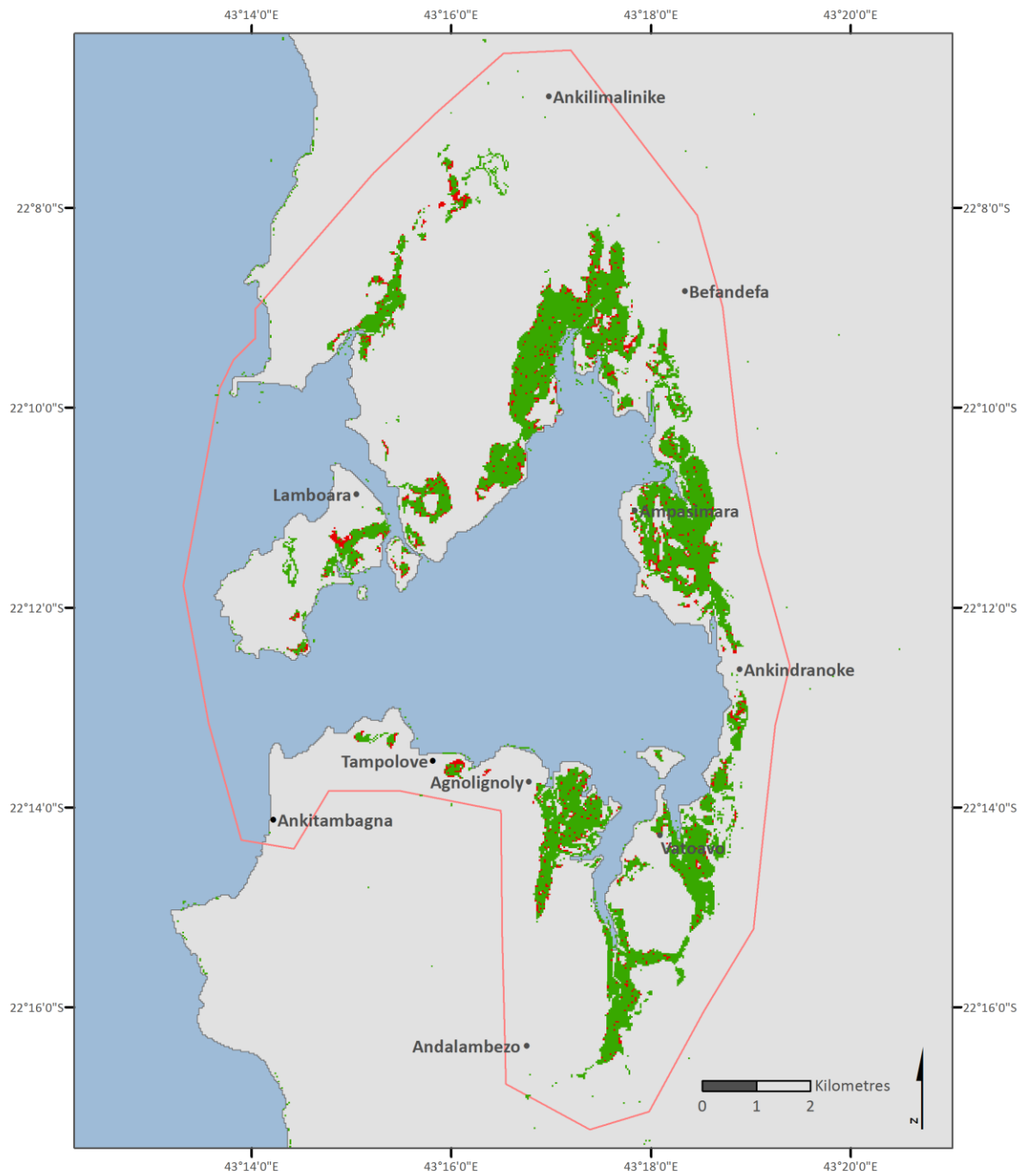
The southwest of Madagascar is one of the driest areas of the country, with an annual rainfall of less than 36 cm and a dry season that can last 9 to 11 months (Langley *et al.* 2006). This region has a brief rainy season that normally occurs between December and February. The major rivers along the west coast are the Mangoky and the Onilahy and there is no significant river flow within 100km of Velondriake area due to the aridity and the very gradual slope in land.

The Velondriake area is home to mangroves forests, seagrasses, coral reefs, and terrestrial spiny dry forest. This area has been named one of the most diverse coral reef systems in southwest Madagascar. During a recent survey, scientists recorded more than 380 species of fish along the reefs of the Velondriake, of which 20 species had never before been recorded in Madagascar. More than 160 species of coral and 238 species of molluscs have also been recorded. This area contains also a number of endemic species including the large tooth cardinal fish, the black-blotched porcupine fish, the whitespotted guitar fish and the yellow spotted puffer. Other species found in the Velondriake area include sharks, dolphins, sea turtles and migrating whales. Many species found in Velondriake are listed as vulnerable, endangered or critically endangered by the IUCN red list of threatened species. These include the napoleon wrasse, the giant grouper, the white tip reef shark, the black tip reef shark, the gray reef shark, the leopard/zebra shark, the green turtle, the loggerhead turtle, the humpback whale and the spinner dolphin.

The project area, Bay of Assassins, encloses 1,016 ha of mangrove forest. Seven trees species of the eight identified in Madagascar are present in the project area: *Rhizophora mucronata*, *Bruguiera gymnorhiza*, *Ceriops tagal*, *Avicennia marina*, *Sonneratia alba*, *Xylocarpus granatum* and *Lumnitzera racemosa*. The mangrove forests in the Bay of Assassins play a key role in supporting community livelihoods. However, the local population perceives a decrease in mangrove cover in recent years, and according to a detailed analysis of satellite imagery (Figure 2), approximately 10% of mangrove were lost between 2002 and 2014. This loss has been caused by the overexploitation of wood resources for construction and commercial use (e.g. lime production, timber) (Figure 3).

The adjacent Mikea Forest forms part of the 'Madagascar spiny desert' ecoregion, a 'Global 200' priority ecoregion (Olson & Dinerstein 1998) and the Mikea Forest Important Bird Area (Birdlife International 2010). The ecoregion has the highest rates of local botanical endemism in Madagascar (Phillipson 1996); however, it also has the highest recorded deforestation of any ecoregion in the country from 1990-2005 (Harper *et al.* 2007), mainly due to charcoal production and slash-and-burn agriculture conducted by a burgeoning human population.

Bay of Assassins Mangrove Deforestation 2002-2014



- Key:**
- Project Area
 - Deforested Mangroves (2002-2014)
 - Mangroves (2014)
 - Project Villages
 - bv Blue Ventures Office

Figure 2: A map of the project area, showing mangrove deforestation from 2002 through 2014, based on Landsat 8 imagery (Jones 2014).



Figure 3: An oven for producing lime from mangrove wood in the project area, one of the major threats to mangrove forests in the Bay of Assassins.

Part C: Identification of Target Groups & Communities

Population

The project will benefit the estimated 3,000 residents of the ten villages within the Bay of Assassins. (Table 1). These villages are extremely isolated, and local communities live with minimal infrastructure, where access to electricity, clean water, health services and primary schools are available only in some villages. This lack of social infrastructure means that the education rates are exceedingly low in the project area and the birth rates are high. In 2006, the General Fertility Rate (GFR) was 169 per 1000 for women aged 15-49, which is much higher than the GFR in the capital of Madagascar, 94 per 1000 women aged 15-44. The project area has a Human Development Index (HDI) significantly lower than the national average (Cripps 2009), this reflects weak performance in all three dimensions of human development - health, education and income.

Table 1: Villages in the project area and estimated population (Peabody and Jones 2013).

Villages	Population
Ampasimara	136
Andalambezo	No data available
Ankitambagna	94
Agnolingoly	255
Ankilimalinike	92
Ankindranoka	488
Befandefa	669
Lamboara	552
Tampolove	339
Vatoavo	271
Total	2896

Cultural, ethnic and social groups

The communities in the project areas are composed of three main ethnic groups: the Vezo, Mikea and the Masikoro. Previous studies have all highlighted a heavy local dependence on both the mangrove and terrestrial forests for livelihoods. Cutting pole wood and producing lime and charcoal from dry forest is a mean of earning additional income for some people in the village (Dave, 2006; Thompson, 2009; Peabody et al., 2013, Andriamalala, 2008, Barnes-Mauthe et al., 2013). The Vezo are semi-nomadic fishers, living in nearshore villages and are highly dependent on coastal and marine resources. The Masikoro are farmers or herdsman and depend on agriculture and livestock rearing. Traditionally, the Mikea were nomadic hunter-gatherers, but over time they have diversified into farmers, herdsman, fishermen and occasionally merchants. Historically, the Masikoro and Mikea communities were more dependent on the dry forests, but due to the diversification and coastal migration, they are becoming increasingly dependent on mangroves and marine resources.

Gender and age equity

In rural Madagascar, including within the project area, women and youth possess limited decision-making power compared with men. In general, local women work in the fields, tend livestock, glean for sea cucumbers, octopus and crabs; and take care of the household. They have limited participation in local governance structures. Women are involved in community meetings, but they remain passive. Decision making is usually the responsibility of the men.

Women's associations and youth clubs existing in some of the villages. They will be involved in monitoring as a key activity, with an objective of developing greater involvement in governance.

Local organisational capacity

Most of the villages are led by a village council, composed of village elders who enforce the rules. Traditional healers, who use sacred rituals, also play an important role within a society whose belief systems centre on the respect of ancestors and the prescription and respect of taboos. Local laws are enforced through traditional agreements called Dinas. Section H provides further details regarding Dinas. In the project area, Dina enforcement committees (KMD) assist the elders with law enforcement.

Part D: Land Tenure & Carbon/Ecosystem Services Rights

The project sits within the Velondriake community-managed protected area which attained temporary protection status as a protected area from the national government in December 2010 (Annex 1: Arrête Interministerielle n° 52005/2010). Velondriake is currently in the process of obtaining its definitive protected area status – meaning that it will be an officially gazetted protected area and it is expected that this will be granted before May 2015 (Annex 2: Statement of Protected Status).

At the time of writing, Madagascar's government has passed no legislation on the ownership of carbon stocks. However, achieving permanent protected area status is expected to secure legal use and carbon rights for the Velondriake Association. The Protected Areas Code of Madagascar (Decree n° 2005-848) requires a contract between the Ministry of Environment, Ecology, Sea and Forests (MEESF) and the protected area manager to determine potential financing mechanisms for the protected area and local development. The use of carbon credit sales as a potential financing mechanism is included in the Velondriake protected area management plan currently under final review by the MEESF.

Following consultations with the Designated National Authority, the national REDD programme coordinator and the regional forestry services, the Tahiry Honko project has the full support of all necessary levels of government. In partnership with these authorities, the project coordinator and the Velondriake Association will clarify carbon rights prior to the validation of the Project Design Document.

Based on consultation with the Designated National Authority for carbon projects and the outcome of other forest carbon projects in Madagascar, we expect that the division of revenues from the sale of carbon credits will be negotiated with the state, based on existing models, before the first pilot

sale of Plan Vivo credits. Of the three REDD+ projects in Madagascar, an in-depth analysis of viable potential revenue sharing schemes was completed for the Corridor Ankeniheny-Zahamena project (Karsenty *et al.*, 2013). This study concluded that 50% of the revenue should be targeted at local communities, who will be directly contributing to reducing deforestation by adopting alternative activities to deforestation. The State also benefits from a 25% share of these revenues, so that it can continue its role in enforcing the law and carrying out the management and control activities, such as addressing illegal logging and burning. A full financial assessment, addressing project implementation costs and opportunity costs borne by the community due to the project, will be completed prior to the validation of the Tahiry Honko project, but we expect this project to follow a similar revenue sharing arrangement, through a contract with the MEESF and the Velondriake Association.

Part E: Project Interventions & Activities

The Plan Vivos for the Tahiry Honko project will be created at the village level, with eight of the ten villages having an individual Plan Vivo and Tapolove and Ankitambagna sharing one Plan Vivo. To establish community-led mangrove management strategies, village-wide consultations, participatory appraisals, education and awareness-raising activities, and pre-zoning at the village level were conducted to understand the activities that communities want to implement in the area. These consultations and activities are detailed in full in Section I. Preliminary activities identified were:

- **Prevention of ecosystem conversion** (due to harvesting for lime production/building materials) through permanent mangrove reserves
- **Improved land use (forest) management**, to ensure the preservation of the current quality and extent of the mangrove forests, whilst preventing leakage to other mangrove areas through the sustainable provision of mangrove timber.
- **Ecosystem restoration**, through the reforestation of mangroves in previously deforested or degraded areas.

Part F: Identification of Any Non-Eligible Activities

Quota Tax System

The communities in the Bay of Assassins have elected to instigate a quota tax system as part of their sustainable forest management zones, meaning that a limit to the number of trees available for cutting will be established through forest inventories. Sustainable income will be levied from permit

fees, authorising the harvest of timber up to the pre-defined sustainable limit for each management area, while monetary fines will be administered for illicit harvesting. Re-planting dues, to replace harvested trees, will also be raised to promote sustainable management of the ecosystem. Income from permits will be used to finance the management committee and the patrolling of the management areas. Any additional income generated from taxes and fines will be channelled into diversifying livelihoods for communities in the project area, contributing to long-term reduction in pressure on these ecosystems. This system will reduce mangrove degradation through sustainable forest management and provide additional income to the communities to support Dina enforcement/patrols.

Alternative Wood Plantations

Native and/or naturalized tree plantations (species to be decided through community consultations and ecological suitability) will be established for the provision of alternative timber sources for lime production and building materials. This activity will be important for leakage management, ensuring that there is sufficient timber supply to prevent deforestation shifting to mangroves outside of the project area.

Beekeeping

Some of the residents in Bay of Assassins are already working to develop apiculture in the mangrove forest. This beekeeping initiative will be promoted and expanded throughout the project area. Training will be completed through consultation and collaboration with an existing federation of farmers, Flkambanana TAntsaha MEnabe (FITAME), who have extensive experience in beekeeping and are able to facilitate finding buyers for the honey. Expansion of the current apiculture activities will provide more community members with a livelihood that doesn't depend on unsustainable mangrove harvesting.

Part G: Long-Term Sustainability Drivers

The non-eligible activities listed above will provide the framework for a community whose sustainable forest management is not reliant solely on carbon revenues in the long-term. Additionally, the following schemes will also act as long-term sustainability drivers.

Ecotourism

Given the largely unspoilt and biologically diverse habitats around the project area, there is considerable potential for the development of eco-tourism in the area. The project area is surrounded by a number of conservation areas including Asity's Mangoky-Ihotry Protected Area, The Mikea National Park, and a diversity of rare and threatened habitats, including the spiny dry forest, coral reefs, and baobabs. The tourism potential of the Velondriake area and Blue Ventures experience in developing ecotourism schemes are highlighted here (<http://www.blueventures.org/madagascar/volunteer-expeditions-in-madagascar.html>). Most of the tourists who visit the Velondriake Protected Area are interested to visit the mangrove forests, islands and baobabs. The development of ecotourism would provide benefits to communities and a valuable source of alternative income which could incentivise environmental protection. Ecotourism activities should persist beyond the lifetime of the Plan Vivo project with any training and infrastructure continuing to provide benefits to communities after the project has ceased.

Education and awareness

Education and outreach activities have been conducted regularly across the project area since 2011. Education places emphasis on integrated messaging that underscores the importance of both sustainable natural resource management and health. Activities include classroom sessions, presentations, evening film projections and interactive question and answer sessions for all members of the community. Educational tours throughout Velondriake have included climate change awareness and increasing community understanding of the potential local threats associated with climate change impacts, with the ultimate aim of highlighting means for increasing community resilience. As a result, all education and outreach emphasize and reinforce the importance of managing forest habitats sustainably irrelevant of any potential carbon revenue.

Mud crab export

The mud crab *Scylla serrata* is the only species of *Scylla* found in the Western Indian Ocean. This species is found in the mangroves within the Bay of Assassins. Demand for mud crab, particularly from commercial export markets has grown rapidly in recent years, and the seafood export companies COPEFRITO and SOPEMO are already exporting this species for sale on international markets. The rapid expansion of the fishery, in particular for fresh produce, has resulted in the Government of Madagascar implementing an emergency mud crab fishery temporary closure to allow the development of more effective legislation (Arrete interministeriel N°25830/2014). Consequently there is potential for the development of sustainable mud crab fisheries in the Bay of

Assassins. Given that the local community have prior positive experiences in aquaculture (<http://www.blueventures.org/conservation/aquaculture.html>), it is likely that the promotion of mud crab fattening would be well received and could potentially contribute to sustaining the Plan Vivo project after carbon/PES revenue terminates.

Community-based aquaculture

The community based sea cucumber aquaculture initiative currently underway in the Bay of Assassins (Figure 4) was developed through partnerships between the community, Blue Ventures and Indian Ocean Trepang (IOT) in late 2009. The following year, village-based seaweed farming was also initiated, in partnership with the seafood collection and export company, COPEFRITO. Although farmers still require external technical and financial support, through extensive community training and capacity building, Blue Ventures is gradually handing over responsibility to the community to work directly with the private partners to develop their production. This would ensure that the initiative becomes sustainable in the future whilst continuing to alleviate pressure exerted on other marine resources.



Figure 4: Local farmers monitor the sea cucumber farms in the Bay of Assassins

Mangrove forest reforestation

The approach of the project will be to promote voluntary mangrove and dry forest reforestation, so that it can be continued without revenue from carbon finance. Building on a model that Blue Ventures is already implementing at other sites, training and capacity building in reforestation are planned in order to allow the community to manage this activity in the near future. The revenue that they receive from the quota-tax system can also be a sustainable source of finance for reforestation, including nursery establishment for non-viviparous mangrove species.



Figure 5: Community mangrove reforestation

Part H: Application Organisation & Proposed Governance Structure

The application for this project is being submitted by Blue Ventures. Blue Ventures has been working in Velondriake for over 10 years and the protected area is currently co-managed by both Blue Ventures and the Velondriake Committee (Table 2).

Table 2: Responsibilities for each organization/group involved during the plan vivo project implementation.

Organization	Responsibilities
Blue Ventures	<ul style="list-style-type: none"> • Project coordinator and applicant organisation • Provide technical support for the project development • Manage administrative tasks • Administer project registration costs • Develop carbon models, technical specifications and undertake biomass inventories • Provide technical support on governance • Report the project activities • Socioeconomic monitoring
Velondriake Committee	<ul style="list-style-type: none"> • Helping communities to demonstrate carbon rights/land tenure • Serve as the central governance body for project management plans • Oversee monitoring of Plan Vivos
Plan Vivo commission Vaomieran'ny Ala Honko	<ul style="list-style-type: none"> • Evaluate and maintain register of Plan Vivos • Manage register of Plan Vivo project • Oversee transparent benefit sharing arrangements • Oversee mangrove management activities
Komity Mpampiatra Dina (KMD)	<ul style="list-style-type: none"> • Enforce the Dina • Resolve the Dina and deal with the fine payment
Local monitor (women's groups)	<ul style="list-style-type: none"> • Collect ecological and socio-economic baseline data • Conduct the carbon stock measurement and monitoring

Figure 6 shows the envisioned organigram of the involved organisations and groups.

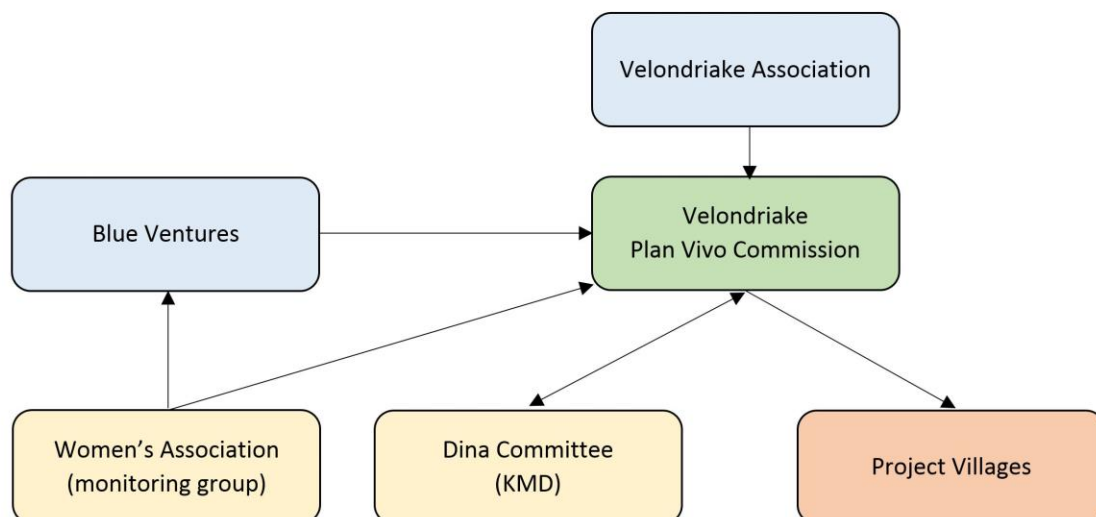


Figure 6: Organogram of the involved organisation/group in the Tahiry Honko Plan Vivo project.

Blue Ventures (Applicant organization and Project Coordinator)

Blue Ventures is a registered UK charity (no. 1098893) and operates in the UK, Belize and six sites across Madagascar. Blue Ventures is a social enterprise, legally licensed to operate in Madagascar, which has worked with local communities in Madagascar for the past decade to conserve threatened marine and coastal environments through an integrated approach to biodiversity protection and poverty alleviation.

Blue Ventures' work includes community-based aquaculture, shark fisheries monitoring, community health and education initiatives, sustainable fisheries and forest management. Blue Ventures' Blue Forests programme was started in 2011. This programme tackles the problem of deforestation by undertaking rigorous scientific research to quantify the value of mangrove forests and by putting communities at the helm of their long-term forest management. An overview of the Blue Forests' programme can be found online [here](#). The Blue Forests' team are experienced in the technical aspects of REDD+ and are piloting the world's first mangrove REDD+ project in Northwest Madagascar ([Jones et al., 2014](#)). The Blue Forests programme also contributed meaningfully to Madagascar's Readiness Preparation Proposal (R-PP) for REDD+ by providing mangrove carbon stock data. The Blue Forests team has already conducted consultations and established communications with several key actors in the national and local government responsible for natural resource management MEEF (See Part K for more information).

Blue Ventures is well-equipped with expertise and staff capacity to maintain long-term payments for ecosystem services agreements with project participants and the Plan Vivo Foundation. Total staff

capacity in Madagascar is currently at 58 individuals. Of these, the Blue Forests team comprises 25 people, and includes remote sensing, forestry and social scientists and a carbon finance specialist with proven experience. It is envisaged that nine of these staff will play a key role in coordination of the Plan Vivo project. Key persons involved in initiating and supporting the project are outlined in Table 3.

Table 3: Blue Ventures staff involved on the Plan Vivo project.

Role	Name	Expertise
Project Leader	Lalao Aigrette	Carbon stock measurement in mangroves and community-based management
Co-ordinator	Leah Glass	The voluntary carbon market and geospatial science
Forest carbon finance expert	Dr Garth Cripps	REDD+ mechanisms and carbon finance
Conservation specialist	Kate England	Environmental monitoring and conservation project management
Science Manager	Dr Trevor Jones	Remote sensing and geospatial science
Project regional Coordinator	Dolce Augustin	Local development and community management of protected areas
Conservation officer	Sylvia Paulot	Community education, overseeing Free Prior and Informed Consent (FPIC), and liaising with national stakeholders
Mangrove carbon scientist	Raymond Raherindray	Carbon stock monitoring of mangroves
Social scientist	Cicelin Rakotomahazo	Socio-economic survey and participatory appraisal
Focal point	Aina Celestin	Community outreach

Velondriake Association

Velondriake, which means “to live with the sea” in Malagasy, is part of the largest network of community-run coastal and marine protected areas in the Western Indian Ocean. Velondriake is managed by communities from 25 villages in the remote southwest of Madagascar, and supported by Blue Ventures. The villages are working together with a common goal: to manage the region’s marine and coastal resources sustainably. The Velondriake Association was created officially in 2006 from the initiative of the local community and recognised by the local Malagasy Government. The association is made up of two community representatives from each village, and the election of village representatives occurs every two years. The latest election occurred in February 2013 (Annex 3: Minutes from the latest election of Velondriake Committee).

The Velondriake Committee plays a number of important roles including: facilitating the implementation of sustainable fisheries management, regulating the use of destructive fishing gear and methods, enforcing local traditional laws and participating actively in community conflict resolution. The Velondriake Committee has ten years of experience in sustainable fisheries management that has been replicated by neighbouring communities over 100 times in southern and western Madagascar. The government of Madagascar has even used the project as a model to create new fisheries legislation and seasonal closures of octopus fishing across the country. The successes of Velondriake has resulted in a groundswell of community interest in developing broad scale marine conservation programmes targeting other fisheries and ecosystems. They have also inspired international exchanges by fishermen, community groups and NGOs, who have travelled from neighbouring Mauritius, Seychelles and Comoros to learn from Velondriake Association.

The **Velondriake Plan Vivo commission** would be created as a body within the existing Velondriake Committee, to lead the oversight, evaluation, and registration of village-level Plan Vivos as part of the project.

The **Velondriake Dina Enforcement Committee (KMD)** was formally created in 2012. There are 119 KMD members across Velondriake area and 52 of them are residents of the Bay of Assassins (Annex 4: List of the Velondriake KMD). This committee oversees the Dina, a local legislation, developed and approved by the local community and ratified by the District’s court in 2006, making it valid and in harmony with the official law. The Dina reflects community aspirations and culture. Inciting these traditional regulations within the project has already shown to facilitate change in resource use patterns at the community level within Velondriake (Andriamalala, G. and Gardner, C. J. 2010)) and elsewhere in Madagascar (Ratokoson and Tanner 2006). This committee is trained regularly on the

content of the Velondriake’s Dina and its enforcement, and mandated by the community to enforce the Dina in their respective zones.



Figure 7: Blue Ventures staff training local monitors in conducting carbon stock measurements in Bay of Assassins.

Ten **local monitors** from two villages were trained in the carbon stock measurement of mangrove forests with a method adapted for the community (Figure 7). Local monitors will be trained further in specific carbon monitoring methods building their capacity to conduct the carbon monitoring in the mangroves with the project area. Further consultations with the Velondriake southern management group, the Velondriake Committee, and women’s groups themselves will be conducted on how the ongoing monitoring will expand to other villages and work in the long term.

Part I: Community-Led Design Plan

To establish community-led mangrove management plans, the community have been fully involved through participative planning. Awareness-raising campaigns, critical to building the foundations of the “Informed” part of FPIC, were conducted to ensure communities understand what is involved in a Plan Vivo forest carbon project (Figure 8). Following initial stakeholder identification, participatory

mapping exercises were conducted with ten villages in the Bay of Assassins (Figure 9) to understand spatial patterns and the state and use of resources.



Figure 8: Community members in Agnolignoly attending an informative session about Plan Vivo and mangrove carbon projects.

Farmers, loggers, fuel wood collectors, charcoal producers, lime makers, elders and fishers represented the full range of stakeholders. In village meetings, a participatory concept model exercise was used to identify the drivers and underlying causes of mangrove loss (Annex 5: Concept model for mangrove wood use). Participants expressed their perceptions on the current status of the mangroves, identified the main threats to it, and suggested possible solutions that could be implemented to reduce these threats and the barriers to achieving them. This allowed the project to identify a potential strategies for sustainable forest management. More recently, participatory pre-zoning exercises were held in each village. Using projected images of Google Earth, a first draft management plan was created by all villages, with stakeholders agreeing on mangrove reserves, mangrove reforestation areas, sustainable logging areas, and two sites for terrestrial fuelwood plantations (Figure 10). The next stage is for these preliminary community-led design plans to be validated at the village-level and assessed by the Velondriake Committee.

Velondriake Participatory Mapping Results

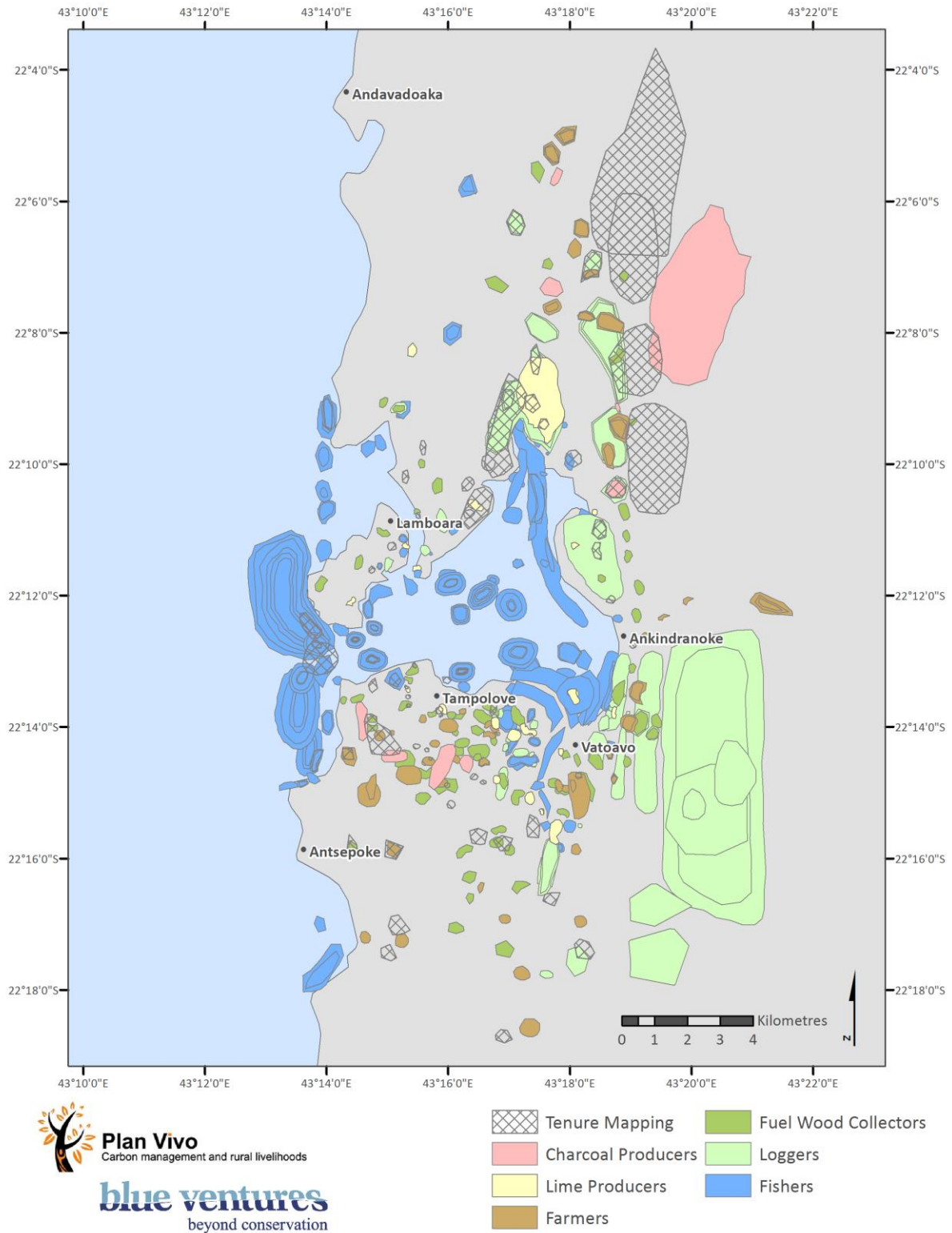
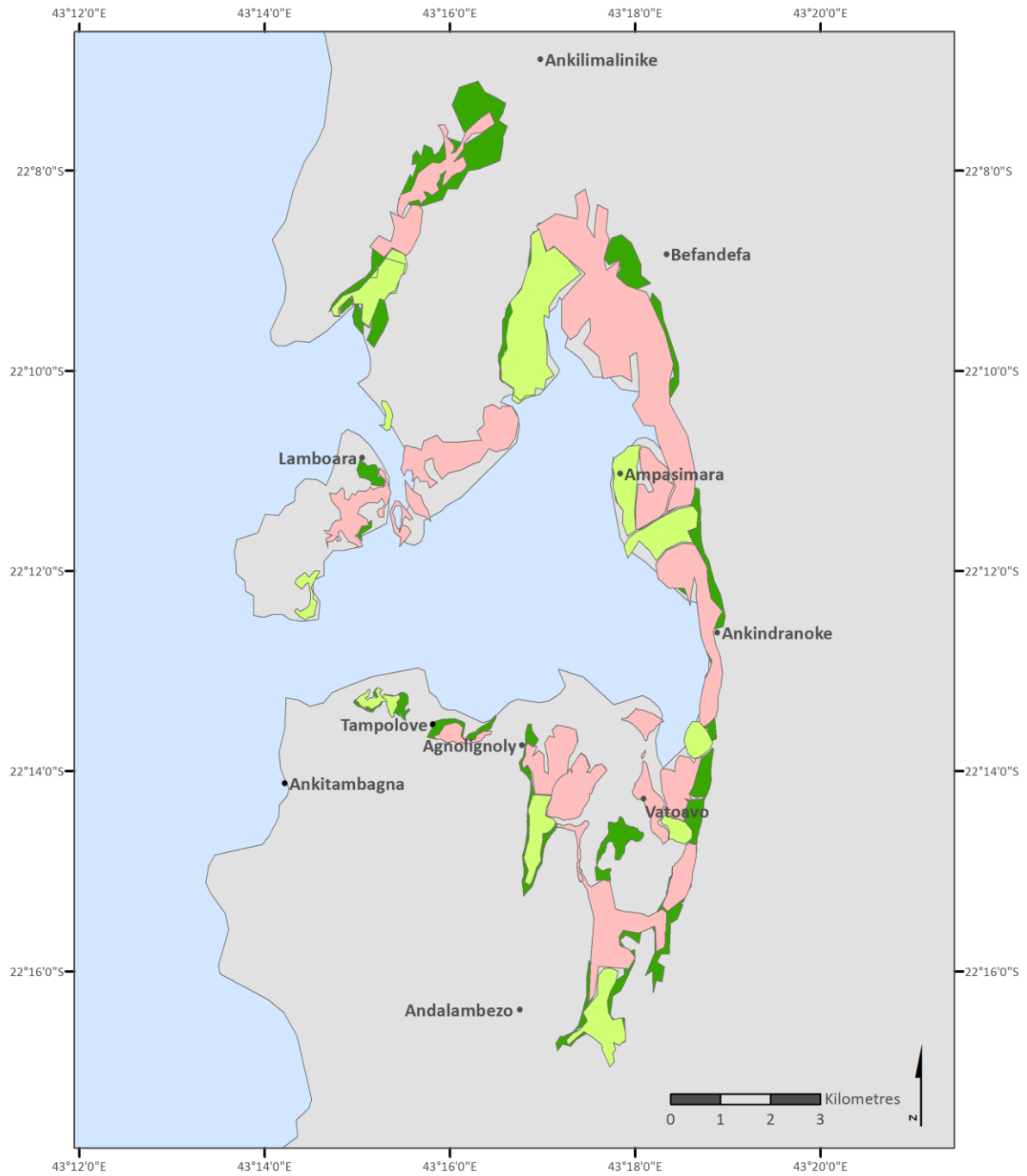


Figure 9: Results of participatory mapping from ten villages in the Bay of Assassins project area.

Velondriake Preliminary Land Use Zoning



- Permanent Mangrove Reserve (830 ha)
- Sustainable Forest Management (1877 ha)
- Mangrove Reforestation (1095 ha)

Figure 10: Results of pre-zoning exercises completed by the ten villages in the Bay of Assassins project area.

To aid the implementation of these design plans, both the community and the Velondriake Committee will be trained in good governance and monitoring of their management plans. Community carbon producers will also be trained to run nurseries for both mangrove and alternative wood, and given technical support on financial management by Blue Ventures through the distribution of educational materials, exchange trips and workshops.

Part J: Additionality Analysis

This project is not the product of a legislative decree or a commercial land-use initiative likely to have been economically viable in its own right. While a management plan exists for the Velondriake Protected Marine Area, there is no state-allocated budget to finance the marine area, nor are sufficient provisions for mangrove forest management included within the management plan for the Velondriake protected area. While the Velondriake Protected Marine Area has attained temporary protection decree for the protected area managed locally and legalised local laws for its governance, further reforestation and conservation activities are limited by acute poverty and a lack of education and alternative livelihoods.

Due to legal barriers in Madagascar and the remoteness of the project area, there is no alternative commercial use for the forest in the project area. Furthermore, this is the only carbon project being proposed within the project area. Small-scale community-based aquaculture, supported by donor funding, currently generates cash income for 160 farmers within the villages of the Bay of Assassins, and all communities are involved in the governance of the Velondriake protected area and temporary or permanent fishing reserves for octopus and coral reefs. While local-level management exists at a basic level for marine resources and the institutions for good governance of marine resources are under improvement, the area lacks a plan for mangrove forest management and the ten target communities in the project area are heavily dependent on mangrove wood resources.

In communities where 87% of livelihoods depend upon fishing as a primary income-generating activity and fishery resources are in decline, forest resources are becoming increasingly important. The spiny dry forest is being deforested rapidly, particularly in areas adjacent to the mangroves of the Bay of Assassins (Jones 2014). With rampant slash-and-burn of the dry forest and increasing commercial logging pressure on mangrove forests, forest use practices are becoming increasingly unsustainable. The loss of the spiny dry forest reflects rising pressures on local forests in the area, and is strongly suggestive that with dwindling dry forest resources, more pressure will be displaced onto mangroves for people to meet both subsistence and commercial interests. This could lead to the destruction of both mangroves and dry forests in the Bay of Assassins unless interventions that

provide long-term protection and establish land use plans for the mangroves in this area are put in place.

While communities in the region possess a heightened level of awareness regarding the importance of forests to provide goods and services critical to their livelihoods, and motivation to participate in mangrove conservation, there is a lack of capacity to sustainably manage their forests. External technical support and sustainable streams of finance are required to:

- Establish a management and monitoring plan for mangrove reforestation and alternative wood plantations;
- Conduct community-led enforcement and regulation of sustainable forest management activities;
- Develop alternatives to unsustainable forest use practices;
- Develop project plans in collaboration with government authorities

Part K: Notification of Relevant Bodies & Regulations

To comply with national regulations, the project has led stakeholder consultations at the national, regional and local levels. At the national level, key Ministry officials, including Mr Randriasandratana Germain, the Designated National Authority, who plays a critical role in the approval and registration of carbon finance projects, the REDD+ Coordinator, Mr Mamitiana Andriamanjato, the national focal point of all REDD+ activities and Mr Jean Roger Rakotoarijaona, the Director of Environmental Information (Annex 6: Accuse de Reception) were consulted in October 2013. Key stakeholders, such as the Regional Department of Environment, Water and Forest, the Regional Fishery Department, and the Regional Development Departments, were also consulted at the regional level in November 2013. The Institut Halieutique et des Science Marines (IH.SM), a leading unit of the national University of Toliara, is a partner on the project, and the Manager of The Mikea National Park at the Madagascar National Park (MNP) were also consulted about the project. The purpose of these consultations was to provide information about the proposed project, its activities and the feasibility research being conducted in Velondriake for mangrove forest carbon projects. At the local level, meetings were conducted with the Mayor of the Befandefa commune, where the proposed project zone is located. All ten village communities inside the project zone were also consulted following the United National-Reduction of Emission from Deforestation and forest Degradation (UN-REDD) guidelines for FPIC.

FPIC campaigns were performed to explain the full implications of a carbon project to local communities. Three rounds of FPIC sessions were held in the ten villages where a first vote highlighted the interest in the implementation of a forest carbon project by communities.

The project intends to comply fully with national legislation and guidance and will continue regular consultations with Ministries and government officials, and at the community level throughout the project. Regular information sharing with regional and local stakeholders will be ensured through presentations on the progress of the project. For example, a Plan Vivo information session will be held in the coming month to inform regional stakeholders about the development of the project and to provide Plan Vivo training.

Table 4: Consultation timeline at National, Regional and local level for the Tahiry Honko project.

Date	Consultations
October, 2013	<p>A series of consultations were held at the national level, with key Ministry officials, including the:</p> <ul style="list-style-type: none"> • Designated National Authority (DNA), • Director of Environmental Information • REDD+ Coordinator
November, 2013	<p>Regional level consultation with the:</p> <ul style="list-style-type: none"> • Regional Department of Environment, Ecology and Forests, • Regional Fishery Department, • Regional Development Departments, • Institut Halieutique et de Science Marine Toliara, • Madagascar National Park –Toliara office
	<p>Consultation at the local level with the:</p> <ul style="list-style-type: none"> • Mayor of the rural commune of Befandefa, • Velondriake management committee
June-July, 2014	<p>Free Prior and Informed Consent consultation with the 10 villages in the proposed project zone.</p> <ul style="list-style-type: none"> • First consultation in June to explain and provide information about the proposed project activity and Plan Vivo. • Second consultation in July to obtain the communities FPIC, and their suggestions. A quiz was also organised to evaluate the communities' understanding of the project and provide further explanation and information.

August, 2014	Plan Vivo information session with regional stakeholders, to inform about the development of the project and to provide Plan Vivo training.
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Part L: Identification of Start-Up Funding

With start-up funding from the Darwin Initiative (DEFRA), Blue Ventures Conservation and the Velondriake Committee intend to provide training and technical expertise to the communities in the Bay of Assassins, and encourage/facilitate the creation of a community-led design project. This will be achieved through the promotion of community ownership over the mangrove forest, informative workshops and awareness raising regarding forest management, and limited start-up funding for nurseries. Funding has also been secured as part of the UNEP-GEF Blue Forests programme, to support monitoring and ecosystem service valuation activities. Further fundraising is required to meet the costs of project registration, validation, and verification, and to develop small-scale alternative livelihoods.

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