

**2020 Plan Vivo Annual Report**  
**Tahiry Honko**  
**Community-led mangrove carbon project**  
**Southwest Madagascar**

---



**Submitted by: Blue Ventures**  
**Date of submission: September 2022**

[Summary](#)

---

## Part A: Project updates

- A1 Key events
- A2 Successes and challenges
- A3 Project developments
- A4 Future Developments

## Part B: Project activities

- B1 Project activities generating Plan Vivo Certificates
- B2 Project activities in addition to those generating Plan Vivo Certificates

## Part C: Plan Vivo Certificate issuance submission

- C1 Contractual statement
- C2(b) Issuance request for projects where issuance is made on the basis of ongoing activities on land already managed by the project (e.g. avoided deforestation, calculated ex-post)
- C3 Allocation of issuance request
- C4 Data to support issuance request

## Part D: Sales of Plan Vivo Certificates

- D1: Sales of Plan Vivo Certificates

## Part E: Monitoring results

- E1: Ecosystem services monitoring
- E2: Maintaining commitments
- E3: Socioeconomic monitoring
- E4: Environmental and biodiversity monitoring

## Part F: Impacts

- F1: Evidence of outcomes

## Part G: Payments for Ecosystem Services

- G1: Summary of PES by year

## Part H: Ongoing participation

- H1: Recruitment
- H2: Project Potential
- H3: Community participation

## Part I: Project operating costs

- I1: Allocation of costs

## Annexes

- Annex 1. Monitoring results for issuance request
  - Annex 1.1. Prevention of Ecosystem conversion - Strict Conservation
  - Annex 1.2. Mangrove replanting
- Annex 2. Ongoing monitoring results for all participants
  - Annex 2.1. Mangrove replanting survival rate monitoring
  - Annex 2.2. Forest monitoring and patrolling
- Annex 3. Reallocation of commitments
- Annex 4. Governance and management meetings
- Annex 5. Conservation and monitoring results
- Annex 6. Impacts
- Annex 7. Community meeting records (summary)

## Acronyms and glossary

ACF: Action Contre la Faim

CSE: Monitoring and Evaluation Committee

DBH: Diameter at breast height

Dina: Local laws used by communities at village level

Fokontany: Smallest unit of administrative level in Madagascar

Foibe: Executive committee of the Velondriake Association

LMMA: Locally managed marine area

MGA: Malagasy ariary, local currency

NGO: Non-governmental organisation

PES: Payment for ecosystem services

REDD+: Reducing emissions from deforestation and forest degradation

Vondrona: administrative subunits of the Velondriake Association

WWF: World Wildlife Fund

## Summary

Project overview	
Reporting period	January 1st, 2020 to December 31st, 2020
Geographical areas	Bay of Assassins, Rural Commune Befandefa, District Morombe, Region Atsimo Andrefana, Southwest Madagascar
Technical specifications in use	Prevention of ecosystem conversion Improved land use management Ecosystem restoration

Project indicators	Historical (2018-2019)	Added/Issued this period (2020)	Total
No. smallholder households with PES agreements (where applicable)	0	0	0
No. community groups with PES agreements (where applicable)	10	0	10
Approximate number of households ) in these community groups (if known)	895	0	895
Area under management (ha) where PES agreements are in place	1,393	0	1,393
Total PES payments made to participants (USD)	0	11,666	11,666
Total sum held in trust for future PES payments (USD)	0	20,000	20,000
Allocation to Plan Vivo buffer to date (tCO <sub>2</sub> )	0	0	0
Saleable emissions reductions achieved (tCO <sub>2</sub> )	2,742	1,371	4,113
Unsold Stock at time of submission	0	0	0
Total Unsold Stock (PVC)			0
Plan Vivo Certificates (PVCs) issued to date <sup>1</sup>			0
Plan Vivo Certificates requested for issuance (2020 Vintage)			0
Plan Vivo Certificates available for future issuance			4,113
Total PVCs issued (including this report)			0

<sup>1</sup> Please note credits were approved, but not issued, due to policy blockages described in section 'A2 Successes and challenges'

## Part A: Project updates

### A1 Key events

#### Capacity building of the monitoring and evaluation committee (CSE)

In collaboration with Wildlife Conservation Society (WSC), capacity building of the members of CSE on the Law Enforcement Monitoring/Spatial Monitoring and Reporting Tool (LEM/SMART) was held in December 2020 in the Village of Andavadoaka. The aim of this was to strengthen the mangrove forest patrols within the project area using this tool. Each member of CSE was provided with a smartphone containing the LEM/SMART software to record and easily report infractions happening in the mangrove forest.



*LEM/SMART training in the village of Andavadoaka*

#### Signature of the MoU between the Velondriake Association and head of Primary school

Communities from the ten villages concerned by the Tahiry Honko project agreed during the benefit sharing consultations that some of the money from the 50% of their part from the sale of carbon credits will be used to pay their kids' school fees. To ensure the education of their kids, the members of the community through the Velondriake Association agreed on establishing MoU between Velondriake association (as the manager of the carbon funds) and the head of primary schools.





*Meeting between the Velondriake Association leaders and the parent of kids from the primary school*

## **A2 Successes and challenges**

### *Successes*

- The Tahiry Honko project was successfully registered in June 2020 (PV\_2020\_023) under the Plan Vivo standard.
- A Markit account was successfully opened.
- In total, 911 school childrens at the primary state and catholic school within the project area received school subsidiaries from the cash advance of the carbon revenue.



*Payment of the school fees from the cash advance of the 2018 carbon revenue*

### *Challenges*

- The official sale of the verified carbon credits in the country continues to be on pause until the national REDD+ decree regulating the sale of verified carbon credits is enacted by the Malagasy government. Again, this is preventing the project from requesting certificate issuance. Reasonably

so, this has proved unsettling for the community members who have spent years protecting and managing their mangroves, having already decided on their benefit sharing scheme and officially launching the project. To address this challenge, Blue Ventures has advanced funds to the association in order to pay the school fees of all of the school children enrolled at the state and catholic primary schools in the Tahiry Honko project villages, as prioritised in their benefit sharing scheme.

- While the revision of the text prohibiting the mangrove harvest in the country continues to be delayed, the practice of this sustainable harvest quota is still on hold. However, the results of monthly infractions monitoring carried out by the CSE have shown that the number of mangroves cut stumps remains within the quotas (see Section E1).

### A3 Project developments

No update.

### A4 Future Developments

No future development is currently planned but the success and lessons learned from the Tahiry Honko project were shared with Teariake locally managed marine area (LMMA) association, who manages an LMMA north of the Velondriake LMMA, where the project takes place.

## Part B: Project activities

### B1 Project activities generating Plan Vivo Certificates

Table B1: Project activity summary

Name of technical specification	Area (Ha)	No smallholder households	No Community Groups
<i>Prevention of ecosystem conversion</i>	257	895	10
<i>Improved land use management</i>	973	895	10
<i>Ecosystem restoration</i>	163	895	10

### B2 Project activities in addition to those generating Plan Vivo Certificates

- *Plantation of terrestrial native and fruit trees*

Six nurseries with 998 *Cordyla madagascariensis*, a native terrestrial tree species, and 4,346 fruit trees are established in three villages including Befandefa, Tampolove and Andavadoaka. The village of Andavadoaka is outside of the project area but still within the Velondriake LMMA. In total, 670 *Cordyla madagascariensis* and fruit trees were planted in Andavadoaka and Befandefa in 2020.

Village	Group	Date	Species	Total seedlings
Befandefa	Beekeepers	23/01/2020	<i>Cordyla madagascariensis</i> , <i>Cedrelopsis</i> , orange, boy, kily, kapaipoty	2,006
Befandefa	Conservation Clubs	30/01/2020	<i>Cordyla madagascariensis</i> , boy, papay	543

Tampolove	Conservation Clubs	10/07/2020	Acacia, rosewood, Vazoa, Mendoravy, Corossol, Taly, Grenadine	1518
Andavadoaka	Women Association	22/10/2020	Taly, Boy, Beholitsy	165
Andavadoaka	Women Association	04/11/2020	Papay	106
Andavadoaka	Women Association	17/12/2020	Papay, Beholitsy, Kapaipoty, rosewood	1,006
TOTAL				5,344



*Conservation club in Tampolove filling polybag for nursery & nursery of fruits trees in Andavadoaka*

- ***Mangrove beekeeping***

The beekeepers within three villages have successfully proceeded with the first harvest of mangrove honey. The total amount of harvest in February and May 2020 is 136.3 Kg. The beekeeping activity is extended to six new villages (Vatoavo, Ampasimara, Lamboara, Ankilimalinike, Ankitambagna and Tampolove) within the project area and in one village (Ambalorao) outside of it. A total of 80 new beekeepers joined in 2020.





First mangrove honey harvest

- **Seaweed and sea cucumber farming**

In the reporting period, 345 farmers in 7 villages have harvested 427,290 Kg (dry weight) of seaweed, *Kappaphycus alvarezzi*, and 78 farmers in Tampolove harvested 34,580 piece of marketable sea cucumber, *Holothuria scabra* (with a weight of over 400g per piece).



Seaweed drying

## Part C: Plan Vivo Certificate issuance submission

### C1 Contractual statement

This issuance is based on signed payment for ecosystem services (PES) agreements with village leaders, as the representatives of the residents of the ten villages in the project area, who have complied with all requirements in the PES agreements.

## C2 (b) Issuance request for projects where issuance is made on the basis of ongoing activities on land already managed by the project (e.g. avoided deforestation, calculated ex-post).

Table C2 (b): Statement of tCO<sub>2</sub> reductions available for issuance as Plan Vivo Certificates based on activity for reporting period January 2020 to December 2020

Management Plan zone	Total area (ha)	Tech. Spec	Saleable ER's (tCO <sub>2</sub> ) available from previous periods*	Total ER's (tCO <sub>2</sub> ) achieved this period**	% Buffer	No. of PVCs allocated to buffer from ER's achieved this period	Saleable ER's (tCO <sub>2</sub> ) from this period	Issuance request (PVCs)	ER's (tCO <sub>2</sub> ) available for future issuances
Strict conservation	257	Prevention of ecosystem conversion	238	140	15	21	119	0	357
Sustainable use	973	Improved land use management	844	497	15	75	422	0	1,266
Reforestation	163	Ecosystem restoration	1,660	977	15	147	830	0	2,490
<b>TOTAL</b>	<b>1,393</b>		<b>2,742</b>			<b>243</b>	<b>1,371</b>	<b>0</b>	<b>4,113</b>

\*Number of tCO<sub>2</sub> sequestered or avoided emission through participants' activities in previous reporting periods which have not yet been issued as PVCs

\*\* Number of tCO<sub>2</sub> sequestered or avoided emission through participants' activities this reporting period.

## C3 Allocation of issuance request

Not applicable as we are not requesting for issuance until policy blockages are resolved.

## C4 Data to support issuance request

The targets for the prevention of ecosystem conversion, improved land use management and ecosystem restoration have been met. As detailed in Section E, the monitoring results show no decrease in the DBH within standard error (SE) (Annex 1.1); communities have planted over 10 ha of degraded mangrove forest (Annex 1.2) with survival rate over 88% (Annex 2.1).

## Part D: Sales of Plan Vivo Certificates

### D1: Historic sales of Plan Vivo Certificates

These credits have been allocated to buyers but payments are pending for these as the delay of the official promulgation of the REDD+ Decree, which regulates the sale of carbon credits in Madagascar, has put the sale of Plan Vivo Certificates on hold.

Table D1: Historic Sales of Plan Vivo Certificates

Vintage	Buyer	No of PVCs	Price per PVC (\$)*	Total sale amount (\$)*	Price to participants per PVC (\$)*	% Sale price received by participants
2018	My Climate	943				
2018	Only One	428				

\*Pricing reported for internal monitoring purposes only. Pricing information will be removed from the final published document.

## Part E: Monitoring results

### E1: Ecosystem services monitoring

Nine indicators are to be monitored to evaluate the success of project activities and determine whether the targets have been met. Green indicates that annual threshold target has been achieved, amber (Level 1 mitigation required) indicates that, over the past year, the indicator has failed to reach the green level, and red (Level 2 mitigation required) indicates that a significant shortfall has occurred.

Specific: Characteristic		Measurable: Indicators		Attainable				
Ecosystem services benefits		Target	Green	Amber Level 1 mitigation	Mitigation measures	Red Level 2 mitigation	Mitigation measures	Impact on PES payments
Tahiry Honko	Carbon plots: change in average dbh	No decrease within SE	no decrease within SE	< 10% decrease outside SE	Review management plans and adjust activities, quotas or zones, if necessary Increase forest patrols Meet with communities to ensure "no harvest within conservation zones" is understood and respected Ensure signs delineating zones are present	> 10% decrease outside SE	Review management plans and adjust activities, quotas or zones, if necessary  Increase forest patrols Adjust management zones to enlarge conservation areas Reduce quotas in sustainable use areas	(Reduce PES to communities by 10% until average dbh stabilises (no further decrease))
	Number of stumps (harvest not allowed in TH)	No harvest in conservation zones Below quotas for sustainable harvest in sustainable use zones	Less than 5% of number of trees/ha are cut	Between 5% to 15% of number of trees/ha are cut		Greater than 15% of number of trees/ha are cut		
Forest area	Area replanted (in first 16 years)	10 ha/year for first 16 years	10 ha/yr	Between 7 and 9 ha/year	With communities, plan additional reforestation events to increase hectares planted	< 7 ha/yr	With communities, plan additional reforestation events to increase hectares planted Hold community meetings to discuss reasons for low numbers of reforested hectares	Reduce PES by percentage of shortfall in reforested hectares over any 5-year period if mitigation measures do not succeed
	Survival rate	>60% survival rate	>60% survival rate	30% to 59% survival rate	With communities, have areas with low survival fill planted	< 30% survival rate	With communities, have areas with low survival fill planted Investigate possible causes of mortality and address these	
Drivers of degradation	Infractions for illegal logging	% of Dina infractions enforced	> 80% of Dina infractions are charged when individuals responsible are identified	60 - 79% of Dina infractions are charged when individuals responsible are identified	Meet with KMD and VA to review infractions that were not charged Charge any additional infractions	< 60% of Dina infractions are charged when individuals responsible are identified	Meet with Chef Cantonment and regional authorities to reinforce authority of KMD to charge infractions Provide additional training and awareness raising on importance of charging infractions Charge any additional infractions	
	Number of patrols	Target = 16 per month	Annual average ≥ 16/month	Annual average between 10 and 15/month	Review with CSE supervisor reasons for lower number of patrols Provide additional training and support for CSEs, if necessary	Annual average < 10/month	Review with CSE supervisor reasons for lower number of patrols Provide additional training and support for CSEs, if necessary Recruit new and/or additional CSEs, if necessary	

The table below summarises the monitoring result and status of thresholds.

Due to the Covid-19 restriction, the community was not able to replant mangrove from April to September 2020. Therefore, the goal to replant 10 hectares of degraded mangrove was not reached. We plan to update the indicator to define figures between 9-10 hectares as green in the five-yearly review of the PDD.

In order to increase the efficiency of the patrols (time and cost), the approach for the mangrove forest patrol was changed. Each CSE was assigned to work in their respective conservation zone in a total of 12 areas. The maximum number of patrols per month is therefore 12, which is lower than the initial 16 patrols per month agreed. We plan to update the indicator in the five-yearly review of the PDD.

Intervention	Indicator	Target	Monitoring result	Threshold
Tahiry Honko	Carbon plot: change in average DHB	No decrease within SE	no decrease within SE on the mean DBH <a href="#">Annex 1.1</a>	Green
	Number of stumps	No harvest in conservation zone Below quota on sustainable use	Increase is within the sustainable harvest quotas <a href="#">Annex 1.1</a>	Green
Forests area	Area planted (ha)	10ha/year	9.7 <a href="#">Annex 1.2</a>	Green



	Survival rate (%)	> 60% survival rate	90% <a href="#">Annex 2.1</a>	Green
Drivers of deforestation	Infraction for illegal harvesting	% of infraction enforced	No infraction recorded	Green
	Number of patrols	16 patrols/month	11.6 patrol/month <a href="#">Annex 2.2</a>	Amber

## E2: Maintaining commitments

No participants have resigned from the project this year.

## E3: Socioeconomic monitoring

Other monitoring								
Institutional indicators	Capacity & activity level of VA	Number of meetings per year	4 or more per year	2 to 4 per year	Review minutes of the VA meetings held Meet to discuss requirements for project co-management	Less than 2 per year	Review schedule and minutes of VA meetings Provide additional capacity building in association management	
	Effectiveness of CSE monitors	Auditing of CSE work	90% of audited reports were accurate	Between 60 and 89% of audited reports were accurate	CSE supervisor to evaluate work of CSEs and provide additional training, if necessary	Less than 60% of audited reports were accurate	CSE to evaluate work of CSEs and provide additional training Replace CSEs with new hires, if necessary	
	Number of grievances handled according to procedure	> 90% of grievances received were handled according to procedure	> 90% of grievances received were handled according to procedure	Between 70 and 90% of grievances received were handled according to procedure	Co-managers to meet with Civil Society of Tollara and review grievances that were not handled properly Co-managers to undergo additional training on grievance procedures, if necessary	< 70% of grievances received were handled according to procedure	Civil Society of Tollara asked to review all grievances over the past year and recommend changes to the procedures, if necessary Co-managers to undergo additional training on grievance procedures	

In total, 14 meetings were held by the Velondriake Association in 2020 including 02 General Assembly, 11 meetings of the executive committee board, 01 meeting for the southern group and where the Tahiry Honko project is located. Further details are found in [Annex 4](#). No complaints about the project have been received through the established grievance mechanism or otherwise.

Intervention	Indicator Target	Monitoring	Result	Threshold
Institutional indicators	Capacity and activity level for the Velondriake Association	Number of meetings	Velondriake Association held 14 meetings <a href="#">Annex 4</a>	Green
	Effectiveness of the CSE	Audit of CSE work	CSE work audited	Green
	Number of grievances handled	90% of grievance was handled according to procedure	No complaint received	Green

## E4: Environmental and biodiversity monitoring

A baseline biodiversity survey in mangrove forest at the project area was undertaken in February 2018. Four species inventoried in the project area including *Pteropus rufus*; *Geckolepis typica*; *Vanga curvirostris* and *Coua verreauxi*, are recommended to be monitored every five years throughout the project period. The objective is to assess the trend of their population which correlates to the status of mangrove's health. The next survey is therefore scheduled in 2023.

In 2020, the CSE were given full training on the Law Enforcement Monitoring/Spatial Monitoring and Reporting Tool (LEM/SMART). This tool will help to easily record and report the infractions happening in the mangrove forest and also to assess the performance of the CSE.



## Part F: Impacts

### F1: Evidence of outcomes

All of the school children enrolled in state and catholic primary schools at the project area benefitted a scholarship from the advance to the carbon revenue. Detail found in [Annex 6](#).

## Part G: Payments for Ecosystem Services

### G1: Summary of PES by year

Table G1: Summary of payments made and held in trust

1. Reporting year (mm/yy – mm/yy)	2. Total previous payments (previous reporting periods)	3. Total ongoing payments (in this reporting period)	4. Total payments made (2+3)	5. Total payments held in trust	6. Total payments withheld
2018	0	0	0	0	0
2019	0	0	0	0	0
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Part H: Ongoing participation

### H1: Recruitment

No recruitment occurred in 2020.

### H2: Project Potential

No update.

### H3: Community participation

Communities within the 10 villages participating in the Tahiry Honko project took part in the decision-making process on the uses of the Tahiry Honko carbon revenue (school subsidiaries for the primary school). The details of the meeting are found in [Annex 7](#). Children who benefitted the school subsidies from the ten villages participated in reforestation activities (both terrestrial trees and mangrove reforestation). They do it to ensure that the school subsidies are sustainable through mangrove conservation. During 2020, over 880 people participated in mangrove replanting activities ([Annex 1.2](#)).



*School kids participated in mangrove reforestation activities in the village of Befandefa*

## Part I: Project operating costs

### I1: Allocation of costs

Table I2: Allocation of costs

Expense	Narrative	Amount (if possible in USD\$)	Contribution from sale of PVCs	Contribution from other source
Mangrove replanting	Mangrove replanting and monitoring of replanting survival rate	348 USD or 1,217,500 MGA or	0	Startup funding: Critical Ecosystem Partnership Facility (CEPF)
Forest patrols	Cost of the food allowance and equipment (paint, printing field sheet, etc..) for the of the CSE (local patrollers)	10,028 USD or 35,100,000 MGA	0	Startup funding: UK government
Management cost	21 Meeting of the VA executive committee	882 USD or 3,087,000 MGA	0	Startup funding: UK government

Social investment (Community project)	Payment of the school fees of the 911 school children enrolled at state and catholic primary school within the 10 villages	2,484 USD or 8,694,000 MGA	0	From cash advance from Blue Ventures funds. This advance contributes to the community portion (60%).
	<b>TOTAL</b>	13,742 USD or 48,098,500 MGA	0	

1USD=3,500 MGA

MGA\*: Malagasy ariary (local currency)

## Annexes

### Annex 1. Monitoring results for issuance request

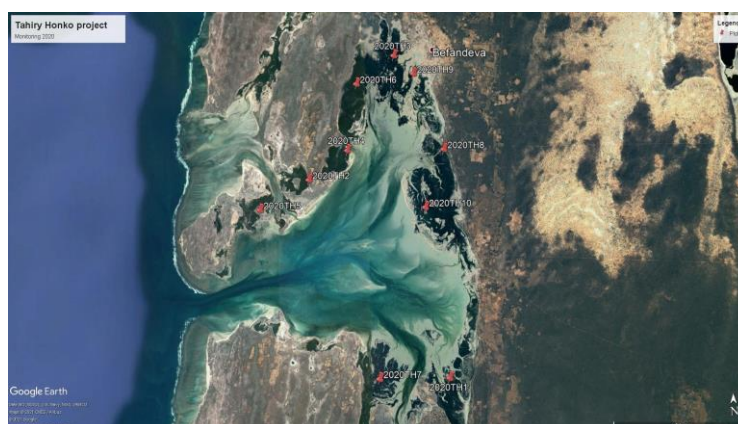
#### ***Annex 1.1. Prevention of Ecosystem conversion - Strict Conservation and Sustainable Use***

To assess whether carbon sequestration is maintained or is increasing, tree measurements within one fifth (tot=10 plots) of the carbon plots established in the project area in 2014/2015 were re-taken. The measurement in 10 plots of 20mx20m was carried out within the sustainable zone area.

Table Annex 1.1.a - Mean change in mangrove dbh and number of stumps from 2014/15 to 2020

Management zone	Forest attributes	2014/2015	2020	Mean change	Target status
Sustainable use #plot: 10	Stump density (ha-1)	581.59 (183.91)	977.50 (433.56)	430	Increased but within harvest quotas
	DBH (cm)	8.52 (0.76)	8.75 (0.69)	0.22	No decrease within SE

Where DBH: Diameter at Breast Height; SE: Standard Error



Map of the carbon stock plots remeasured

Table annex 1.1.b - Result of the carbon stocks monitoring

PLOTID	SiteName	Zone	+	-	Mean DBH 2014/2015 (cm)	Mean DBH 2021 (cm)	Difference in DBH (cm)	Stump density 2014/2015 (ha-1)	Stump Density 2021 (ha-1)	Difference in stump (cm)
CC_07	Vatoavo	Sustainable use	325431	7539844	10.18959928	11.99329542	1.803696137	175	650	475
CC_21	Lamboara	Sustainable use	321242	7545843	4.514491174	5.596835956	1.082344782	725	4775	4050
CC_42	Befandefa	Sustainable use	323932	7549734	7.129491839	7.533436986	0.403945147	75	75	0
CC_QT_02	Ampengoke	Sustainable use	322440	7546740	8.880256362	9.942128433	1.061872072	1200	875	-325
CC_QT_11	Lamboara	Sustainable use	319736	7544937	7.085246877	7.500588301	0.415341424	0	100	100
CC_TH_07	Andima	Sustainable use	322746	7548841	8.787849407	8.980542883	0.192693476	150	275	125
OC_QT_03	Agnolignoly	Sustainable use	323337	7539845	10.01018277	10.17466298	0.164480203	550	650	100
OC_QT_09	Befandefa	Sustainable use	325434	7546736	10.2528712	7.236158131	-3.01671307	450	950	500
OC_QT_17	Befandefa	Sustainable use	324540	7549144	12.65475889	11.93544181	-0.71931708	300	550	250
OC_TH_11	Ampasimara	Sustainable use	324821	7544946	5.768615956	6.61206467	0.843448714	1850	875	-975
				Number of plots with increasing dbh:		8		7 Number of plots with increasing cut stump		
				Number of plots with decreasing dbh:		2		2 Number of plots with decreasing cut stump		
								1 no change in cut stump		
				Mean dbh change		0.22		430.00 Mean stump change		
				SE Reference value dbh 2021:		0.69		433.54 SE Reference value stump 2021		

**Table annex 1.1.c - Allowable cutting vs. stump density from annual monitoring**

The Monitoring Plan “Green” target stated that stump density doesn’t exceed the harvest quota within the Sustainable Harvest Zones (SUZ). This practically means that stump density from the annual monitoring should not be greater than the annual allowable cutting quotas (AC/yr) defined in the management plan (PAG) document. On the contrary, if the per hectare stump density exceeds the per hectare annual allowable cutting (AC/ha/yr), we need to determine the difference and review threshold (Amber or Red). Thus, we are aiming to determine whether the stump density (as a proxy for harvesting) exceeds the allowable cutting quotas.

### Determination of annual quota at ha - level

Annual allowable cutting quotas have been estimated for the entire SUZ in the PAG document, which are 77,989 (timber fence, DBH<5cm) and 55,317 (timber house, DBH>=5cm) for 1,091.6 ha of mangroves. It implies that the total annual allowable cutting AC/yr = 77,989 + 55,317 = 133,306 trees (all size). As the monitoring results are reported per ha, we need to determine the annual quota at ha-level for both diameter class sizes within the SUZ:

$$AC/ha/yr = 133,306 / 1,091.6 = 122.1 \text{ trees/ha/yr}$$

### Determination of the mean stump density

It is very important to note that the baseline monitoring was carried out in 2014/2015. Local people have continued to use the mangroves since the baseline year, in particular the family of Rhizophoraceae. Therefore, the difference between stump density in 2014/2015 and the monitoring date can be defined as the cumulative cutting since 2014/2015. As the sustainable harvest quotas are annual, for the purpose of this analysis the results have been annualised by dividing by the number of years between 2014/2015 and the date of monitoring.

## Results

The mean stump densities (SD) in 2014/2015 and the plots re-measured in 2021 (when the 2020 monitoring took place) are:

$$2014/2015 \text{ SD (/ha)} = 547.5$$

$$2020 \text{ SD (/ha)} = 978$$

$$\text{Annualised SD (/ha/yr)} = (978 - 547.5) / (2021 - 2015) = 71.7$$

In conclusion, for the 2020 reporting period, the result of the monitoring conducted in 2021 showed that stump density (SD) within the SUZ plots re-measured did not exceed the annual allowable cutting (AC/ha/yr).



71.7 (SD/ha/yr) << 122.1 (AC/ha/yr).

## Annex 1.2. Mangrove replanting

The community at the 10 villages has planted 9.69 ha of their mangrove degraded area with 39,712 mangrove trees including *Ceriops tagal*, *Bruguiera gymnorrhiza* and *Rhizophora mucronata*. Due to the Covid-19 restriction, the community was not able to replant mangrove from April to September 2020. The goal to replant 10 hectares of degraded mangrove was not reached. As discussed above in Part E section 1, we plan to update the PDD to incorporate figures between 9-10 hectares as green.

Year	Date of reforestation	Village	Area planted (ha)	Total participant	<i>Ceriops tagal</i>	<i>Bruguiera gymnorrhiza</i>	<i>Rhizophora mucronata</i>	Total Planted
2020	Feb-22	Lamboara	0.94	42	4121	495	173	4,789
2020	Feb-25	Ankindranoke	0.77	86	1,372	107	1,289	2,768
2020	Feb-26	Befandefa	0.31	182	510	0	2769	3,279
2020	Feb-27	Ampasimara	0.23	27	0	30	1600	1,630
2020	Feb-28	Ankilimalinike	0.11	22	336	37	416	789
2020	Mar-03	Vatoavo	1.16	118	0	2827	1,078	3,905
2020	Mar-06	Tampolove	0.46	28	5929	26	490	6,445
2020	Mar-07	Befandefa	0.87	59	0	0	1,653	1,653
2020	Oct-14	Agnolignoly	0.77	72	816	1	4	821
2020	Oct-17	Ampisorogna	0.56	30	2000	0	0	2000
2020	Oct-18	Lamboara	0.77	95	2,880	16	0	2,896
2020	Dec-05	Ankilimalinike	1	15	2,778	0	0	2,778
2020	Dec-06	Ankindranoke	0.9	50	590	2461	78	3,129
2020	Dec-07	Ankitambagna	0.61	28	2,080	20	30	2,130
2020	Dec-08	Ampisorogna	0.23	28	700	0	0	700
TOTAL			9.69	882	24,112	6,020	9,850	39,712

## Annex 2. Ongoing monitoring results for all participants

### Annex 2.1. Mangrove replanting survival rate monitoring

The average survival rate of the plantation in 10 sites conducted in February and March 2020 is 90%. The survival rate monitoring of the 05 sites replanted in October and December 2020 will not be available until

2021 because referring to the Standard Operating Procedure for Mangrove Plantation Monitoring, each plantation should be surveyed at 3, 6, 12, 24 and 36 months of age.

Year	Date of reforestation	Village	Site	Area planted (ha)	Survival rate (%)	Date of survey
2020	Feb-22	Lamboara	Tsibekoy	0.94	96	18/06/2020
2020	Feb-25	Ankindranoke	Antsaragnamahalako 3	0.77	100	23/06/2020
2020	Feb-26	Befandefa	Bevoa 3	0.31	100	22/06/2020
2020	Feb-27	Ampasimara	Antsimo antanana	0.23	100	24/06/2020
2020	Feb-28	Ankilimalinike	Ankokoabo 7	0.11	100	25/06/2020
2020	Mar-03	Vatoavo	Bekobay2	1.16	66.3	17/06/2020
2020	Mar-06	Tampolove	Antsahandolo tampolove 3	0.46	80.0	16/06/2020
2020	Mar-07	Befandefa	Bevoa 6	0.87	94.4	26/06/2020
2020	Oct-14	Agnolignoly	Bevahoho 8	0.77	NA	
2020	Oct-17	Ampisorogna	Bejoho 1	0.56	NA	
2020	Oct-18	Lamboara	Antranon'Alika 1	0.77	NA	
2020	Dec-05	Ankilimalinike	Ankonkoabo 8	1	NA	
2020	Dec-06	Ankindranoke	Antsaragnan'imerici2	0.9	NA	
2020	Dec-07	Ankitambagna	Antsahandolo 3	0.61	NA	
2020	Dec-08	Ampisorogna	Bejoho 2	0.23	NA	
			<b>Total area planted (ha)</b>	<b>9.69</b>	<b>90.1</b>	<b>Average survival rate (%)</b>



*CSE undertaken survival rate survey of the mangrove replanting*

## **Annex 2.2. Forest monitoring and patrolling**

The number of patrols was lower than the target number, 16 patrols per month. From 2019, the approach for the patrol activity was changed. Each of the 12 CSE carried out patrols within their respective conservation zone every month, meaning that the maximum number of patrol is 12 per month or 144 patrols/year. This new approach minimised the cost of the forest patrol activity as accommodation and transport of the CSE does not have to be paid when working in their respective villages. For this reporting year, 139 patrols were carried out by the 12 CSE which is lower than the target 144 patrols per year. The patrol did not occur within the four villages including Ampasimara, Befandefa, Ankindranoke and Agnolignoly.

Village	Name	Sex	Role	Site Tahiry Honko	J	F	M	A	M	J	J	A	S	O	N	D	Tot
Lamboara	Christie	M	CSE	Bejoho	1	1	1	1	1	1	1	1	1	1	1	1	12
	Alphine	F	CSE	Anky	1	1	1	1	1	1	1	1	1	1	1	1	12
Ankilimalinike	Manovoson	M	CSE	Tsibekoy	1	1	1	1	1	1	1	1	1	1	1	1	12
Ampasimara	Emile	M	CSE	Ampandriambagna	0	1	1	1	1	1	1	1	1	1	1	1	11
Befandefa	Norbert	M	CSE	Andamalama	0	1	1	1	1	1	1	1	1	1	1	1	11
Ankindranoke	Baranda	M	CSE	Ampotapotaky	0	1	1	1	1	1	1	1	1	1	1	1	11
	Mampionina	M	CSE	Andalantsarety	0	1	1	1	1	1	1	1	1	1	1	1	11

Vatoavo	Naie	M	CSE	Ampanihy	1	1	1	1	1	1	1	1	1	1	1	1	12
Andalam-bezo	Andre Fenty	M	CSE	Antseragnan-daka	1	1	1	1	1	1	1	1	1	1	1	1	12
Agnolignoly	Velomama	M	CSE	Ankatsakitsimbogna	0	1	1	1	1	1	1	1	1	1	1	1	11
Tampolove	Jean Noely	M	CSE	Antsahandolo	1	1	1	1	1	1	1	1	1	1	1	1	12
Ankitambagna	Falea	M	CSE	Antsahandolo	1	1	1	1	1	1	1	1	1	1	1	1	12
Andavadoake	Dany	M	CSE Leader	NA	0: Patrol not occurred and 1: patrol occurred; Total patrol= 139												
Andavadoake	Patty	M	Supervisor	NA													

### Annex 3. Reallocation of commitments

Not applicable

### Annex 4. Governance and management meetings

The table below summarises the meeting of the Velondriake Association

Date	Meeting	Purposes and Outcomes
15-16-17 January 2020	Foibe meeting	<ul style="list-style-type: none"> <li>- Brainstorming session on changing the articles concerning the internal regulations of the Velondriake LMMA programmes</li> <li>- Film screenings and presentations on the development of the permanent reserve</li> <li>- Gathering information on Risk and Disaster Management by Action Contre la Faim (ACF)</li> <li>- Presentation and validation of questionnaires and tools to record infractions to the Dina</li> <li>- Other: discussions on school opening day in Antsatsamandika, on the date for the General Assembly of the Velondriake Association, and on the establishment of a Health Centre</li> </ul>
07 February 2020	Foibe meeting (executive committee)	<ul style="list-style-type: none"> <li>- Collection of feedback from the Vondrona</li> <li>- Review, validation and signing of PES agreements for Tahiry Honko by representatives of 10 villages in the Bay of Assassins, Velondriake Association, and Blue Ventures</li> <li>- Discussions on plans for diving training and security in the Velondriake LMMA</li> </ul>
08 -09 February 2020	General Assembly	<ul style="list-style-type: none"> <li>- Beach clean and reforestation of 150 trees</li> <li>- Presentation of the progress of the sustainable seaweed aquaculture project by Ocean Farmers</li> <li>- Presentation and discussion of the results of CSE monitoring</li> <li>- Discussion on the amendment of the Dina for the Velondriake LMMA</li> <li>- Presentation on HIV data in Velondriake, discussions on banning the use of condoms in the sea, discussion on mosquito nets</li> <li>- Screening of a film about the permanent reserve</li> </ul>



12-13 March 2020	Foibe meeting (executive committee)	<ul style="list-style-type: none"> <li>- Collection of news and feedback from the Vondrona</li> <li>- Group discussions on the functions of the Dina and Velondriake Committees</li> <li>- Presentation of results from mangrove monitoring between January and February 2020</li> <li>- Report on the diving training and discussions on results and next steps</li> <li>- Discussion on per diems for the Velondriake and <i>Dina</i> committees, and local authorities</li> <li>- Discussion on transfer of management from Blue Ventures to Velondriake Association</li> <li>- Discussion on how to pay the scholarships for school children in the Bay of Assassins</li> </ul>
04-05 June 2020	Foibe meeting (executive committee)	<ul style="list-style-type: none"> <li>- Discussion on how to pay the scholarships for school children in the Bay of Assassins</li> <li>- Discussion on field mission to Bejoho to patrol and raise awareness on the banning of poison fishing</li> </ul>
03 July 2020	Biweekly meetings between Blue Ventures and Velondriake Association	<ul style="list-style-type: none"> <li>- Discussions on the management of the beekeepers in the Bay of Assassins</li> <li>- Discussions on the use of the Velondriake boat</li> <li>- Discussions on the no-take zones</li> <li>- Discussions on the sea cucumber farming committee</li> <li>- Presentation by Andavadoaka children on the impact of fishing on ecosystem health</li> </ul>
10 July 2020	Meeting Vondrona	<ul style="list-style-type: none"> <li>- Evaluation and development of action plan</li> </ul>
16 July 2020	Meeting between the Foibe executive committee and Blue Ventures	<ul style="list-style-type: none"> <li>- Discussions on beekeeping governance, improving the permanent reserves, the methods for octopus fishing, aquaculture, and the results from the Tahiry Honko monitoring</li> </ul>
13-14 August 2020	Foibe meeting (executive committee)	<ul style="list-style-type: none"> <li>- Discussions on Vondrona reports, validation of the beekeeping management structure, and presentation on the no-take zone by the science team</li> </ul>
18 September 2020	Meeting between the Foibe executive committee and Blue Ventures	<ul style="list-style-type: none"> <li>- Summary of the feedback from the patrols; identification of problems and solutions to improve the patrols and development of an action plan</li> </ul>
16 October 2020	Meeting between the Foibe executive committee and Blue Ventures	<ul style="list-style-type: none"> <li>- Update on <i>Tahiry Honko</i>, beekeeping, fisheries management, aquaculture and education</li> </ul>
29-30 October 2020	Foibe meeting (executive committee)	<ul style="list-style-type: none"> <li>- Discussion on improving strategies to improve patrols</li> <li>- Report on the buoys of the no-take zone</li> <li>- Discussion</li> </ul>
21 November 2020	Assemblée Générale extraordinaire	<ul style="list-style-type: none"> <li>- Consultations on the 2021-2025 plan</li> </ul>

04 December 2020	Reunion Foibe (comite executive)	<ul style="list-style-type: none"> <li>- Discussion on the improvement of the patrol teams in the Velondriake zone and appointment and fixing of the final list of patrollers in the Velondriake zone</li> <li>- Report on the new nursery zone in Ankindranoke</li> <li>- Appointment of Dina leaders at the centre. Their role is to supervise the implementation of the <i>Kabary</i>, to supervise the application of the <i>Vono dina</i> ( fines) and to remind each actor to fulfil their role in the dina application circuit, whether at the KMD, the Velondriake association, the commune, the district or the court.</li> </ul>
------------------	----------------------------------	--

#### Meeting of the Dina Enforcement committee

Date	Type	Activity
02 - 03 December 2020	Dina committee meeting	<ul style="list-style-type: none"> <li>- Discussion on improving strategies to improve patrols</li> <li>- Discussions on the roles of each institution in applying the Dina</li> <li>- Validation of a new Dina committee model that eliminates vondrona-level committees</li> </ul>

#### Training and Capacity building

Date	Type de formation	Activity
21 July 2020	Training of the secretary on their responsibilities	Role and responsibilities, tools, practical exercises

### Annex 5. Conservation and monitoring results

A baseline biodiversity survey in mangrove forest at the project area was undertaken in February 2018 and the next survey is scheduled in 2023.

### Annex 6. Impacts

In total, 911 school children enrolled at the primary state and catholic school within the 10 villages have benefitted from a scholarship from the advance funds from the carbon revenue by Blue Ventures.

Village	Type of School	Number of scholars
Andalambezo	Primary Catholic School	81
Tampolove	Primary Catholic School	125
Agnolignoly	Primary Catholic School	74
Lamboara	Primary Catholic School	107
Vatoavo	Primary Catholic School	80
Ankindranoke	Primary State School	130
Befandefa	Primary State School	233
Ankilimalinike	Primary State School	60
Ankitambagna	Primary State School	21
TOTAL		911

### Annex 7. Community meeting records (summary)

Outreach tour within the 10 villages concerned by the Tahiry Honko project was conducted from 19th to 24th of February 2020. The purpose of this outreach was to provide communities an update of the achievement of the project and to decide on the uses of the Tahiry Honko carbon revenue (school subsidiaries for the primary school). Minutes for the meeting found [here](#).

Below are the summary of the community meeting about the Dina:

### Village meetings

Month	Type of meeting	Activity/purpose
February 2020	Results dissemination the amendment of the Dina	<ul style="list-style-type: none"> <li>- Dissemination of the results of Tahiry Honko activities 2019</li> <li>- Explanation and consultation on the payment of school fees</li> <li>- Sensitization on the mangrove management</li> </ul>
June	Community meeting	<ul style="list-style-type: none"> <li>- Payment of scholarship allowances for students in the ten Bay of Assassins villages in which the Tahiry Honko project has been funded.</li> <li>- Reinforcement of the commitments of the parents of the pupils and the communities in the villages on the conservation and the monitoring of the Tahiry Honko</li> <li>- Establishment of Tahiry Honko scholarship management committees</li> <li>- Signature of contract between Velondriake Association and establishments</li> </ul>
November	Consultations	<ul style="list-style-type: none"> <li>- Sensitization and consultation of parents of students receiving Tahiry Honko scholarship in the Bay of Assassins</li> <li>- Recruit new members of CSE in Ankindranoke and Tampolove</li> </ul>





*Community meeting and consultations*